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1887-8.

NEW SOUTH WALES.

VOTES

AND

PROCEEDINGS

OF THE

LEGISLATIVE ASSEMBLY

DURING THE SESSION

OF

1887-8,

WITH THE VARIOUS DOCUMENTS CONNECTED THEREWITH.

IN TEN VOLUMES.
VOL. VI.

SYDNEY :
CHARLES POTTER, GOVERNMENT PRINTER, PHILLIP-STREET.

1888.

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

VOTES AND PROCEEDINGS.

SESSION 1887-8.

IN TEN VOLUMES.

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1887.

NEW SOUTH WALES.

RAILWAYS AND TRAMWAYS

OF

NEW SOUTH WALES.

REPORT

BY

THE COMMISSIONER FOR RAILWAYS

FOR THE YEAR

1886.

Presented to Parliament by Command.



SYDNEY: CHARLES POTTER, GOVERNMENT PRINTER.

1887.

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1887.

NEW SOUTH WALES.

RAILWAYS OF NEW SOUTH WALES.
(REPORT FOR 1886.)

The Commissioner for Railways to The Honorable the Secretary for Public Works.

Department of Public Works,
Railway Branch,

Sydney, 20 July, 1887.

Sir,

I have the honor to submit a statement of the transactions of the Department for the year 1886. My acknowledgments are due to the officers who have aided me in the compilation of the various Tables and Returns which illustrate our operations.

No. 1.—RAILWAY CAPITAL AUTHORIZED.

The total amount which has been authorized to be raised by loans is £42,195,161. At the close of 1886 the total value of Debentures issued was £33,537,944. The amount still to be raised is £8,657,217. Railway Debt. Appendix Nos. 8 and 9, pp. 62 and 68.

The Railway capital bears interest at the rate raised and to be raised, as follows:—

£7,062,300—5 per cent.	...	...	...	...	annual interest	£353,115
£12,053,100—4	„	...	...	...	„	£482,124
£14,422,544—3½	„	...	...	...	„	£504,789
£8,657,217—3½	„	...	(still to be raised)	...	„	£303,002

2.—RAILWAY CAPITAL EXPENDED.

At the close of 1886 there had been expended on lines open for traffic £24,079,555* and on lines in course of construction £3,274,024; in all, £27,353,579, of which amount the sum of £2,390,608 was expended in the year 1886, as under:— Capital expended. Appendix Nos. 10 and 11. pp. 69 and 80.

Construction	...	...	...	...	£2,029,208
Rolling stock and machinery, &c.	...	...	...	...	356,386
Trial surveys	...	...	...	...	5,014
					£2,390,608

The sources from which the money expended on Railway Lines open for traffic have been obtained, are:—

From Loans	...	...	...	...	£23,313,567
„ Revenue	...	...	...	...	757,887
					£24,071,454†

3.—

* Includes cost of old Pitt-street Tramway, taken up in 1867, and £3,223 cost of rolling stock used on Camden Tramway.
† Excludes do do do do

3.—LINES OPEN AND IN PROGRESS.

Of the sum of £2,390,608 expended in 1886 for construction, the sum of £933,445 was expended on lines open for traffic, and the balance £1,457,163 invested in unproductive lines in course of construction.

Additions to Capital Account—Lines open for traffic.

In the year 1885 the capital invested in lines open was £21,831,276.* During 1886 a further sum of £2,240,178 was added, making the total capital invested £24,071,454.

Additions to
Capital
Account.

The amount of £2,240,178 was made up as follows, viz.:—

Amount transferred from Construction	
Account, &c.	£1,437,482
Expenditure during 1886 on construction, &c.	294,649
Additions and Improvements to Works and Stations, &c.	151,661
Additional Rolling Stock, Machinery, and Workshops, &c.	356,386

See detail in
Appendix 10a,
page 7.

Lines open.
Appendix No.
4, page 40.

The year 1886 opened with the mileage divided into the various lines as under:—

Southern.

Main Southern Line—Sydney to Albury... ..	Miles	388
South-Western Line—Junee to Hay, and Narrandera to Jerilderie ...		232
Darling Harbour Branch		1
Cooma Branch		40
Illawarra Branch		15
Junction Line between Southern and Western Systems		18
		<hr/>
		694

Western.

Main Western Line—Granville to Bourke	490
Richmond Branch—Blacktown to Richmond	16
Mudgee Branch—Wallerawang to Mudgee	85
Orange to Molong	22
	<hr/>
	613

Northern.

Main Northern Line—Newcastle to Glen Innes	323
North-Western Line—Werris Creek to Narrabri	97
Branches—Morpeth, Bullock Island, &c.	5½
	<hr/>
	425½
	<hr/>
Grand total	1,732½

The

* Excludes cost of the old Pitt-street Tramway, and cost of rolling stock used on the Camden Line, for which latter see Tramway Returns.

The following extensions were opened during the year 1886 :—

Extensions opened during 1886.

SOUTHERN.	Dates of Opening.	Miles.
Sutherland to Waterfall (Illawarra Line)	9 March, 1886	9
Cootamundra to Gundagai... ..	1 June, 1886	34
Homebush to Hornsby (Junction Line between Southern and Northern Systems)	17 September, 1886	14
Young to Cowra (Junction Line between Southern and Western Systems)	1 November, 1886	43
NORTHERN.		100
Glen Innes to Tenterfield	1 September, 1886	57
Total ... ..	.....	157

Making together a total of 1,889½ miles in operation at the close of the year.

The average mileage in operation for the whole period was 1,790.

Since the close of the year the following extensions have been opened, making a total of 1,916½ miles in operation at the present date :—

7th April, 1887—Hornsby to Hawkesbury	15 miles.
21st June, 1887—Clifton to Wollongong... ..	12 „
—————	
	27 miles.

On the 1st July, 1887, the tender of E. Pritchard & Co. was accepted for the construction of the railway from Pearce's Corner to the North Shore, a distance of 10 miles 69 chains; the amount of their tender is £112,768. The contract provides for what is known as the passenger line,—the branch to Ball's Head, which was originally proposed, and which was to allow of coal, &c., being taken to the water side, having been omitted.

At the present time the following lines are under construction :—

Lines under construction.

Extension.	Sections.	Length.	Date for Completion.	Remarks.
		Miles.		
Illawarra Line	Second Section	10	31 Dec., 1887	Part opened, 11 miles. " " 12 "
	Third Section	14	30 June, 1886	
	Fourth Section	10	31 Jan., 1887	
Homebush to Waratah.....	Hawkesbury Bridge	½	19 Nov., 1888	
	Hawkesbury to Gosford	14	30 Sept., 1886	
	Gosford to near Waratah.....	49	31 July, 1886	
Goulburn to Cooma	Bungendore to Michelago	48	30 June, 1887	
	Michelago to Cooma	39	30 „ 1888	
Murrumburrah to Blayney	Cowra to Blayney	45	30 „ 1887	
Northern Line	Tenterfield to Queensland Border..	11	31 Dec., 1886	
North Shore	North Shore to Pearce's Corner ...	11	31 „ 1888	
		251½		

In

Lines
authorized.

In addition, the estimated cost of the following lines has been voted, but, with the exception of the line from Nyngan to Cobar, the plans, &c., have not yet been approved by Parliament :—

Extension.	Miles.	Extension.	Miles.
SOUTHERN.		WESTERN.	
City Extension	1	Perth to Rockley	17
Tarago to Braidwood	31	Forbes to Wilcannia... ..	340
Gundagai to Tumut	33	Nyngan to Cobar	82
Goulburn to Crookwell	25	Orange to Forbes	60
Galong to Burrowa	18		
Wagga Wagga to Tumberumba	68	Total, Western	499
Culcairn to Corowa	45	NORTHERN.	
Kiama to Jervis Bay	41	Musclebrook to Cassilis	70
Bega to Eden... ..	40	Glen Innes to Inverell	45
Total, Southern	302	Grafton to Glen Innes	103
		Grafton to the Tweed	165
		Narrabri to Moree	61
		Total, Northern	444

The subjoined statement shows the position of the several railway schemes referred to above :—

Line.	Plans, &c., approved by Legislative Assembly.	Dealt with by Legislative Council.	Remarks.
City Extension.....	9 Sept., 1886	8 Oct., 1886	Referred by Legislative Council to a Select Committee which on the 21st October brought up a Progress Report, but had not completed its labours when Parliament was dissolved.
Tarago to Braidwood ...	16 Sept., 1886	14 " 1886	
Gundagai to Tumut.....	16 " 1886	14 " 1886	Plans, &c., approved by Legislative Assembly, but referred by the Legislative Council to Select Committee, which had not dealt with the matters when Parliament was dissolved.
Narrabri to Moree	14 " 1886	14 " 1886	
Glen Innes to Inverell...	15 " 1886	14 " 1886	
Grafton to The Tweed...	15 " 1886	14 " 1886	
Orange to Forbes.....	9 " 1886	8 " 1886	
Nyngan to Cobar.....	9 " 1886	8 " 1886	Plans, &c., approved by Legislative Assembly, but Legislative Council carried a motion for the making of a new trial survey along a fresh route.
Culcairn to Corowa	14 " 1886	14 " 1886	Approved by both Houses. Tenders were invited and received, but none has as yet been accepted, another route having been suggested.
			Plans approved by Legislative Assembly but not approved by Legislative Council.

Goulburn to Crookwell	} Plans laid on the Table of House as exhibits only.
Galong to Burrowa	
Kiama to Jervis Bay	
Wagga Wagga to Tumberumba...	} Plans not yet submitted to Parliament.
Perth to Rockley... ..	
Forbes to Wilcannia	
Bega to Eden	
Muswellbrook to Cassilis	
Grafton to Glen Innes	

The following is a summary of the Railways open, under construction, and authorized :—

Lines open	1,916½ miles.
Under construction	251½ "
Authorized by Vote of Funds	1,245 "
Total	3,413 miles.

4.—LAND TAKEN FOR RAILWAY PURPOSES.

The particulars of the whole of the land resumed to 31st December, 1886, for Railway purposes, will be found in Appendix No. 5, page 42.

Land resumed. Appendix No. 5, page 42.

The claims outstanding on the 31st December, 1885, were 549, to which 105 were added during 1886, making a total of 654 claims; of these 271 were settled in 1886, leaving at the close of the year 383 in various stages of adjustment; a large number of which have been settled during the present year.

5.—IMPORTATION OF RAILWAY MATERIAL.

In the Appendix will be found a return of the Permanent-way materials, locomotives, and miscellaneous articles imported during the year under review.

Appendix No. 6, p. 45.

The following is an abstract of the returns :—

Number of Ships employed.	Number of Tons of Goods shipped.	Value of Goods Shipped.	Amounts paid for Freight and Insurance.	Average rate of Freight and Insurance per Ton.
128	27,181	£ 298,327 s. 4 d. 2	£ *20,125 s. 12 d. 10 †2,361 s. 17 d. 8	s. 14 d. 9 $\frac{3}{4}$ 1 9

* Freight. † Insurance.

In the foregoing are included :—

	Weight in Tons.	Value.
Permanent-way materials for Authorized Extensions...	16,549	£ 110,635 s. 10 d. 5
" " Renewals	2,179	16,643 17 1
" " Duplication of Lines	489	2,945 16 8
" " Tramways	852	6,178 19 1
Miscellaneous items	7,112	161,923 0 11
	27,181	298,327 4 2

6.—EXISTING LINES.

Maintenance of Ways and Works.

During the year a large number of works were carried out. Those charged to the Capital Account have been scheduled, and the cost of each is shown in Appendix No. 10a.

Maintenance of ways and works. Appendix Nos. 1 and 10, pp. 1 and 69.

The report of the Engineer will be found in Appendix No. 1. He states that the whole of the works were maintained in good condition.

Several extensive works were carried out during the year. The Redfern Tunnel, which was widened to admit of four lines of rail running through it from the Illawarra Junction to the passenger station at Redfern, was completed, as was also the new viaduct over Long Cove Creek, near Petersham. The duplication of the line from Parramatta to Penrith was also completed during the year under review.

Locomotive and Carriage Division.

A considerable addition to the rolling stock was made in 1886, 496 vehicles having been added, particulars of which are given below:—

ABSTRACT of Rolling Stock on hand on 31st December, 1885, and the number and description of Vehicles supplied in 1886.

Locomotives.		Passenger.												Goods.												Total of all Vehicles.																	
Tank.	Passenger.	Goods.	Total.	State Carriages.												Waggons.												Vans.															
				Dining.	Sleeping.	First-class.	Composite.	Second-class.	Mail-vans.	Prison-vans.	Hearse.	Workmen's Vans.	Horse-boxes.	Carriage Trucks.	Brake-vans.	Total.	Accident Vans	A.	B.	C.	D.	E.	Water-trucks.	F.	G.		Loco. Coal.	Powder.	Sheep.	Cattle.	Meat.	Refrigerating.	Ballast-waggons.	Brake-vans.	Dump-cars.	Combination.	Total.						
Rolling Stock on hand, 31st December, 1885.																																											
37	159	194	390	2	1	12	121	A	A	B	7	9	28	117	58	B	C	112	852	7	236	234	346	468	7	334	42	3	243	250	36	422	D	425	24	1,298	C	163	201	D	15	7972	9214
Rolling Stock received during 1886.																																											
6	6	4	16	...	2	12	12	11	2	...	3	3	20	6	17	88	10	270	10	12	8	50	...	4	10	11	4	3	392	496			

The Locomotive workshops at Eveleigh are progressing favourably. Four of them, each 300' × 60', were occupied at the end of the year 1886, and during the present year a larger portion of the buildings has come into use, with the result that both convenience and economy have been secured in carrying out repairs and renewals.

The supply of water for the locomotives for some years previous to 1886 was surrounded with many difficulties owing to the dry seasons that prevailed. The necessity for running water-trains to keep up the supply added very considerably to the expense of this service, but the copious rains that have fallen have filled the railway dams, and during 1886 no trouble was occasioned by short supplies.

The Locomotive Engineer renews his statement that more engines are required for the economical working of the traffic. The statistics show that the engines in use on the lines of New South Wales are, with one exception, more heavily worked than are the locomotives of any other country. The average mileage per engine in the various countries is as under—

Germany	...	...	...	...	...	11,870
Austria	...	...	...	...	...	12,842
Belgium	...	...	...	...	...	13,335
France	...	...	...	...	...	16,798
Italy	...	...	...	...	...	15,118
Great Britain	...	...	...	...	...	18,395
India	...	...	...	...	...	19,606
United States	...	...	...	...	...	22,583
New South Wales	...	...	...	...	...	20,362

During the year 1886 fifty-two of our locomotives ran between 30,000 and 40,000 miles, and three over 40,000.

The necessity for additional locomotives cannot therefore be questioned, and a further supply will have to be obtained as early as possible.

7.—REVENUE AND EXPENDITURE.

Gross and net earnings and working expenditure.

The gross earnings in 1886 were £2,160,070, the working expenses, £1,492,992, and the net earnings, £667,078.

To earn the above amount 151,886 trains were run 6,479,265 miles. The number of trains averaged 485 per working day. In

In the following tables are given the particulars of the Revenue and Expenditure for 1886 compared with 1885:—

Particulars of coaching traffic.

COACHING TRAFFIC.

			1885.			1886.		
			S. & W.	North.	Total.	S. & W.	North.	Total.
Number of passengers	First-class ...	No.	2,265,448	169,756	2,435,204	2,505,229	174,521	2,679,750
	Second-class ...	"	5,323,451	709,897	6,033,348	5,812,526	774,130	6,586,656
	Season tickets— No. of journeys	"	* 4,878,434	159,360	*5,037,794	‡5,430,096	185,102	‡5,615,198
	Gross ...	"	12,467,333	1,039,013	13,506,346	13,747,851	1,133,753	14,881,604
Receipts from Coaching traffic.	First-class ...	£	272,997	40,129	313,126	268,910	38,310	307,220
	Second-class ...	"	284,305	67,211	351,516	285,600	65,441	351,041
	Season tickets...	"	†43,000	1,980	44,980	‡49,363	2,760	‡52,123
	Total ...	"	600,302	109,320	709,622	603,873	106,511	710,384
	Horses and carriages, parcels, &c.	"	54,283	16,279	70,562	54,508	16,335	70,843
	Mails ...	"	23,765	8,528	32,293	37,856	13,132	50,988
	Miscellaneous...	"	12,958	5,469	18,427	11,038	6,000	17,038
Gross ...	"	691,308	139,596	830,904	707,275	141,978	849,253	
Average fare per head.	First-class ...	s. d.	2 5	4 9½	2 6¾	2 1¾	4 5½	2 3½
	Second-class ...	"	1 1	1 10¾	1 2	0 11¾	1 8½	1 0¾
	Season tickets...	"	0 2½	0 3	0 2½	0 2½	0 3½	0 2½
	Mean ...	"	0 11½	2 1¼	1 0½	0 10½	1 1½	0 11½
Average receipts from Coaching traffic per average mile of line.	First-class ...	£ s. d.	220 10 3	94 6 2	188 4 8	199 17 0	86 3 6	171 12 7
	Second-class ...	"	229 13 0	157 19 2	211 6 3	212 5 4	147 4 6	196 2 3
	Season tickets...	"	34 14 8	4 13 1	27 0 9	36 13 10	6 4 5	29 2 5
	Total ...	"	484 17 11	256 18 5	426 11 8	448 16 2	239 12 5	396 17 3
	Horses and carriages, parcels, &c.	"	43 16 11	38 5 2	42 8 4	40 10 2	36 15 0	39 11 7
	Mails ...	"	19 3 11	20 0 8	19 8 3	28 2 10	29 10 9	28 9 7
	Miscellaneous...	"	10 9 4	12 17 1	11 1 6	8 4 0	13 10 0	9 10 5
Gross ...	"	558 8 13	28 1 4	499 9 9	525 13 2	319 8 2	474 8 10	
Average receipts per passenger train mile.	First-class ...	d.	28·97	21·76	27·78	27·72	21·05	26·66
	Second-class ...	"	30·16	36·46	31·20	29·44	35·96	30·48
	Season tickets...	"	4·56	1·07	3·99	5·09	1·52	4·52
	Total ...	"	63·69	59·29	62·97	62·25	58·53	61·66
	Horses and carriages, parcels, &c.	"	5·76	8·83	6·26	5·62	8·97	6·15
	Mails ...	"	2·52	4·63	2·87	3·90	7·21	4·43
	Miscellaneous...	"	1·38	2·97	1·64	1·14	3·30	1·48
Gross ...	"	73·35	75·72	73·74	72·91	78·01	73·72	
Proportion of classes.	First-class ...	%	18·21	16·33	18·03	18·23	15·40	18·01
	Second-class ...	"	42·69	68·33	44·67	42·28	68·27	44·26
	Season tickets...	"	39·10	15·34	37·30	39·49	16·33	37·73
			100·00	100·00	100·00	100·00	100·00	100·00
Proportion of receipts.	First-class ...	%	45·48	36·71	44·12	44·53	35·97	43·24
	Second-class ...	"	47·36	61·48	49·55	47·30	61·44	49·42
	Season tickets...	"	7·16	1·81	6·33	8·17	2·59	7·34
			100·00	100·00	100·00	100·00	100·00	100·00

* Includes 1,689,276 journeys made with workmen's tickets.

† " 1,771,620 " " "

‡ Includes £10,677 for workmen's tickets.

§ " £12,973 " " "

The number of first-class passengers carried shows—

An increase of...	239,781	for South and West lines.
„ ...	4,765	„ North line.
<hr/>		
An increase of...	244,546	„ all lines.

The number of second-class passengers carried shows—

An increase of...	489,075	for South and West lines.
„ ...	64,233	„ North line.
<hr/>		
An increase of...	553,308	„ all lines.

The number of season tickets (journeys)—

Increased ...	551,662	for South and West lines.
„ ...	25,742	„ North line.
<hr/>		
An increase of...	577,404	„ all lines.

The total increase in the number of passengers carried on all lines was 1,375,258.

The receipts for coaching traffic increased—

	£15,967	for South and West lines.
	2,382	„ North line.
<hr/>		
Total ...	£18,349	„ all lines.

The receipts from coaching traffic per average mile of line show—

	£	s.	d.	
A decrease of ...	32	14	11	for South and West lines.
„ ...	8	13	2	„ North line.
„ ...	25	0	11	„ all lines.

The receipts per train mile show—

A decrease of ...	0·44d.	for South and West lines.
An increase of...	2·29d.	„ North line.
A decrease of ...	0·02d.	„ all lines.

The proportion of percentage of classes of passengers shows—

A decrease of ...	0·02	for 1st class.
„ ...	0·41	„ 2nd „
An increase of...	0·43	„ season tickets.

The proportion of percentage of receipts—

Decreased ...	0·88	for 1st class.
„ ...	0·13	„ 2nd „
Increased ...	1·01	„ season tickets.

The

The goods traffic, compared in the same way, is shown as under :—

Particulars of
goods traffic.

GOODS TRAFFIC.

		1885.			1886.			
		S. & W.	North.	Total.	S. & W.	North.	Total.	
Tons carried	Merchandise ...	Tons	955,351	184,373	1,139,724	938,240	162,519	1,100,759
	Coal	"	336,390	1,660,157	1,996,547	333,883	1,649,194	1,983,077
	Wool (in bales) ..	"	47,377	15,813	63,190	42,018	16,107	58,125
	Live Stock.....	"	59,937	13,606	73,543	61,641	14,980	76,621
	Total	"	1,399,055	1,873,949	3,273,004	1,375,782	1,842,800	3,218,582
Receipts from Goods Traffic.	Merchandise ...	£	685,142	187,680	872,822	652,596	156,674	809,270
	Coal	"	63,006	77,603	140,609	61,752	78,349	140,101
	Wool	"	126,418	38,331	164,749	122,117	43,661	165,778
	Live Stock.....	"	136,892	22,309	159,201	164,792	24,957	189,749
	Miscellaneous..	"	4,207	1,876	6,083	3,830	2,089	5,919
Total	"	1,015,665	327,799	1,343,464	1,005,087	305,730	1,310,817	
Average rate per ton.	Merchandise ...	s.	14·34	20·36	15·31	13·91	19·21	14·74
	Coal	"	3·75	0·93	1·41	3·70	0·95	1·41
	Wool	"	53·37	48·48	52·14	58·12	54·21	57·04
	Live Stock.....	"	45·68	32·79	43·29	53·47	33·32	49·52
	Mean	"	14·46	3·48	8·21	14·68	3·32	8·14
Average No. of tons per mile of line.	Merchandise ...	Tons	771	433	685	697	366	615
	Coal	"	272	3,902	1,200	248	3,710	1,108
	Wool	"	38	37	38	31	36	32
	Live Stock.....	"	48	32	44	46	33	43
	Total	"	1,129	4,404	1,967	1,022	4,145	1,798
Average receipts per mile of line.	Merchandise ...	£ s. d.	553 8 6	411 1 8	524 13 9	485 0 5	352 9 5	452 2 4
	Coal	"	50 17 10	182 7 8	84 10 6	45 18 0	176 5 2	78 5 2
	Wool	"	102 2 3	90 1 8	99 0 9	90 15 2	98 4 7	92 12 2
	Live Stock.....	"	110 11 6	52 8 7	95 14 1	122 9 5	56 3 0	106 0 2
	Miscellaneous..	"	3 8 0	4 8 0	3 13 2	2 17 0	4 14 0	3 6 2
Total	"	820 8 1	770 7 7	807 12 3	747 0 0	687 16 2	732 6 0	
Average receipts per train mile.	Merchandise ...	d.	53·66	51·82	53·25	53·82	46·75	52·29
	Coal	"	4·93	21·42	8·58	5·09	23·37	9·05
	Wool	"	9·90	10·58	10·05	10·07	13·03	10·71
	Live Stock.....	"	10·72	6·16	9·71	13·59	7·45	12·27
	Miscellaneous..	"	0·33	0·52	0·37	0·32	0·62	0·38
Total	"	79·54	90·50	81·96	82·89	91·22	84·70	

In the tonnage carried there was—

A decrease of 38,965 in merchandise,

„ 13,470 in coal.

„ 5,065 in wool.

An increase of 3,078 in live stock.

54,422 total decrease.

Per average mile of line open, the result shows—

A decrease of 70 tons in merchandise.

„ 92 „ coal.

„ 6 „ wool.

„ 1 „ live stock.

169 total decrease.

The

The receipts show—

A decrease of £63,552 in merchandise.
 „ 508 in coal.
 An increase of 1,029 in wool.
 „ 30,548 in live stock.
 A decrease of 164 in miscellaneous.
 £32,647 total decrease.

Per average mile of line open, the receipts show—

£ s. d.
 A decrease of 72 11 5 in merchandise.
 „ 6 5 4 in coal.
 „ 6 8 7 in wool.
 An increase of 10 6 1 in live stock.
 A decrease of 0 7 0 in miscellaneous.
 £75 6 3 average decrease.

The average receipts per train mile show—

d.
 A decrease of 0·96 for merchandise.
 An increase of 0·47 for coal.
 „ 0·66 for wool.
 „ 2·56 for live stock.
 „ 0·01 for miscellaneous.
 2·74 total increase.

Working Expenditure.

Particulars of
working
expenditure.

The particulars of the whole of the expenditure are given in the following table:—

	1885.			1886.			
	S. & W.	North.	Total.	S. & W.	North.	Total.	
Gross working expenses.	Maintenance of way, &c.	£ 360,351	74,296	434,647	360,802	71,569	432,371
	Locomotive power, &c.	350,448	81,703	432,150	358,250	89,395	447,645
	Repairs of carriages & waggons	60,109	13,179	73,288	79,408	17,301	96,709
	Traffic charges	304,498	108,090	412,588	318,215	112,286	430,501
	Compensation—Personal	6,895	210	7,105	5,827	846	6,673
	Do Goods	890	185	1,075	834	136	970
	Miscellaneous	69,033	28,266	97,299	59,459	18,664	78,123
Total	1,152,224	305,929	1,458,153	1,182,795	310,197	1,492,992	
Expenditure per average mile of line	931	719	877	879	698	834	
Expenditure per train mile.	Maintenance of way, &c.	d. 16·24	13·59	15·71	16·53	13·84	16·02
	Locomotive power, &c.	15·79	14·95	15·62	16·41	17·29	16·58
	Repairs of carriages & waggons	2·71	2·41	2·65	3·64	3·35	3·58
	Traffic charges	13·72	19·78	14·92	14·58	21·71	15·95
	Compensation—Personal	0·31	0·04	0·26	0·27	0·16	0·24
	Do Goods	0·04	0·03	0·04	0·04	0·02	0·04
	Miscellaneous	3·11	5·17	3·52	2·72	3·61	2·89
Total	51·92	55·97	52·72	54·19	59·98	55·30	
Proportion of expenditure to gross receipts.	Maintenance of way, &c.	% 21·11	15·88	19·99	21·08	15·99	20·02
	Locomotive power, &c.	20·53	17·48	19·89	20·92	19·97	20·73
	Repairs of carriages & waggons	3·52	2·82	3·37	4·64	3·86	4·48
	Traffic charges	17·84	23·13	18·97	18·56	25·08	19·93
	Compensation—Personal	0·40	0·05	0·32	0·34	0·18	0·31
	Do Goods	0·05	0·04	0·05	0·05	0·03	0·04
	Miscellaneous	4·05	6·05	4·47	3·48	4·17	3·61
Total	67·50	65·45	67·06	69·07	69·28	69·12	

The total working expenditure, compared with 1885, increased—
 £30,571, or 2·65 per cent., for South and West lines.
 £4,268, or 1·39 „ North line.
 £34,839, or 2·39 „ all lines.

The expenditure per average mile of line open—
 Decreased £52 for South and West lines.
 „ £21 for North line.
 „ £43 for all lines.

The expenditure for train mile shows as follows—
 An increase of 2·27d. for South and West lines.
 „ 4·01d. for North line.
 „ 2·58d. for all lines.

The proportion of expenditure to gross receipts from all sources shows—
 An increase of 1·57d. per cent. for South and West lines.
 „ 3·83d. „ North lines.
 „ 2·06d. „ all lines.

Net Earnings.

The percentage of net earnings to capital expended in 1886, as against 1885, was as under:—

	1885.			1886.		
	No. of Miles.	Capital invested.	Percentage of interest.	No. of Miles.	Capital invested.	Percentage of interest.
South and West	1,307	16,765,769	3·43	1,407	18,163,089	3·01
North	425½	5,065,507	3·19	482½	5,908,365	2·55
All Lines	1,732½	21,831,276	3·37	1,889½	24,071,454	2·90

The subjoined abstract furnishes the percentages which the gross earnings, the working expenditure, and the net earnings bear to the capital expended on lines in operation for 1886, as compared with 1885.

		1885.			1886.		
		S. & W.	North.	Total.	S. & W.	North.	Total.
Net receipts from all sources ...	£	554,749	161,466	716,215	529,567	137,511	667,078
Do per average mile...	£	448	379	431	394	310	373
Do per train mile ...	d.	24·99	29·54	25·89	24·27	26·59	24·71
Proportion of gross receipts to capital.	%	10·54	9·23	10·23	9·73	8·29	9·40
Do of expenditure to capital.	„	7·11	6·04	6·86	6·72	5·74	6·50
Do of net receipts to capital.	„	3·43	3·19	3·37	3·01	2·55	2·90

The net earnings from all sources for the year show as follows—

£25,182 decrease South and West.
 £23,955 „ North.
 £49,137 „ all lines.

The net earnings per average mile of line open show—

A decrease of £54 for South and West lines.
 „ £69 for North lines.
 „ £58 for all lines.

The proportion of gross earnings to capital—

Decreased 0·81 % on South and West lines.
 „ 0·94 % on North lines.
 „ 0·83 % on all lines.

The proportion of net receipts to capital—

Decreased 0·42% on South and West lines.
 „ 0·64% on North lines.
 „ 0·47% on all lines.

The following is a summary of the gross earnings, working expenditure, and net earnings of the Railways for 1886, as against 1885 :—

Summary
of gross
earnings,
working
expenditure,
and net
earnings for
1885 and 1886.

	South and West.	North.	Total.
	£	£	£
Gross earnings, 1886	1,712,362	447,708	2,160,070
Do. 1885	1,706,973	467,395	2,174,368
Increase for 1886	5,389		
Decrease for 1886		19,687	14,298
Working expenditure, 1886	1,182,795	310,197	1,492,992
Do. 1885	1,152,224	305,929	1,458,153
Increase for 1886	30,571	4,268	34,839
Net earnings, 1886	529,567	137,511	667,078
Do. 1885	554,749	161,466	716,215
Decrease for 1886... ..	25,182	23,955	49,137

8.—DIVISION OF THE RAILWAY LINES INTO SECTIONAL AREAS.

Sectional
returns.

In the following statements are given the capital expenditure, the gross earnings, the working expenditure, the net earnings, and the return which the net earnings give to the capital invested in each section.

It will be observed that the section from,—

Sydney to Granville, which for 1885 returned 7·57 per cent. on its capital, returned for the past year 7·73, an increase of ·16 per cent.

The Illawarra Line, which in 1885 returned 1·74 per cent., returned for the past year 3·18, an increase of 1·44 per cent.

The Southern Line and Branches, which in 1885 returned 3·56 per cent., returned for the past year 3·48, a reduction of ·08 per cent.

The Western Line and Branches, which in 1885 returned 3·96 per cent., returned for the past year only 2·81, a sensible decrease of 1·15 per cent. on a capital of £6,703,044.

The Great Northern Line and Branches, which in 1885 returned 3·86 per cent., returned for 1886 2·93, a decrease of ·93 per cent.

The following are the sections which did not pay their working expenses :—

Section.	Loss on working.	Capital expended.	Total loss in working and interest upon capital at 4 per cent.
	£	£	£
Strathfield to Hornsby	723	300,566	12,746
Junee to Hay and Jerilderie	8,432	1,447,456	66,330
Werris Creek to Narrabri	2,408	618,509	27,148
Mudgee Line... ..	5,181	994,766	44,972
Murrumburrah to Cowra	769	515,673	21,396
Totals	17,513	3,876,970	172,592

ALL SECTIONS—SOUTH, WEST, AND RICHMOND.

All sections—
South, West,
and Rich-
mond.

Expenditure.				Earnings.		
All Sections—				All Sections—		Earn-
Miles open	1,407	Cost per	Per	Train mileage—		ings per
Train mileage	5,238,078	train	cent. to	Coaching	2,328,181	train
		mile.	earnings	Goods	2,909,897	mile.
				Total.....	5,238,078	
Locomotive expenses ...	£ 437,657	d. 20·05	25·56	Earnings from—		
Permanent way do ...	360,803	16·53	21·07	Coaching... ..	£ 707,275	72·91
Traffic do ...	324,877	14·89	18·97	Goods	1,005,087	82·90
General do ...	59,458	2·72	3·47			
	£ 1,182,795	54·19	69·07			
Balance, net earnings ...	529,567					
	£ 1,712,362				£ 1,712,362	78·46
Capital expended—						
Construction	£15,018,835					
Rolling stock, &c. ...	3,144,254					
	£18,163,089					
Lines in operation—						
1,307 miles open for 12 months.						
9 ..	10 ..					
34 ..	7 ..					
14 ..	3½ ..					
43 ..	2 ..					
				Per cent. per annum returned on		
				capital... ..		3·01

SUBURBAN SECTION—SYDNEY TO GRANVILLE.

Sydney to
Granville.

Expenditure.				Earnings.		
Sydney to Granville—				Sydney to Granville—		Earn-
Miles open.....	14½	Cost per	Per	Train mileage—		ings per
Train mileage	658,388	train	cent. to	Coaching.....	517,673	train
		mile.	earnings	Goods	140,715	mile.
				Total.....	658,388	
Locomotive expenses ...	£ 55,010	d. 20·05	19·46	Earnings from—		
Permanent way do ..	39,781	14·50	14·07	Coaching... ..	£ 178,552	82·78
Traffic do ...	40,835	14·89	14·45	Goods	104,104	177·56
General do ...	7,474	2·72	2·65			
	£ 143,100	52·16	50·63			
Balance, net earnings ...	139,556					
	£ 282,656				£ 282,656	103·04
Capital expended—						
Construction, &c. ...	£1,285,800					
Rolling stock, &c. ...	519,015					
	£1,804,815					
Line in operation, 12 months.				Per cent. per annum returned on		
				capital... ..		7·73

ILLAWARRA LINE—SYDNEY TO WATERFALL.

Expenditure.				Earnings.		
Sydney to Waterfall—				Sydney to Waterfall—		
Miles open	24	Cost per train mile.	Per cent. to earnings.	Train mileage—		Earnings per train mile.
Train mileage	150,419			Coaching.....	138,613	
				Goods	11,806	
				Total	150,419	
Locomotive expenses ..	£ 12,568	d. 20·05	29·81	Earnings from—	£	d.
Permanent way do ..	5,453	8·70	12·94	Coaching... ..	36,068	62·45
Traffic do ..	9,329	14·89	22·13	Goods	6,088	123·76
General do ..	1,707	2·72	4·05			
	29,057	46·36	68·93			
Balance, net earnings...	13,099					
	£ 42,156				£ 42,156	67·26
Capital expended—						
Construction, &c.			£360,000			
Rolling stock, &c.			77,408			
			£437,408			
Lines in operation—				Per cent. per annum returned on		
15 miles open for 12 months.				capital		3·18
9 " " " 10 " "						

Sydney to Waterfall.

SOUTHERN LINE AND BRANCHES.

Expenditure.				Earnings.		
Granville to Albury, Goulburn to Bungendore, and Cootamundra to Gundagai—				Granville to Albury, &c.		
Miles open.....	448½	Cost per train mile.	Percent. to earnings.	Train mileage—		Earnings per train mile.
Train mileage	1,755,876			Coaching ..	830,034	
				Goods	925,842	
				Total	1,755,876	
Locomotive expenses ..	£ 146,709	d. 20·05	24·35	Earnings from—	£	d.
Permanent way do ..	122,944	16·80	20·41	Coaching... ..	254,771	73·67
Traffic do ..	108,903	14·89	18·07	Goods	347,695	90·13
General do ..	19,931	2·72	3·31			
	398,487	54·46	66·14			
Balance, net earnings...	203,979					
	£ 602,466				£ 602,466	82·35
Capital expended—						
Construction, &c.			£4,853,108			
Rolling stock, &c.			1,106,253			
			£5,959,361			
Lines in operation—				Per cent. per annum returned on		
414½ miles open for 12 months.				capital		3·48
34 " " " 7 " "						

Granville to Albury, &c.

MURRUMBURRAH AND BLAYNEY LINE.

Murrumburrah to Blayney.

Expenditure.				Earnings.		
Murrumburrah to Cowra—		Cost per train mile.	Per cent. to earnings	Murrumburrah to Cowra—		Earnings per train mile.
Miles open	61			Train Mileage—	Coaching.....		10,051
Train mileage	20,814			Goods	10,763	
				Total	20,814	
	£	d.			£	d.
Locomotive expenses ...	1,739	20·05	20·37	Earnings from—		
Permanent way do ...	6,038	69·62	70·74	Coaching... ..	3,064	73·16
Traffic do ...	1,291	14·89	15·13	Goods	5,471	122·00
General do ...	236	2·72	2·77	Balance—	8,535	98·41
				Loss on Working	769	
	£	107·28	109·01		£	9,304
Capital expended—						
Construction, &c. ...	...	£500,000				
Rolling stock, &c. ...	...	15,673				
		£515,673				
Line in operation—						
18 miles open for 12 months.						
43 " " 2 "						
				Loss per cent. per annum on capital, 0·28.		

SOUTH-WESTERN LINE AND BRANCHES.

Junee to Hay, and Narrandera to Jerilderie.

Expenditure.				Earnings.		
Junee to Hay, and Narrandera to Jerilderie—		Cost per train mile.	Per cent. to earnings	Junee to Hay and Jerilderie—		Earnings per train mile.
Miles open	232			Train mileage	205,248	
Train mileage	205,248			Coaching	75,933	
				Goods	129,915	
				Total	205,248	
	£	d.			£	d.
Locomotive expenses ...	17,149	20·05	31·00	Earnings from—		
Permanent way do ...	31,546	36·89	57·02	Coaching... ..	24,168	77·00
Traffic do ...	12,730	14·89	23·01	Goods	31,155	57·55
General do ...	2,330	2·72	4·21	Balance—	55,323	64·69
				Loss on working...	8,432	...
	£	74·55	115·24		£	63,755
Capital expended—						
Construction, &c. ...	...	£1,345,871				
Rolling stock, &c. ...	...	101,585				
		£1,447,456				
Line in operation 12 months.				Loss per cent. per annum on capital... 0·58		

WESTERN LINE AND BRANCHES.

Expenditure.				Earnings.		
Granville to Bourke, Blacktown to Richmond, and Orange to Molong— Miles open..... 528 Train mileage .....2,335,217		Cost per train mile.	Per cent. to earnings	Granville to Bourke, &c. Train mileage— Coaching 691,088 Goods .....1,644,129 Total.....2,335,217		Earnings per train mile.
Locomotive expenses ...	£ 195,114	d. 20·05	28·13	Earnings from—	£	d.
Permanent way do ...	139,116	14·30	20·06	Coaching... ..	198,971	69·10
Traffic do ...	144,835	14·89	20·88	Goods	494,639	72·20
General do ...	26,507	2·72	3·82			
	505,572	51·96	72·89			
Balance net earnings ...	188,038				£ 693,610	71·29
	£ 693,610					
Capital expended— Construction, &c....	...	£5,429,432				
Rolling stock, &c.	...	1,273,612				
		£6,703,044				
Lines in operation 12 months.				Return per cent. per annum on capital		2·81

Granville to Bourke, Blacktown to Richmond, and Orange to Molong.

MUDGEE LINE.

Expenditure.				Earnings.		
Wallerawang to Mudgee— Miles open..... 85 Train mileage 100,949		Cost per train mile.	Percent. to earnings.	Wallerawang to Mudgee— Train mileage— Coaching..... 56,209 Goods 44,740 Total 100,949		Earnings per train mile.
Locomotive expenses ...	£ 8,435	d. 20·05	32·65	Earnings from—	£	d.
Permanent way do ...	15,170	36·07	58·73	Coaching... ..	10,291	43·94
Traffic do ...	6,261	14·89	24·24	Goods	15,540	83·36
General do ..	1,146	2·72	4·44	Balance — Loss on Working... ..	25,831	61·41
	£ 31,012	73·73	120·06		5,181	
					£ 31,012	
Capital expended— Construction, &c. ...	...	£947,336				
Rolling stock, &c. ...	...	47,430				
		£994,766				
Line in operation 12 months.				Loss per cent. per annum returned on capital		0·52

Wallerawang to Mudgee.

NORTH AND NORTH-WESTERN LINES—ALL SECTIONS.

North and
North-
Western
Lines—All
Sections.

Expenditure.				Earnings.		
All Sections N. and N.W. Lines—		Cost per train mile.	Per cent. to earnings	All Sections N. and N.W. Lines—		Earnings per train mile.
Miles open.....	482½			Train mileage—		
Train mileage	1,241,187			Coaching	436,790	
				Goods.....	804,397	
				Total	1,241,187	
	£	d.			£	d.
Locomotive expenses ...	106,697	20·63	23·83	Earnings from—		
Permanent way do ...	71,569	13·84	15·99	Coaching... ..	141,978	78·01
Traffic do ...	113,267	21·90	25·30	Goods	305,730	91·22
General do ...	18,664	3·61	4·17			
	310,197	59·98	69·29			
Balance, net earnings...	137,511					
	£ 447,708				£ 447,708	86·58
Capital expended—						
Construction, &c. ...	£5,286,144					
Rolling stock, &c. ...	622,221					
	£5,908,365					
Lines in operation—				Per cent. per annum returned on		
425½ miles open for 12 months.				capital		2·55
57 " " 4 "						

NORTHERN LINE—NEWCASTLE TO TENTERFIELD.

Newcastle to
Tenterfield,
and Morpeth
and Bullock
Island
Branches.

Expenditure.				Earnings.		
Newcastle to Tenterfield, Morpeth, and Bullock Island Branches—		Cost per train mile.	Per cent. to earnings	Newcastle to Tenterfield—		Earnings per train mile.
Miles open	385½			Train mileage—		
Train mileage.....	1,110,104			Coaching	390,326	
				Goods.....	719,778	
				Total ...	1,110,104	
	£	d.			£	d.
Locomotive expenses ...	95,429	20·63	23·19	Earnings from—		
Permanent way do ...	58,114	12·56	14·12	Coaching... ..	128,617	79·08
Traffic do ...	101,305	21·90	24·62	Goods	282,843	94·31
General do ...	16,693	3·61	4·06			
	£ 271,541	58·70	65·99			
Balance, net earnings...	139,919					
	£ 411,460				£ 411,460	88·96
Capital expended—						
Construction, &c. ...	£4,732,771					
Rolling stock, &c. ...	557,085					
	£5,289,856					
Lines in operation—				Per cent. per annum returned on		
328½ miles open for 12 months.				capital		2·93
57 " " 4 "						

NORTH-WESTERN LINE—WERRIS CREEK TO NARRABRI.

Expenditure.				Earnings.			
Werris Creek to Narrabri— Miles open..... 97 Train mileage 131,083				Cost per train mile.	Per cent. to earnings	Werris Creek to Narrabri— Train mileage— Coaching 46,464 Goods 84,619 Total 131,083	Earn- ings per train mile.
Locomotive expenses ...	£ 11,268	d. 20·63	37·11	Earnings from— Coaching ...	£ 13,361	d. 69·01	
Permanent way do ...	13,455	24·64	31·09	Goods ...	22,887	64·91	
Traffic do ...	11,962	21·90	33·00		36,248	66·37	
General do ...	1,971	3·61	5·44	Balance— Loss on working...	2,408		
	£ 38,656	70·78	106·64		£ 38,656		
Capital expended— Construction, &c. ...		£ 553,373		Loss per cent. per annum on capital ...		0·39	
Rolling stock, &c. ...		65,136					
		£618,509					
Line in operation 12 months.							

Werris Creek to Narrabri.

HOME BUSH TO WARATAH LINE—STRATHFIELD TO HORNSBY.

Expenditure.				Earnings.			
Strathfield to Hornsby— Miles open 14 Train mileage 11,167				Cost per train mile.	Per cent to earnings	Strathfield to Hornsby— Train mileage— Coaching..... 9,180 Goods 1,987 11,167	Earn- ings per train mile.
Locomotive expenses ...	£ 933	d. 20·05	52·27	Earnings from— Coaching...	£ 1,390	d. 36·34	
Permanent Way do ...	755	16·23	42·30	Goods ...	395	47·71	
Traffic do ...	693	14·89	38·82	Balance loss on work- ing ...	1,785	38·36	
General do ...	127	2·73	7·11		723		
	2,508	53·90	140·50		2,508		
Capital expended— Construction, &c. ...		297,288		Loss per cent. per annum returned on capital ...		0·80	
Rolling stock, &c. ...		3,278					
		300,566					
Line in operation 3½ months.							

Strathfield to Hornsby.

10.—WOOL TRAFFIC.

From returns received by the Chief Inspector of Stock, it appears the Colony has more than repossessed itself of the sheep that were lost in the last disastrous drought, and that there are now in the Colony more sheep than were ever recorded at any previous time. At the end of 1883 there were 37,915,510 sheep, but this number was reduced in 1884 to 31,660,321; during 1885 the number rose to 37,820,906, and at the end of 1886 the total was 39,169,304, an increase over the previous year of 1,348,398. The returns of the wool traffic for the season 1885-1886, as compared with the returns for 1886-7, show that almost the same quantity was carried in both seasons, the totals being respectively 344,697 and 342,609 bales, a decrease of 2,088 bales (little more than $\frac{1}{2}$ per cent.) for the present season. The detailed returns show a large decrease in the Southern Line, no appreciable difference on the Western Line, and a well-sustained increase all along the Northern Line. The respective totals are as follows:—

Wool traffic
Appendix 31,
page 109.

	1885-6.	1886-7.	Increase.	Decrease.
	Bales.	Bales.	Bales.	Bales.
Southern Line and Branches	88,838	81,309	.....	7,529
South-western Line	42,387	37,176	.....	5,211
Western Line and Branches to Dubbo ...	40,591	39,548	.....	1,043
Dubbo to Bourke	89,769	90,611	842	.....
Northern Line	83,112	93,965	10,853	.....
Totals	344,697	342,609	11,695	13,783

It might fairly be assumed that with the larger number of sheep and the stronger hold over the trade our newly-opened extensions should have acquired in the remote districts the quantity of wool carried would have been appreciably greater during the present year; but it must be remembered that the copious rainfall which so benefitted our production opened the inland rivers, and caused the diversion of a larger portion of our wool and produce to the other Colonies. The Stock Department reports that during 1886, as compared with 1885, a much larger quantity of wool grown in New South Wales passed into the neighbouring Colonies of Victoria and South Australia; and during the present year, as the circumstances have been so favourable for river navigation, the returns, when completed, will no doubt show a still further increase in the wool and goods river-borne.

The wool, the product of New South Wales, carried to the different markets was as under:—

	1885.	1886.
	lbs.	lbs.
Sydney	121,831,226	118,316,151
Melbourne	32,767,538	37,199,377
Adelaide	9,515,486	14,562,809
Brisbane	980,999	155,134
	165,095,249	170,233,471

11.—COAL TRAFFIC.

Coal traffic.

The coal traffic on all the lines during the year has been almost uniform with that for 1885, the return showing a decrease of 6,726 tons on the Northern Line (on a total traffic of over one and a half million tons) and an increase of 2,546 tons on the Southern and Western Lines), or a decrease on the whole traffic of 4,180 tons. The total quantity of coal and shale carried, irrespective of that carried for Departmental purposes, was 1,842,505 tons, and the freight received £148,906 3s. 1d.

The quantity carried on the Northern Line was—

				Tons.	Freight.
1885	...	...	...	1,640,601	£77,603
1886	...	...	...	1,633,875	£78,349
	Decrease	...	...	6,726	
	Increase	...	...	...	£746

And the quantity shipped from Newcastle for Intercolonial and Foreign parts :—

				Tons.	Value.
1885	...	...	...	1,552,136	£832,495
1886	...	...	...	1,544,494	£828,189
	Decrease	...	...	7,642	£4,306

The largest shipments to any one place were to the Colony of Victoria, which took 628,141, as against 544,005 tons for the previous year.

The largest foreign shipments were to San Francisco, India, and Hongkong; San Francisco, our largest foreign customer, took 154,332 tons in 1886, as against 118,053 tons in 1885.

The coal and shale traffic on the Southern and Western Lines show little difference, the diminished output at some mines being balanced by the increased supply at others. The total quantity carried was as under :—

				COAL.		SHALE.	
				Tons.	Freight.	Tons.	Freight.
1885	...	...	184,750	£63,010	21,293	£7,142
1886	...	...	182,369	61,757	26,230	£8,786
	Increase...	4,937	1,644
	Decrease		2,381	1,253	.....	.....

In addition there were 166,833 tons of coal carried for Departmental use, the freight on which would have amounted to £75,162; but as this was used for railway purposes, no credit for it has been taken in the railway earnings.

12.—RETURNS.

In addition to the Returns given and referred to in the Report, several others will be found in the Appendix which serve further to illustrate the Railway transactions for the past year.

Annexed to the Appendix are thirteen coloured diagrams showing the particulars of the capital invested, the revenue received, the working expenditure, the net revenue, and the return which the net revenue gave to the capital invested for each of the thirty-one years, from 1855 to the end of 1886.

A Railway map of the lines constructed, under construction, and authorised, is appended, and also a map of Australia, showing in the same way the Railways of the various Colonies.

13.—RECAPITULATION.

The transactions during the year are thus summarized :—

The total expenditure for construction was £27,353,579, of which the sum of £24,071,454 was expended for lines opened for traffic.

At the close of the year 1,889½ miles of line were opened for traffic, and 268 miles were in course of construction.

The rolling stock consisted of 406 locomotives, 940 coaching, and 8,364 goods, vehicles.

The value of the railway materials, in the conveyance of which 128 vessels were employed, amounted to £298,327, including freight and insurance.

During the year 151,886 trains were run a distance of 6,479,265 miles; the earnings amounted to £2,160,070, and the working expenditure to £1,492,992. The number of passengers who travelled was 14,881,604, of whom 2,679,750 were first class, 6,586,656 second class, and 5,615,198 season-ticket holders.

The merchandise traffic consisted of 2,130,747 head of live stock. 323,946 bales of wool, 1,983,077 tons of coal, and 1,100,759 tons of general merchandise.

The earnings per mile open were £1,207, the expenditure was £834, and the net earnings were £373.

The net earnings were £667,078, yielding 2·901 per cent. to the capital invested on lines in operation.

I have the honor to be,

Sir,

Your most obedient servant,



Commissioner for Railways.

The Honorable John Sutherland, Esq.,
Secretary for Public Works,
&c., &c., &c.

TRAMWAYS OF NEW SOUTH WALES.

Department of Public Works, Railway Branch,
Sydney, 20 July, 1887.

Sir,

I have the honor to submit a report of the Tramway transactions for the year 1886, and at the outset must express my satisfaction that they have proved more satisfactory than has been the case for some years past, due to the methods adopted for more economical working. In this connection it may be interesting to give a statement of the mileage opened, the capital expended in each year the Tramways have been in operation, and the return which the net results have given to the capital invested.

Year.	Mileage.	Capital Expenditure.	Interest Returns on Capital per cent.
		£	
1880	4	60,218	12·34
1881	9½	169,450	6·16
1882	22	412,561	6·80
1883	25	544,105	2·22
1884	27½	643,111	0·76
1885	27½	708,109	2·17
1886	27½	742,113	3·32

It will be observed that the mileage now is the same as it was in 1884, while the capital expenditure is considerably more. The increase is due to the additions made, in 1885 and 1886, of works of a permanent value, and the cost of additional rolling-stock that had to be obtained to meet the growing traffic. Notwithstanding this the return which the net revenue gives to the capital invested is 3·32 per cent. in 1886, as against 2·17 in 1885, an increase for the year of 1·15 per cent.

Capital Expenditure.

The details of the expenditure to the 31st December, 1885, and subsequent expenditure to 31st December, 1886, are as follows:—

Lines and Sections.	Total Expenditure to 31 December, 1885.			Amount expended in 1886.			Total expended to 31 December, 1886.		
	£	s.	d.	£	s.	d.	£	s.	d.
Railway Station to Circular Quay.....	61,155	14	2	62	7	11	61,218	2	1
Liverpool-street to Randwick and Coogee.....	105,238	12	8	552	2	0	105,790	14	8
Darlinghurst Junction to Waverley and Woollahra	48,767	3	5	185	12	7	48,952	16	0
Crown-street Junction to Cleveland-street	6,530	6	5	25,136	3	4	31,666	9	9
Campbelltown to Camden	36,849	10	11	1,018	5	1	37,867	16	0
Newtown (Glebe Junction) to Marrickville { Deduct excess credit 7,000 0 0	£59,100	16	11	†52,100	16	11	53,404	16	6
Glebe Point and Forest Lodge	37,989	12	0	31	10	10	38,021	2	10
Railway Station Junction to Botany	76,755	12	4	1,405	16	10	78,161	9	2
Forest Lodge Junction to Leichhardt	31,103	15	8	7	10	3	31,111	5	11
Waverley to Bondi	19,959	11	11	56	5	6	20,015	17	5
North Shore Cable	35,691	11	8	33,933	18	3	69,625	9	11
Waverley to Randwick (add Trial Surveys, £188 13 10)	†188	13	10	4,673	7	4	4,862	1	2
Newcastle to Plattsburg (add Trial Surveys, £934 17 7)	†934	17	7	19,781	4	6	20,716	2	1
Circular Quay to Kent-street.....	100,216	18	2	.....	.....	.....	100,216	18	2
Newtown to Cook's River	297	3	7	.....	.....	.....	297	3	7
Harris-street to Pyrmont	276	1	10	.....	.....	.....	276	1	10
Total cost of construction.....	614,056	3	1	88,143	4	0	702,204	7	1
Tramway Workshops for all Lines	51,714	17	10	2,995	8	1	54,710	5	11
Rolling Stock	206,356	5	6	9,774	1	10	216,130	7	4
Machinery.....	4,872	14	1	597	15	9	5,470	9	10
Furniture	2,111	13	9	1	6	6	2,113	0	3
Trial surveys	*4,611	16	7	361	14	7	4,973	11	2
Total Tramways	£ 1,883,723	10	10	101,878	10	9	985,602	1	7

* This amount appears in Return of 1885 as £5,371 9s. 3d.; it is now reduced by £1,123 11s. 5d., transferred to authorised Extensions and marked thus † † Reduced by £7,000 credit of 1886.

Of the above expenditure, the City and Suburban Tram Lines opened for traffic are debited with the sum of £742,113, the balance—£243,489—being distributed as follows:—

Tram Line—Campbelltown to Camden	£41,417
North Shore Cable Line	70,730
Newcastle to Plattsburg	20,716
Circular Quay to Kent-street—Land, &c., taken for proposed Tramway	100,217
Waverley to Randwick	4,862
Newtown to Cook's River... ..	297
Harris-street to Pyrmont	276
Trial Surveys	4,974
	£243,489

REVENUE AND EXPENDITURE.

The total earnings derived from the City and Suburban Tramways during the year were £226,367, an increase of £3,027 over the earnings of 1885; the expenditure was £201,737, a decrease of £6,258 upon the expenditure of the previous year. The net earnings were £24,630, as against £15,345 in 1885; and the return to capital invested increased from 2·17 to 3·32 per cent.

The Tramway capital bears interest at the rate of 4 per cent., so that the transactions of 1886 show a loss of 0·68 per cent., equal to a sum of £5,046; the loss in 1885 was 1·83 per cent., and represented the sum of £12,979.

It is expected that the transactions of the present year will return a net profit equal to the amount paid for interest upon the capital invested, and thus the City and Suburban Tramways will be self-supporting.

It will be seen from the sectional returns which follow that the Lines worked at a profit are:—

	Gain per cent. on Capital expended.
The Line to the Railway	4·23
Randwick and Coogee Bay Line	3·05
Waverley, Woollahra, and Bondi Line	10·04
Newtown and Marrickville Line	8·16
Leichhardt Line	2·19

And the Lines worked at a loss are—

	Loss per cent. on Capital expended.
Crown-street Line	2·80
Waterloo and Botany Line	1·70
Glebe Point and Forest Lodge	5·56

It will be observed that the Leichhardt Line, which for 1885 was worked at a loss of 3·47 per cent. on its capital, has so prospered that in 1886 this loss was converted into a gain of 2·19 per cent.; the loss on the Crown-street Line, which in 1885 was £1,154, was increased in 1886 to £1,247; the loss on the Waterloo and Botany Line was reduced from £2,948 in 1885, to £1,906 in 1886; and the loss on the Glebe Point and Forest Lodge Lines was reduced from £8,457 in 1885 to £3,464 in 1886.

In

In the following statements are given the capital expenditure, the gross earnings, the working expenditure, and the return which the net earnings give to the capital invested in each section :—

CITY AND SUBURBAN TRAMWAYS—1886.

ALL SECTIONS.

All sections.

Expenditure.				Earnings.		
All Sections— Miles open 27½ Train mileage..... 1,222,943		Cost per train mile.	Per cent. to earnings	All Sections— Miles open 27½ Train mileage ... 1,222,943		Earn- ings per train mile.
Locomotive expenses ...	£ 117,937	d. 23·14	52·10	Earnings from all sources	£ 226,367	d. 44·42
Permanent-way do ...	32,393	6·36	14·31			
Traffic do ...	41,737	8·19	18·44			
General do ...	9,670	1·90	4·27			
	201,737	39·59	89·12			
Balance, net earnings ...	24,630					
	£ 226,367				£ 226,367	44·42
Capital expended— Construction			£468,343	Per cent. per annum return on capital 3·32		
Rolling stock, &c.			273,770			
			£742,113			
Line in operation 12 months.						

REDFERN LINE.

Redfern Line.

Expenditure.				Earnings.		
Miles open 1¼ Train mileage 91,404		Cost per train mile.	Per cent. to earnings	Miles open 1¼ Train mileage 91,404		Earn- ings per train mile.
Locomotive expenses ...	£ 8,815	d. 23·14	35·07	Earnings from all sources	£ 25,135	d. 66·00
Permanent-way do ...	8,966	23·54	35·66			
Traffic expenses	3,119	8·19	12·41			
General do	723	1·90	2·88			
	21,623	56·77	86·02			
Balance, net earnings...	3,512					
	£ 25,135				£ 25,135	66·00
Capital expended— Construction			£61,218	Per cent. per annum return on capital 4·23		
Rolling stock, &c.			21,806			
			£83,024			
Line in operation 12 months.						

RANDWICK-COOGEE LINE.

Expenditure.				Earnings.		
Miles open	5½	Cost per train mile.	Per cent. to earnings	Miles open	5½	Earnings per train mile.
Train miles.....	155,311			Train miles	155,311	
Locomotive expenses ...	£ 14,978	d. 23·14	50·63	Earnings from all sources	£ 29,585	d. 45·72
Permanent-way do ...	3,823	5·91	12·92			
Traffic do ...	5,301	8·19	17·92			
General do ...	1,228	1·90	4·15			
	25,330	39·14	85·62		£ 29,585	45·72
Balance, net earnings...	4,255					
	£ 29,585					
Capital expended—						
Construction			£105,791	Per cent. per annum return on capital		3·05
Rolling stock, &c... ..			33,920			
			£139,711			
Line in operation 12 months.						

Randwick and Coogee Bay.

WAVERLEY, WOOLLAHRA, AND BONDI.

Expenditure.				Earnings.		
Miles open	4¾	Cost per train mile.	Per cent. to earnings	Miles open	4¾	Earnings per train mile.
Train miles.....	277,643			Train miles	277,643	
Locomotive expenses ...	£ 26,775	d. 23·14	46·15	Earnings from all sources	£ 58,014	d. 50·15
Permanent-way do ...	5,345	4·62	9·21			
Traffic do ...	9,475	8·19	16·33			
General do ...	2,195	1·90	3·79			
	43,790	37·85	75·48			
Balance, net earnings...	14,224				£ 58,014	50·15
	£ 58,014					
Capital expended—						
Construction			£68,969	Per cent. per annum return on capital		10·04
Rolling stock, &c.			72,676			
			£141,645			
Line in operation 12 months.						

Waverley, Woollahra, and Bondi.

GLEBE POINT AND FOREST LODGE.

Glebe Point
and Forest
Lodge.

Expenditure.				Earnings.		
Miles open.....	2½	Cost per train mile.	Per cent. to earnings	Miles open	2½	Earn- ings per train mile.
Train miles	153,153			Train miles	153,153	
	£	d.			£	d.
Locomotive expenses ...	14,770	23·14	74·06	Earnings from all sources	19,914	31·25
Permanent-way do ...	2,200	3·45	11·03	Loss on working ...	3,464	.....
Traffic do ...	5,227	8·19	26·21			
General do ...	1,211	1·90	6·07			
	£ 23,408	36 68	117·37		£ 23,408	.....
Capital expended—						
Construction ... ..	...	...	£38,021	Loss per cent. per annum on		
Rolling stock, &c....	...	..	24,230	capital ... ..	...	5·56
			£62,251			
Line in operation 12 months.						

NEWTOWN AND MARRICKVILLE.

Newtown and
Marrickville.

Expenditure.				Earnings.		
Miles open	3¼	Cost per train mile.	Per cent. to earnings	Miles open	3¼	Earn- ings per train mile.
Train miles.....	165,998			Train miles.....	165,998	
	£	d.			£	d.
Locomotive expenses ...	16,008	23·14	47·62	Earnings from all sources	33,615	48·60
Permanent-way do ...	2,715	3·93	8·08			
Traffic do ...	5,665	8·19	16·85			
General do ...	1,313	1·90	3·91			
	25,701	37·16	76·46			
Balance, net earnings...	7,914					
	£ 33,615				£ 33,615	48·60
Capital expended—						
Construction ... ..	...	...	£53,405	Per cent. per annum return on		
Rolling stock, &c....	...	...	43,606	capital ... ..	...	8·16
			£97,011			
Line in operation 12 months.						

REPORT OF THE COMMISSIONER FOR RAILWAYS—1886.

33

CROWN-STREET.

Expenditure.				Earnings.		
Miles open		Cost per train mile.	Per cent. to earnings	Miles open		Earnings per train mile.
Train miles.....	73,106 ³ / ₄			Train miles.....	73,106 ³ / ₄	
Locomotive expenses ...	£ 7,050	d. 23·14	71·39	Earnings from all sources	£ 9,875	d. 32·42
Permanent-way relaying, 1886. ...	} 999	3·28	10·12	Loss on working ...	1,247	.....
Permanent-way ...						
Traffic expenses ...	2,495	8·19	25·27			
General do ...	578	1·90	5·85			
	£ 11,122	36·51	112·63		£ 11,122	.....
Capital Expended—						
Construction ...			£31,666	Loss per cent. per annum on capital ...		2·80
Rolling-stock, &c. ...			13,329			
			£14,995			
Line in operation 12 months.						

Crown-street to Cleveland street.

WATERLOO AND BOTANY.

Expenditure.				Earnings.		
Miles open		Cost per train mile.	Per cent. to earnings	Miles open		Earnings per train mile.
Train miles	177,936 ⁶ / ₄			Train miles	177,936 ⁶ / ₄	
Locomotive expenses ...	£ 17,159	d. 23·14	63·59	Earnings from all sources	£ 26,982	d. 36·39
Permanent-way do ...	4,249	5·73	15·75	Loss on working ...	1,906	.....
Traffic do ...	6,073	8·19	22·51			
General do ...	1,407	1·90	5·21			
	£ 28,888	38·96	107·06		£ 28,888	.....
Capital Expended—						
Construction ...			£78,162	Loss per cent. per annum on capital ...		1·70
Rolling stock, &c. ...			33,918			
			£112,080			
Line in operation 12 months.						

Waterloo and Botany.

LEICHHARDT LINE.

Leichhardt.

Expenditure.				Earnings.		
Miles open	2½	Cost per train mile.	Per cent. to earnings	Miles open	2½	Earnings per train mile.
Train miles	128,392			Train miles	128,392	
	£	d.			£	d.
Locomotive expenses ...	12,382	23·14	53·33	Earnings from all sources	23,217	43·40
Permanent-way do ...	4,096	7·66	17·64			
Traffic do ...	4,382	8·19	18·88			
General do ...	1,015	1·90	4·37			
	£					
	21,875	40·89	94·22			
Balance net earnings ...	1,342					
	£				£	
	23,217				23,217	43·40
Capital expended—						
Construction ...			£31,111			
Rolling-stock, &c. ...			30,285			
			£61,396	Per cent. per annum return on capital ...		2·19

GOVERNMENT TRAMWAYS, 1886.

STATEMENT OF PROFIT AND LOSS.

Profit and loss.

Lines open for Traffic.	Length in Miles.	Cost of Construction.	Cost of Rolling Stock, Workshops, Machinery, Furniture, &c.	Total Capital expended.	Net Earnings.	Loss on Working.	Return per cent. per annum on Capital invested.	Loss per cent. per annum on Capital invested.	Net Return.
CITY AND SUBURBAN.									
Railway Station to Circular Quay...	1½	£ 61,218	£ 21,806	£ 83,024	£ 3,512	.....	4·23	.....
Liverpool-street to Randwick and Coogee.	5½	105,791	33,920	139,711	4,255	.....	3·05	.....
Darlinghurst Junction to Waverley, Woollahra, and Bondi.	4½	68,969	72,676	141,645	14,224	.....	10·04	.....
Crown-street Junction to Cleveland-street.	¾	31,666	13,329	44,995	.....	1,247	.....	2·80	
Devonshire-street Junction to Botany.	6¾	78,162	33,918	112,080	.....	1,906	.....	1·70	
Glebe Point and Forest Lodge.....	2½	38,021	24,230	62,251	.....	3,464	.....	5·56	
Newtown and Marrickville.....	3½	53,405	43,606	97,011	7,914	.....	8·16	.....
Leichhardt	2½	31,111	30,285	61,396	1,342	.....	2·19	.....
Total .....	...	.....	.....	.....	31,247	6,617	.....	.....
Deduct loss on working .....	...	.....	.....	.....	6,617	.....	.....	.....
	27½	468,343	273,770	742,113	24,630	.....	.....	.....	3·32

Lines in operation 12 months.

NORTH SHORE CABLE LINE.

The cable line of tramway adopted for the North Shore was opened for traffic on the 22nd May, 1886. The transactions to the close of that year show that the earnings were £4,043, while the expenditure was £4,716—a loss of £673 in the seven months it was in operation, besides interest upon the capital invested, which represents a further sum of £2,828 per annum.

A large portion of the working expenditure was due to an accident which occurred on the line shortly after it was opened. The payments for compensation for personal injuries amounted to £1,118, and for repair to damaged rolling stock to £60, in all £1,178.

I said in my report of last year that it will be only by the exercise of rigid economy in the working expenditure, and by the liberal patronage of the residents of the North Shore of the facilities the tramway affords, that this, the first constructed cable-road in the Colony, can be made self-supporting. To induce a more liberal support of this means of conveyance, the fares have recently been reduced by 25 per cent.

The following table gives the particulars of the capital expenditure, the revenue, and working expenses of this line of cable-road :—

Expenditure.				Earnings.		
Miles open	1½	Cost per train mile.	Per cent. to earnings	Miles open	1½	Earnings per train mile.
Train miles.....	41,685			Train miles.....	41,685	
	£	d.			£	d.
Locomotive expenses ...	2,321	13·36	57·41	Earnings from all sources	4,043	23·28
Permanent-way do ...	377	2·17	9·32	Loss on working ...	673	...
Traffic do ...	738	4·25	18·25			
General do ...	1,280	7·37	31·66			
	£				£	
	4,716	27·15	116·64		4,716	...
Capital expended—						
Construction ...	...	...	£69,625			
Rolling stock, &c. ...	...	...	1,105			
			£70,730	Loss per cent. per annum on capital ...		1·63
Line in operation 7 months.						

CAMPBELLTOWN AND CAMDEN TRAMWAY.

Campbell-
town to
Camden.

The subjoined return of the transactions of the Campbelltown and Camden tramway shows a progression which is gratifying. In 1883 the loss incurred upon this line, with interest upon capital, was £4,100. In 1884 the loss was reduced to £700; in 1885 this was further reduced to £405; and for the year under review the total loss, interest included, does not exceed £286.

Return of Expenditure and Earnings.

Expenditure.				Earnings.			
Miles open	7½	Cost per train mile.	Per cent. to earnings.	Miles open	7½	Earnings per train mile.	
Train miles.....	22,969			Train miles—Coaching..	12,274		
				Goods.....	10,695		
					22,969		
Locomotive expenses ...	£ 917	d. 9 58	24 56	Earnings from—	£	d.	
Permanent way do ...	899	9 39	24 08	Coaching ...	1,847	36 11	
Traffic do ...	395	4 13	10 58	Goods ...	1,886	42 32	
General do ...	23	0 24	0 62				
	2,234	23 34	59 84				
Balance, net earnings ...	1,499						
	£ 3,733				£ 3,733	39 00	
Capital expended—							
Construction ...			£37,868				
*Rolling stock, &c. ...			6,772				
			£44,640				
Line in operation 12 months.				Per cent. per annum return on capital...			3 36

* Includes £3,223, value of Railway rolling stock used on Camden line,

ACCIDENTS.

The following were the accidents for the years 1885 and 1886, together with the number of passenger fares collected :—

Accidents.

years.	Accidents.						Total.		Number of Passenger Fares
	Servants.		Passengers.		Other than Passengers.		Killed.	Injured.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.			
1886 .....	.....	9	3	8	4	17	7	34	52,977,578
1885	1	6	2	7	3	9	6	22	39,594,753
Increase .....	.....	3	1	1	1	8	1	12	13,382,825
Decrease	1	.....	.....	.....	.....	.....	.....	.....	.....

It must be pointed out that the large increase in the number of passenger fares is not attributable, except to a very small extent, to an increase in the number of persons travelling, but to the fact that penny tickets have been

been substituted for the 2d. tickets; the number of passengers represent about 60 per cent. of the number of fares collected—equal to nearly thirty-two millions of persons carried on the city and suburban tram lines. This number averages over 1,155,874 passengers to the mile of line, forming a volume of traffic which is without parallel in any part of the world.

I have the honor to be,

Sir,

Your most obedient servant,



Commissioner for Railways.

The Honorable John Sutherland, Esq.,
Secretary for Public Works,
&c., &c., &c.

APPENDIX

TO THE

REPORT ON THE RAILWAYS AND TRAMWAYS

OF

NEW SOUTH WALES,

1886.

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Diagrams descriptive of Railway transactions from 1855 to 1886.

Maps showing Railway Systems and lines.

APPENDIX TO REPORT ON RAILWAYS—1886.

No. 1.

The Engineer for Existing Railways and Tramways to The Commissioner for Railways.

I HAVE the honor to submit my Annual Report from January 1st to December 31st, 1886, on the condition of the Existing Railways and Tramways under my charge.

SUBURBAN RAILWAYS.

Sydney to Granville Junction—Double Line—Length, 13 miles 16 chains.

GREAT SOUTHERN AND SOUTH-WESTERN RAILWAYS.

Granville Junction to Albury—Single Line—Length, 373 miles 4 chains.

Junee Junction to Hay—Single Line—Length, 167 miles 29 chains.

Narrandera to Jerilderie—Single Line—Length, 64 miles 49 chains.

Joppa Junction to Bungendore—Single Line—Length 39 miles 10 chains.

Murrumburrah to Young—Single Line—Length, 17 miles 57 chains.

Young to Cowra—Single Line—Length, 43 miles 77 chains—Opened for public traffic, 1st November, 1886.

Cootamundra to Gundagai—Single Line—Length, 33 miles 15 chains—Opened for public traffic, 1st June, 1886.

The permanent-way and several works on these sections have been maintained in good order during the year.

From Sydney to Granville the iron rails are much worn and will require to be replaced by steel rails at an early date. A portion of the ballast on this section is undergoing renewal, the old ballast having become perished.

Between Granville and Goulburn the permanent-way is in good order with the exception of a few places where, owing to the late heavy rains, the road is rather rough. The renewals of rails and sleepers on this length have been heavy. The wooden bridges, buildings, &c., have been kept in good repair, and at three places the substitution of iron and brick structures for the old wooden bridges has been completed during the year.

From Goulburn to Albury the cost of maintenance has been largely increased by the necessity for the renewal of the sleepers, no less than 50,000 of which were replaced during the year, and the quantity of ballast used has also been large. The road is in good running order with the exception of a few knotty places, more especially between Bowning and Cootamundra, where the renewals of sleepers have been heaviest, and the old sleeper-bed consequently most disturbed.

Many sleepers still require renewing on this section, which, of course, will for some time to come swell the expenditure for maintenance, but it is a matter for congratulation that in the centre of the section, viz., at Cootamundra, the best ironbark sleepers are to be procured at a very reasonable figure. Therefore, whilst for the present the maintenance expenses are exceptionally high, economy in this direction may be confidently looked forward to.

The timber bridges, buildings, and other works are now in good order, several of the bridges having had extensive repairs effected throughout the year.

The permanent way, from Albury to the River Murray, is in good order.

The South-western and Jerilderie Lines have been maintained in good order during the year, the latter at a reduced cost, the number of men engaged in the maintenance of it having been sensibly diminished.

The road from Joppa Junction to Bungendore is well ballasted and in good condition. The sleepers, however, are showing signs of decay between the junction and Tarago.

On the section, Demondrille Junction to Young, the permanent way has been found extremely difficult to maintain, the banks having gone down very much, and from Young to Cowra, where the line has only recently been opened for traffic, the heavy rains have severely tried the permanent way. Several of the banks have been scoured a good deal and require to be made up, and in some instances the cuttings have slipped. Some time must elapse before the maintenance of this line can be carried on as economically as could be desired.

The Gundagai line, also opened for traffic this year, passes through several cuttings which require and have received most careful attention, all of them having been carefully gone through, and any loose material removed. The banks, too, have settled down considerably.

CULVERTS, &c., constructed during the year.

Mileage.		Number.	Number of Openings.	Size of Openings.	Remarks.
Miles.	Chains. †				
Redfern Yard		1	1	ft. in. 4 0	Brick sewer, 565 feet long.
236	60	1	1	8 0	
238	76	1	1	5 0	
239	32	1	1	8 0	

The following sidings have been laid in during the year :—

	feet.		feet.
<i>Darling Harbour—</i>		<i>10 miles 61 chains—</i>	
No. 3 siding "up" line side	1,978	Siding for Sydney Meat Preserving Company	665
Through road and single compound cross-over road to sidings "up" line side	338	Loop and slip points to ditto	183
Nos. 4, 5, 6, and 7 sidings "up" line side extended	5,343	<i>Auburn—</i>	
Six double compound cross-over roads	1,539	Siding "down" line side extended and slip points laid to ditto	226
Dead end out of No. 6 siding	96	<i>Finnigan's Siding, 12 miles 10 chains—</i>	
Through road to No. 2 wharf siding and "down" line	486	Siding for Harbours and Rivers Department	1,593
No. 2 wharf siding "down" line side extended	105	<i>Goulburn—</i>	
Fruit siding	709	Dead end for interlocking near Goldsmith-street gates	124
Sidings to meat shed "up" line side ...	1,571	Dead end leading out of locomotive roads	208
Loop siding and slip points to "up" line side	440	Through road near old turntable	180
<i>Eveleigh—</i>		Dead end out of traffic sidings	303
Sidings to interlocking store "up" line side	699	New road at top dock, with dead end... ..	735
Sidings to paint shop	4,491	<i>Murrumburrah—</i>	
Nos. 1 and 2 traversers "up" line side	100	New siding	309
Roads to ditto	1,346	Old siding extended	53
Through road to sidings Nos. 3 and 4	157	<i>Nubba—</i>	
No. 8 siding "down" line side extended	421	Siding converted into loop	165
Roads to shops Nos. 1 to 4	1,025	<i>Illabo—</i>	
Traversers to shops Nos. 1 to 4	601	Cross-over road and dead end... ..	294
Sidings to turntables outside shops Nos. 1 to 4... ..	211		
Siding to electric-light engine-shed ...	201		
<i>Burwood—</i>			
New siding "down" line side	629		
Through road to main line and No. 1 siding	107		
No. 1 siding "down" line side extended	303		
		Total	27,934

PERMANENT

APPENDIX TO REPORT ON RAILWAYS—1886.

3

PERMANENT WAY RELAID WITH STEEL RAILS.

	1887.	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	Total.
	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.
Main "up" line, 1st mile	1,387	...	2,465	533	238	.....	1,677	1,796	..	...	8,096
Main "down" line, 1st mile	1,173	2,587	..	424	153	... ..	1,674	1,782	...	.....	7,793
Main "up" line, Darling Harbour Branch	531	.....	1,509	..	1,354	1,538	...	4,932
Main "down" line, Darling Harbour Branch	259	..	1,487	271	1,829	470	.....	4,316
Main "up" line, between 1 and 5 miles	325	... ..	...	5,359	..	13,655	...	254	19,563
Main "down" line, between 1 and 5 miles	20	..	3,864	...	3,272	.....	5,502	9,273	254	22,185
Main "down" line, between 5 and 7 miles	2,064	3,082	2,252	7,398
Main "up" line, between 5 and 7 miles	7,887	2,133	10,020
Main "up" line, between 10 and 12 miles	5,230	..	..	...	..	2,602	7,882
Main "up" line, between 12 and 13 miles	2,388	.....	2,388
Main "down" line, at 13 miles	273	.....	.....	.....	..	.....	.....	273
Main line, between 13 and 14 miles	289	1,576	.....	1,865
Do do 14 and 18 miles	1,302	..	1,338	...	1,473	3,258	10,836	987	19,194
Do do 18 and 19 miles	907	.....	.....	.....	907
Do do 20 and 22 miles	147	3,266	4,884	.....	8,297
Do do 23 and 25 miles	5,214	..	.....	5,214
Do do 26 and 27 miles	1,238	...	.....	..	..	.....	1,238
Do do 29 and 35 miles	10,855	.....	10,855
Do do 50 and 53 miles	2,793	1,779	5,386	3,271	.....	13,229
at 68 miles	952	..	.....	..	.....	.....	.....	.....	.....	.....	952
	3,512	2,607	4,092	5,884	8,247	14,420	7,928	45,395	45,205	19,337	156,627

SIDINGS RELAID WITH STEEL RAILS.

	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	Total.
	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.
Sidings at Darling Harbour	182	370	..	158	710
Do at Sydney	3,810	3,455	1,495	...	.....	...	...	8,760
Do at Newtown	256	...	...	.....	256
Do at Petersham	1,171	...	1,171
Do at Ashfield	178	.....	...	...	...	...	178
Do at Homebush	202	...	...	202
Do at Rookwood	139	...	139
Do at Duck River	374	.....	...	.....	374
Do at Granville	743	829	...	...	169	...	.....	.....	1,741
Do at Cabramatta	576	.....	...	...	...	.....	576
Do at Liverpool	1,275	.....	...	...	...	.....	1,275
Do at Picton	326	..	...	326
	743	4,639	5,484	1,495	981	898	1,310	158	15,708

The following sleepers have been used for renewals of main lines during the year:—

Sydney to Granville Junction	100
Granville Junction to Picton	1,362
Picton to Goulburn	1,616
Goulburn to Albury	50,426
Total	53,504

The following sleepers have been used in new sidings laid in during the year:—

Sidings at Darling Harbour	2,362
Do at Eveleigh	1,522
Do at Burwood	100
Do at Rookwood, for Sydney Meat Preserving Co.	150
Do at Auburn	85
Do at Finnigan's for Harbours and Rivers Department	140
Do at Goulburn	450
Do at Murrumburrah	138
Do at Nubba	62
Do at Illabo	110
Total	5,119

The

The following quantity of ballast has been used on main lines during the year:—

	Cubic yards.
Sydney to Granville Junction, 13 miles	490
Granville to Picton, 40 miles	203
Picton to Goulburn, 81 miles	1,850
Goulburn to Albury, 252 miles	15,388
Junee Junction to Hay, 167 miles 29 chains	2,602
Narrandera to Jerilderie, 64 miles 49 chains	1,276
Joppa Junction to Bungendore, 39 miles 11 chains	1,040
Demondrille Junction to Cowra, 61 miles 19 chains	2,588
Cootamundra to Gundagai, 33 miles 15 chains	1,908
Total	27,345

RAILWAY FENCE WIRED DURING THE YEAR:—

Bounding the Property of	Sides.	Milage.		No. of Wires.	Length.
		From	To		
Mr. Morphy	1	miles chs.	miles chs.	4	miles chs.
Mr. Waters.....	2	165 5	165 25	2	0 20
.....	2	188 40	190 8	2	3 16
.....	2	191 0	191 25	2	0 50
Mr. Cockers	1	217 35	247 75	2	0 40
Mr. Faulks	2	273 40	274 40	3	2 0
Mr. Morris	1	277 32½	280 21	3	2 68½
.....	1	280 65	281 36½	3	0 51½
.....	1	277 28½	282 42	3	5 13½
Total					15 19½

ILLAWARRA LINE.

Eveleigh to Hurstville—Double Line—Length, 9 miles 40 chains.

Hurstville to Waterfalls—Single Line—Length, 14 miles 60 chains.

National Park Branch Line—Single Line—Length, 1 mile 15 chains.

Opened for public traffic, 9th March, 1886.

These sections have been kept in good order and condition during the year.

Several of the embankments between Sutherland and Waterfalls have subsided considerably, necessitating their being made up and the road lifted and reballasted. More ballast is required on the National Park Branch.

The following sidings have been laid in during the year:—

<i>Hurstville—</i>		feet.
Double compound cross-over road		61
<i>10 miles 58 chains—</i>		
Siding for Hurstville Brick Company and slip points to ditto		438
<i>Heathcote—</i>		
Slip points to loop siding		20
<i>Waterfalls—</i>		
Siding and slip points to ditto		325
Total		844

Sidings relaid with steel rails during the year:—

At Hurstville—Through road to main lines shifted and relaid 96

The following sleepers have been used in new sidings laid in during the year:—

Siding at Oatley's for Hurstville Brick Company 140

Siding at Waterfalls 90

Total 230

The following quantity of ballast has been used on main lines during the year:—

Eveleigh to Waterfalls	cubic yards.
	2,338

HOMEBUSH TO WARATAH LINE.

Strathfield to Hornsby—Single Line—Length, 14 miles 25 chains.

This section was opened for traffic on 17th September, 1886. The formation of a portion of the line—the banks especially—being of a soft nature, the expense of maintaining it has been high. From about 4 miles to Hornsby the road required lifting and reballasting on account of the settlement of the banks.

Several slips have taken place in the cuttings, and the work of removing them is now in hand.

MISCELLANEOUS.

Main lines and siding at Strathfield shifted and relaid. This work was rendered necessary by the arrangements for junction of the Homebush to Waratah Line with the Main Southern Lines.

The following sidings have been laid in during the year :—

<i>Strathfield—</i>	Feet.	<i>Thornleigh—</i>	Feet.
Arrangement for junction with Main Southern Lines	3,662	New siding, down side and slip points to ditto	553
<i>7 miles 57½ chains—</i>			
Siding for Messrs. Amos Bros. ...	90	Total	4,305

The following sleepers have been used in new sidings laid in during the year :—

Junction with Main Southern Lines at Strathfield	1,319
Siding at Thornleigh	200
	1,519

The following quantity of ballast has been used on main line during the year :—

Strathfield to Hornsby	Cubic yards. 644
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GREAT WESTERN RAILWAY.

*Granville Junction to Penrith—Double Line—Length, 21 miles 25 chains.**Penrith to Bourke—Single Line—Length, 469 miles 10 chains.**Wallerawang to Mudgee—Single Line—Length, 85 miles 18 chains.**Orange to Molong—Single Line—Length, 22 miles 50 chains.*

The maintenance of the permanent way and works on these lines has received careful attention during the year, and they are all now in good order.

From Granville Junction to Penrith large numbers of the old iron rails have required to be replaced by steel rails. The new "up" line between Parramatta and Penrith increased the maintenance cost for this section to some extent, the banks which were constructed during prolonged drought having sunk very much under the influence of the heavy rains which fell during the year.

During the year about 6½ miles of road has been relaid with steel rails between Penrith and Bathurst, and numbers of sleepers have also been renewed.

From Bathurst to Dubbo the renewals of sleepers and fencing have formed a considerable item in the cost of repairs, &c., for the year. The permanent way is in good order, but is soft in places between Wellington and Dubbo.

Between Dubbo and Bourke the permanent way has been well attended to, but the recent heavy rains have made some of the banks soft, and the road slightly rough in consequence.

The Mudgee line has received the most vigilant attention, the nature of some of the cuttings rendering a night patrol of the line in stormy weather essential to the safe conduct of the traffic. The embankments in places have settled during the heavy rains, making the road rough and knotty. Generally speaking, however, the permanent way is in good running order, although the sleepers between Wallerawang and Capertee are decaying very rapidly.

The permanent way on the Molong line is in fair order. A good deal of settlement has taken place in the embankments, which require making up.

The .

The following sidings have been laid in during the year :—

<i>Parramatta</i> —	feet.	<i>Lapstone Zig Zag</i> —	feet.
Cross-over road to down line and goods siding extended	148	Dead end extended, bottom points ...	323
<i>Blacktown</i> —		<i>Katoomba</i> —	
“Down” line dock siding, west end ...	775	Diversion of main line... ..	555
Through roads to main “up” and “down” lines and dock siding ...	590	Through road	233
<i>Crawford’s Siding</i> —		Temporary siding to turntable ...	211
Siding extended	33	Goods siding	95
Through road and slip points	195	<i>Mount Victoria</i> —	
<i>Rooty Hill</i> —		Through road and compound-crossing	301
Nos. 1 and 2 sidings	1,702	<i>Mount Wilson</i> —	
Through road to “up” line and sidings	253	Dead end sidings	2,043
Single compound “down” line ...	61	<i>Lithgow Zig Zag, Bottom Points</i> —	
“Down” line dock siding and slip points to ditto	299	Temporary siding and safety siding ...	480
<i>Mount Druitt</i> —		<i>Eskbank</i> —	
Siding extended	344	Loop siding to coal stage	505
Single compound cross-over road to “down” line	61	Siding for dump cars	678
Through road to “down” line and siding, and slip points to siding ...	184	Safety siding	193
<i>St. Mary’s</i> —		<i>Bathurst</i> —	
Nos. 1, 2, and 3 sidings “down” line side	2,243	Siding connecting roads at engine-shed	140
Through road to “up” line and sidings	254	<i>Millthorpe</i> —	
Single compound cross-over road ...	61	Loop and safety sidings	873
<i>Cross Roads</i> —		Dock siding	294
Through road from main “up” line ...	253	<i>Store Creek</i> —	
Single compound cross-over road ...	61	Dead-end siding	276
No. 1 siding “down” line extended ...	211	<i>Mumbil</i> —	
<i>Penrith</i> —		Dead-end siding	63
“Down” dock siding extended ...	99	<i>Wellington</i> —	
Single compound and slip points to “down” line and dock siding ...	81	Sidings for Locomotive Branch ...	4,830
		<i>Narramine</i> —	
		Ballast siding extended	750
		<i>Byrock</i> —	
		Carriage dock siding	334

MUDGEE LINE.

133 miles 52 chains—

Siding for Excelsior Co....	...	...	...	...	...	416
Total...	...	...	...	...	...	21,411

CULVERTS constructed during the year.

Mileage.		Number.	Number of Openings.	Size of Openings.		Remarks.
Miles.	Chains.			ft. in.	ft. in.	
32	42	1	1	2 0	2 3	
104	23	1	1	5 0	2 6	Timber culvert 200 feet long.
144	1	1	5 0	2 6	Timber culvert in Bathurst Yard, 475 feet long.
167	10	1	1	6 0		Brick culvert.

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CULVERTS lengthened during the year.

Mileage.		Size of Culvert.	Number of Openings.	Lengthened.
Miles.	Chains.			
		ft. in.		ft. in.
38	58	2 0	1	4 9
38	61	2 0	1	30 4
66	20	2 0	1	47 0
66	30	2 0	1	28 0
66	40	2 0	1	36 0
66	50	2 0	1	50 0
MUDGEE LINE.				
133	52	2 0	1	10 0
		2 0	1	20 0

CULVERTS renewed during the year.

Mileage.		Number.	Number of Openings.	Size of Openings.
Miles.	Chains.			
				ft. in.
244	72	1	1	2 0
248	32	1	1	2 0

PERMANENT-WAY RELAID WITH STEEL RAILS.*

Mileage.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	Total.
Between 13 and 14 miles, Up line.	feet. ...	feet. ...	feet. ...	feet. ...	feet. ...	feet. 175	feet. ...	feet. ...	feet. ...	feet. ...	feet. ...	feet. ...	feet. 175
Between 13 and 14 miles, Down line.	1,451	2,106	417	...	...	...	...	...	...	3,974
Do 14 and 19 miles	1,082	...	106	...	...	...	1,449	8,005	9,068	4,662	24,372
Do 19 and 26 miles	895	2,108	3,003
Do 26 and 34 miles	4,340	...	...	...	218	1,293	5,851
Do 34 and 40 miles	2,204	2,748	...	3,206	4,695	7,586	...	4,116	7,071	...	31,626
Do 40 and 47 miles	2,368	...	...	...	3,387	4,606	1,345	8,260	10,735	6,022	36,723
Do 47 and 57 miles	5,325	3,644	10,560	...	...	3,564	5,280	7,656	4,158	...	...	924	41,111
Do 57 and 67 miles	13,200	7,920	4,290	5,280	7,920	1,980	...	...	1,320	41,910
Do 67 and 77 miles	6,600	3,300	6,270	3,300	...	26,268	45,738
Do 87 and 97 miles	4,884	...	6,798	...	...	...	...	11,682
Do 137 and 147 miles	4,224	...	...	...	...	...	...	2,640	1,518	231	8,613
Do 147 and 157 miles	2,706	...	9,702	5,214	...	...	1,320	5,016	7,458	7,854	39,270
Do 157 and 166 miles	6,270	...	...	2,640	...	5,280	...	12,078	5,940	...	32,208
Do 166 and 176 miles	3,300	...	...	...	22,440	4,884	3,300	6,930	7,062	...	47,916
Do 176 and 186 miles	4,224	...	...	...	...	...	...	16,698	6,204	1,518	28,644
Do 186 and 196 miles	5,280	3,036	10,626	1,518	1,832	22,292
Total.....	5,325	3,644	36,938	17,399	19,834	24,390	52,022	53,310	22,858	77,669	57,687	54,032	425,108

* Per foot of line, i.e., 2 rails.

PERMANENT-WAY RELAID WITH REROLLED IRON RAILS.

	1883.	1884.	1885.	1886.	Total.
	feet.	feet.	feet.	feet.	feet.
Between 25 and 26 miles .....	.....	.....	718	.....	718
Between 47 and 49 miles .....	.....	7,854	.....	.....	7,854
Between 54 and 55 miles	4,686	.....	.....	.....	4,686
Between 56 and 57 miles	1,122	.....	.....	.....	1,122
Between 61 and 62 miles	2,310	.....	.....	.....	2,310
Between 62 and 63 miles	3,498	.....	.....	.....	3,498
Between 76 and 77 miles .....	.....	1,914	.....	.....	1,914
Between 77 and 79 miles .....	.....	10,758	.....	.....	10,758
Between 81 and 82 miles .....	.....	.....	1,584	.....	1,584
Between 84 and 85 miles .....	.....	.....	792	.....	792
Between 85 and 88 miles .....	.....	.....	17,094	.....	17,094
Between 95 and 96 miles .....	.....	2,706	.....	.....	2,706
Total	11,616	23,232	20,188	.....	55,036

SIDINGS RELAID WITH STEEL RAILS.*

	1880.	1881.	1882.	1883.	1884.	1885.	1886.	Total.
	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.
Sidings at Parramatta .....	.....	.....	.....	.....	.....	115	.....	115
Sidings at Blacktown .....	.....	.....	.....	.....	.....	.....	179	179
Sidings at South Creek .....	.....	.....	.....	.....	.....	180	.....	180
Sidings at Penrith .....	.....	166	628	101	2,031	.....	.....	2,926
Sidings at Katoomba .....	.....	.....	.....	.....	.....	.....	635	635
Sidings at Hartley Vale	277	.....	.....	.....	.....	.....	.....	277
Sidings at Eskbank	697	.....	.....	.....	.....	.....	.....	697
Sidings at Wallerawang .....	.....	.....	.....	.....	.....	254	.....	254
Total	974	166	628	101	2,031	549	814	5,263

* Per foot of line, i.e., 2 rails.

The following sleepers have been used in new sidings laid in during the year:—

Sidings at Parramatta	28
Do Blacktown	2,040
Do Crawford's	70
Do Rooty Hill	269
Do Mount Druitt... ..	94
Do St. Mary's	502
Do Cross Roads	26
Do Lapstone Zig Zag	190
Do Katoomba	140
Do Mount Wilson	700
Do Lithgow Bottom Points	50
Do Eskbank	450
Do Millthorpe	200
Do Store Creek	98
Do Mumbil	21
Do Wellington	722
Do Narramine	250
Do Byrock	100
Total	5,950

The following sleepers have been used for renewals during the year:—

Granville Junction to Springwood	6,328
Springwood to Bathurst	83
Bathurst to Orange	5,824
Orange to Wellington	1,458
Wallerawang to Mudgee	2,090
Total	15,783

The

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The following quantity of ballast has been used on main lines during the year:—

	cubic yards.
Granville Junction to Springwood	973
Springwood to Bathurst	1,713
Orange to Wellington	323
Wellington to Dubbo	607
Dubbo to Nevertire	1,437
Nevertire to Nyngan	538
Nyngan to Byrock	3,635
Byrock to Bourke... ..	10,896
Wallerawang to Mudgee... ..	4,281
Total	24,403

RAILWAY FENCE WIRED DURING THE YEAR.

Bounding the property of	Sides.	Mileage.		No. of Wires.	Length.
		From	To		
		m. chs.	m. chs.		m. chs.
Mr. Clatworthy	1	105 60	107 10	2	1 30
Mr. Gardner.....	1	107 20	108 20	2	1 0
Mr. Locke	1	134 5	134 18	2	0 13
Mr. Thompson	1	134 40	135 15	2	0 55
Total					3 18

RICHMOND LINE.

Single Line—Length, 16 miles 11 chains.

The permanent-way on the portion of this line laid with steel rails is in good order. From 25½ miles to 37½ miles, where the light rails are in use, the road has been kept in fair running order, but the rails and sleepers are wearing out, and will need renewal at an early date.

Several of the timber culverts have been renewed in brick during the year.

The following sidings have been laid in during the year:—

Blacktown—

	feet.
Extension of lines at junction	1,618
Dead end siding to coal stage	270
No. 1 siding extended	773
Through roads to main line coal stage siding, and sidings Nos. 1 and 2	457

Riverstone—

New siding "Down" line side	623
Slip points to ditto	20
Total	3,766

PERMANENT-WAY RELAID WITH STEEL RAILS.*

	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	Total.
	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.
Between 21 and 26 miles...	2,642	3,192	.....	10,563	2,215	.....	.....	.....	1,482	20,094
Between 32 and 35 miles...	.....	.....	.....	795	525	.....	1,239	.....	.....	2,559
Between 37 and 38 miles...	.....	.....	.....	.....	1,659	.....	.....	.....	.....	1,659
Total	2,642	3,192	.....	11,358	4,399	.....	1,239	.....	1,482	24,312

Sidings relaid with steel rails during the year:—

	feet.
At Blacktown	1,186

CULVERTS

* Per foot of line, *i.e.*, 2 rails.

CULVERTS RENEWED DURING THE YEAR.

Mileage.		Number.	Number of Openings.	Size of Openings.
Miles.	Chains.			
24	36 to	3	3	5 ft. by 5 ft. 4 in.
24	40			
25	24	2	2	5 ft. by 5 ft. 4 in.

The following sleepers have been used in new sidings laid in during the year:—

Sidings at Riverstone 60

The following sleepers have been used for renewals during the year:—

Blacktown to Richmond 154

LIST OF MACHINERY ADDED TO THE PERMANENT-WAY WORKSHOPS DURING THE YEAR 1886.*

AT REDFERN.

1 iron planing machine. 1 spike, bolt, and nut-making machine.
1 twist-drill grinding machine. 1 cast-iron testing machine.

AT GOULBURN.

1 8-inch centre lathe.

AT BATHURST.

1 overhead traverser. 1 small circular saw.
1 circular saw gulleting machine. 1 jig saw.

ACCOUNT OF Permanent-way Rails turned, renewed, and broken, from the opening of the various Extensions, Great Southern, South-western, Western, and Richmond Lines, to 31st December, 1886.

Extensions.	Length.	Date when opened for traffic.	Time opened for traffic up to 31st December, 1886.	Rails.		
				Number turned.	Number renewed.	Number broken.
	ms. chs.		yrs. ms.			
Sydney Yard to 1st mile-post	13 16	26 Sept., 1855	31 3	2,116	2,348	12
1st mile-post to Granville Junction				4,553	3,126	22
Granville Junction to Liverpool	8 68	20 Sept., 1856	30 3	2,280	985	3
Liverpool to Campbelltown	11 65	17 May, 1858	28 7½	2,452	622	8
Campbelltown to Menangle	6 50	1 Sept., 1862	24 4	772	169	12
Menangle to Picton	12 28	1 July, 1863	23 6	1,622	745	1
Picton to Mittagong	23 75	1 Mar., 1867	19 10	5,993	3,136	12
Mittagong to Moss Vale	8 62	2 Dec., 1867	19 1	676	136	10
Moss Vale to Marulan	28 57	6 Aug., 1868	18 4	1,414	264	28
Marulan to Goulburn	19 73	27 May, 1869	17 7	926	324	26
Goulburn to Gunning	30 20	9 Nov., 1875	11 2	1,360	4,066	103
Gunning to Bowning	29 26	3 July, 1876	10 6	1,251	4,564	51
Bowing to Binalong	14 42	1 Nov., 1876	10 2	563	1,042	7
Binalong to Murrumburrah	19 48	12 Mar., 1877	9 9½	429	1,695	8
Murrumburrah to Cootamundra	25 13	1 Nov., 1877	9 2	403	1,237	1
Cootamundra to Bethungra	15 10	15 April, 1878	8 8½	244	1,030	5
Bethungra to Junee Junction	18 28	6 July, 1878	8 6	63	570	.....
Junee Junction to Bomen	17 38	3 Sept., 1878	8 4	44	460	.....
Bomen to South Wagga	5 1	1 Sept., 1879	7 4	30	72	1
South Wagga to Gerogery	58 63	1 Sept., 1880	6 4	.....	4	3
Gerogery to Albury	18 37	3 Feb., 1881	5 11	.....	1	.....
Albury to River Murray	1 0	14 June, 1883	3 6½	.....	.....	.....
Sydney to River Murray	387 20	.....	.....	27,191	26,596	313

* A statement of the machinery in Workshops prior to 1886 will be found in Report for 1885.

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ACCOUNT OF Permanent-way Rails turned, &c.—*continued.*

Extensions.	Length.	Date when opened for traffic.	Time opened for traffic up to 31 December, 1886.	Rails.		
				Number turned.	Number renewed.	Number broken.
Joppa Junction to Tarago	ms. chs. 19 71	3 Jan., 1884	yrs. ms. 3 0	.....	.....	.....
Tarago to Bungendore	19 19	4 Mar., 1885	1 10	.....	.....	.....
Joppa Junction to Bungendore.....	39 10	.....	.....	.....	.....	.....
Junee Junction to Narrandera	61 0	28 Feb., 1881	5 10	.....	17	17
Narrandera to Darlington	37 66	1 Sept., 1881	5 3	I	4	4
Darlington to Currathool	33 66	1 Mar., 1882	4 10	.....	I	I
Currathool to Hay	34 57	4 July, 1882	4 6	.....	.....	.....
Junee Junction to Hay	167 29	.....	.....	I	22	22
Narrandera to Jerilderie	64 49	16 Sept., 1884	2 3½	.....	2	2
Murrumburrah to Young	17 57	26 Mar., 1885	1 9	.....	.....	.....
Young to Cowra	43 77	1 Nov., 1886	0 2	.....	.....	.....
Murrumburrah to Cowra	61 54	.....	.....	.....	.....	.....
Eveleigh to Hurstville	9 11	15 Oct., 1884	2 2½	.....	I	I
Hurstville to Waterfalls, including National Park Line.	15 75	9 Mar., 1886	0 10	.....	.....	.....
Eveleigh to Waterfalls, including National Park Line	25 6	.....	.....	.....	I	I
Cootamundra to Gundagai.....	33 15	1 June, 1886	0 7	.....	.....	.....
Strathfield to Hornsby	14 25	17 Sept., 1886	0 3½	.....	.....	.....
Granville to Blacktown	8 24	4 July, 1860	26 6	1,825	1,057	19
Blacktown to Rooty Hill	3 66	12 Dec., 1861	25 0½	517	240	13
Rooty Hill to South Creek.....	3 75	1 May, 1862	24 8	367	123	1
South Creek to Penrith	4 66	7 May, 1862	24 6	701	371	2
Penrith to Wentworth Falls	27 70	11 July, 1867	19 5½	10,462	5,110	5
Wentworth Falls to Mount Victoria	14 70	1 May, 1868	18 8	5,235	2,806	5
Mount Victoria to Bowenfels.....	19 49	18 Oct., 1869	17 2½	6,190	2,771	14
Bowenfels to Wallerawang.....	7 46	1 Mar., 1870	16 10	1,498	736	.....
Wallerawang to Rydal	6 11	1 July, 1870	16 6	670	235	4
Rydal to Locksley	19 11	20 April, 1872	14 8	3,301	844	4
Locksley to Brewongle	5 31	1 July, 1872	14 6	1,205	202	.....
Brewongle to Raglan	5 3	4 Mar., 1873	13 10	480	71	.....
Raglan to Kelso	3 0	1 May, 1875	11 8	448	41	.....
Kelso to Bathurst	1 35	4 April, 1876	10 9	480	331	4
Bathurst to Blayney	27 69	1 Nov., 1876	10 2	975	6,297	2
Blayney to Orange	19 75	19 April, 1877	9 8½	300	3,724	12
Orange to Wellington.....	55 55	1 June, 1880	6 7	.....	16	2
Wellington to Dubbo.....	28 11	1 Feb., 1881	5 11	.....	5	5
Dubbo to Nevertire.....	63 5	20 Oct., 1882	4 2	.....	.....	.....
Nevertire to Nyngan.....	35 64	9 June, 1883	3 7	.....	.....	.....
Nyngan to Byerock.....	78 10	2 Sept., 1884	2 4	.....	.....	.....
Byerock to Bourke	48 40	3 Sept., 1885	1 4	.....	.....	.....
Granville to Bourke	488 6	.....	.....	34,654	24,980	92
Wallerawang to Capertee	22 74	15 May, 1882	4 7½	.....	.....	.....
Capertee to Rylstone	30 41	9 June, 1884	2 7	.....	.....	.....
Rylstone to Mudgee	31 63	10 Sept., 1884	2 3½	.....	.....	.....
Wallerawang to Mudgee.....	85 18	.....	.....	.....	.....	.....
Orange to Molong	22 50	21 Dec., 1885	1 0½	.....	.....	.....
Blacktown to Richmond.....	16 11	1 Dec., 1864	22 1	475	600	1

NOTE.—This statement does not include the relaying of the line from Sydney to Granville, laid originally with Barlow rails, and renewed with double-headed rails, nor those portions of the Southern and Western Lines which have been and are being relaid with steel rails.

The following shows the number of men per mile of single line engaged in maintenance of the Permanent Way :—

	Men per mile.
Sydney to Granville Junction—including Haslem's Creek Cemetery Branch, Darling Harbour Branch, and sidings head of Darling Harbour	1·30
Granville to Goulburn	1·00
Goulburn to River Murray	0·96
Junee Junction to Hay	0·85
Narrandera to Jerilderie... ..	0·71
Joppa Junction to Bungendore... ..	0·90
Murrumburrah to Young	0·85
Young to Cowra	1·00
Cootamundra to Gundagai	1·08
Eveleigh to Waterfalls	0·94
Granville Junction to Bathurst... ..	0·76
Bathurst to Orange	0·77
Orange to Wellington	0·75
Wellington to Dubbo	0·96
Dubbo to Nevertire	0·81
Nevertire to Nyngan	0·67
Nyngan to Byrock	0·77
Byrock to Bourke	0·78
Wallerawang to Capertee	0·66
Capertee to Rylstone	0·79
Rylstone to Mudgee	0·85
Orange to Molong	0·80
Blacktown to Richmond	0·93
Strathfield to Hornsby	0·70

GREAT NORTHERN RAILWAY.

Newcastle to West Maitland—Double Line—Length, 20 miles 18 chains.

West Maitland to Tamworth—Single Line—Length, 161 miles 28 chains.

Tamworth to Glen Innes—Single Line—Length, 142 miles 49 chains.

Glen Innes to Tenterfield—Single Line—Length, 57 miles 40 chains—Opened for public traffic 1st September, 1886.

Bullock Island Branch—Double Line—Length, 1 mile 43 chains.

Morpeth Branch—Single Line—Length, 4 miles.

North-western Line—Single Line—Length, 96 miles 45 chains.

The permanent way, bridges, buildings, and other works on these lines have been maintained in satisfactory condition throughout the year.

The fencing at places between Newcastle and Murrurundi will shortly require renewal, having decayed through age ; and the timber bridge over Black Creek will also need to be replaced at no distant date.

From Murrurundi to Tamworth the work of renewing the iron rails has been proceeded with, and must be continued until steel rails have been substituted for all the iron rails now in the road on that section.

A large slip at Ben Lomond caused much anxiety and expense towards the close of the year, but it is now hoped that very little further outlay will be necessary on its account

On the section Glen Innes to Tenterfield, opened for public traffic this year, the permanent way and works have been kept in first-class order at a comparatively small cost.

The permanent way and several works on the branch lines are in good order throughout.

APPENDIX TO REPORT ON RAILWAYS—1886.

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CULVERTS constructed during the year.

Mileage.		Number.	Number of Openings.	Size of Openings
Miles.	Chains.			
151	30	1	1	ft. in. 8 0
154	56	1	1	10 0
216	40	1	1	11 0
310	38½	1	1	7 0
<i>North-western Line.</i>				
159	63	1	1	10 0
172	50	1	1	12 0
174	...	1	1	12 0
204	60	1	1	12 0

CULVERTS lengthened during the year.

Mileage.		Number.	Number of Openings.	Lengthened.
Miles.	Chains.			
20	18	1	1	ft. in. 3 0

The following Sidings have been laid in during the year :—

<i>Newcastle</i> —	feet.	<i>West Maitland</i> —	feet.
Alterations and additions to sidings ...	5,742	Siding to new turntable ...	225
<i>Honeysuckle Point</i> —		<i>Farley</i> —	
Siding for accident van and crane ...	81	Sidings extended ...	450
<i>Bullock Island Junction</i> —		<i>Belford</i> —	
Additional sidings ...	4,520	Siding laid in ...	306
<i>Bullock Island Dyke</i> —		160 miles (<i>Mount Terrible</i>)—	
Additional sidings ...	4,638	Siding laid in ...	210
<i>Waratah</i> —			
Cross-over road ...	174	Total ...	16,346

PERMANENT-WAY RELAID WITH STEEL RAILS.*

	1884.	1885.	1886.	Total.
	Feet.	Feet.	Feet.	Feet.
Between 1 and 3 miles .....	.....	3,474	3,342	6,816
Between 3 and 5 miles	7,410	.....	4,254	11,664
Between 5 and 7 miles	5,334	1,905	.....	7,239
Between 7 and 9 miles	480	831	.....	1,311
Between 9 and 12 miles .....	.....	1,320	.....	1,320
Between 12 and 15 miles	2,736	1,260	.....	3,996
Between 15 and 20 miles	6,192	1,302	5,526	13,020
Between 20 and 25 miles .....	.....	1,368	1,044	2,412
Between 50 and 55 miles .....	.....	.....	672	672
<i>NORTH-WESTERN LINE.</i>				
Between 196 and 197 miles .....	.....	558	.....	558
Total... ..	22,152	12,018	14,838	49,008

The following sleepers have been used for renewals during the year :—

Newcastle to Murrurundi ...	1,722
Murrurundi to Tamworth ...	1,919
Tamworth to Glen Innes ...	Nil.
Glen Innes to Tenterfield ...	Nil.
Werris Creek to Narrabri ...	2,196
Total ...	5,837

The

* Per foot of line, i.e., 2 rails.

The following quantity of ballast has been used during the year:—

	Cubic yards.
Newcastle to Murrurundi	1,298
Murrurundi to Tamworth	1,540
Tamworth to Glen Innes	2,030
Glen Innes to Tenterfield	Nil.
Werris Creek to Narrabri	2,190
Total	7,058

The following sleepers have been used in new sidings laid in during the year:—

Alterations and additions to Sidings at Newcastle	1,900
Siding at Honeysuckle Point	27
Sidings, Bullock Island Junction	1,500
Do Bullock Island Dyke	1,500
Cross-over Road, Waratah	58
Siding to Turntable, West Maitland	70
Extension of Sidings, Farley	150
Siding, Belford	100
Do Mount Terrible (160 miles)	70
Total	5,375

LIST OF MACHINERY ADDED TO PERMANENT WAY WORKSHOPS DURING THE YEAR 1886.

1 wood shaping machine	1 iron turning-lathe
1 slotting machine	1 grind-stone.

ACCOUNT of Permanent-way Rails turned, renewed, and broken, from the opening of the various Extensions, Great Northern Railway, to 31st December, 1886.

Extensions	Length.	Date when opened for traffic	Time opened for traffic up to 31 December, 1886	Rails.		
				Number turned.	Number renewed.	Number broken
Newcastle to Murrurundi, including Morpeth and Bullock Island Branches	ms. cbs.		yrs. ms.			
Murrurundi to Quirindi	124 69	13 Aug., 1877	9 4½	1,464	423	11
Quirindi to Tamworth	24 78	15 Oct., 1878	8 2½	2	1,645	.....
Tamworth to Moonbi	37 23	9 Jan., 1882	5 0	.....	293	.....
Moonbi to Uralla	12 0	2 Aug., 1882	4 5	.....	14	.....
Uralla to Armidale	51 57	1 Feb., 1883	3 11	.....	.....	.....
Armidale to Glen Innes	14 72	19 Aug., 1884	2 4½	.....	5	1
Glen Innes to Tenterfield	64 0	1 Sept., 1886	0 4	.....	.....	.....
Newcastle to Tenterfield, including Morpeth and Bullock Island Branches	387 19	.....	.....	1,466	2,380	12
Werris Creek to Gunnedah	40 40	11 Sept., 1879	7 3½	.....	143	.....
Gunnedah to Boggabri	24 5	11 July, 1882	4 5½	.....	.....	.....
Boggabri to Narrabri	32 0	4 Oct., 1882	4 3	.....	.....	.....
Werris Creek to Narrabri	96 45	.....	.....	.....	143	.....

The following shows the number of men per mile of single line engaged in maintenance of the permanent way:—

	Men per mile.
Newcastle to Murrurundi, including Morpeth and Bullock Island Branches	0 80
Murrurundi to Tamworth	1 00
Tamworth to Glen Innes	0 79
Glen Innes to Tenterfield	0 70
Werris Creek to Narrabri	0 79

GENERAL REMARKS.

RAILWAYS.

VERY heavy works have been carried out during the year, notably the Redfern tunnel for quadrupling the line into the Redfern Station; the new viaduct over the Long Cove Creek, both of which structures required great care in carrying out so as not to obstruct the traffic, and which I am pleased to say have been successfully completed; the duplication of the line from Parramatta to Penrith, with the renewal of all the wooden bridges under the old line with brick and iron, and many other less important bridges, &c.

The permanent way on all the lines has been kept in good running order, except in a few places, chiefly on the newly-opened lines, which are rather rough in consequence of the late rains. Many thousands of sleepers have been renewed, and many more will be required in 1887, and I have no doubt that steel sleepers, although a little more costly to supply, would be cheapest in the end.

Nothing that I am aware of has yet been settled for the disposal or shipping of coal, &c., from Sydney. This arrangement should be made and works completed by the time the Illawarra and Northern Lines are ready for opening, unless these lines are intended for passenger traffic only.

The repairs to all the bridges on all the lines have been well kept up, excepting those reported on by the Royal Commission, which are still in need of repair and painting.

The Locomotive Workshops at Eveleigh are progressing favourably, four of them, each 300' × 60', are in full working order; eleven more are approaching completion. The iron roofing, &c., has commenced to arrive for ten others, the foundations of which are all in. The paint-shop, the walls, &c., of which have been carried out by the Department, is approaching completion, and will be handed over to the Locomotive Department during 1887.

The number of stations, sidings, &c., interlocked has been increased from fifty-one open at the end of last year to eighty-two places now worked under the system. This year attention has been given chiefly to the by-sidings on the Southern Line, at which no one is placed in charge, and which are worked by the guards of trains. The interlocking of points and signals at these sidings is so arranged as to practically ensure perfect freedom from risk at the facing points, which is a matter of the utmost importance where a large and fast passenger traffic requires to be conducted.

I have, &c.,

GEORGE COWDERY,

Engineer for Existing Railways.

TRAMWAYS

TRAMWAYS FOR 1886.

EXISTING LINES.

Lines.	Opened for Public Traffic.	Length of Single Line.		Length of Double Line.		Total Length.	
		ms.	chs.	ms.	chs.	ms.	chs.
Redfern to Hunter-street	15th September, 1879.....	.....	.....	1	39-29	1	39-29
Hunter-street to Bridge-street	15th August, 1882 .....	.....	.....	0	19-99	0	19-99
Liverpool-street to Randwick Racecourse	14th September, 1880.....	.....	.....	2	41	2	41
Racecourse to Randwick	19th March, 1881.....	.....	.....	1	2-09	1	2-09
Randwick to Coogee.....	25th January, 1883.....	.....	.....	1	50-76	1	50-76
Darlinghurst to Ocean-street	12th March, 1881.....	0	6-80	1	40-36	1	47-16
Ocean-street to Waverley	13th April, 1881	0	51-84	0	54	1	25-84
Waverley Tea Gardens to Bondi	24th May, 1884 .....	.....	.....	1	13	1	13
Woollahra Line.....	17th May, 1881	0	65-22	.....	.....	0	65-22
Crown-street Line.....	15th September, 1881.....	0	68-91	.....	.....	0	68-91
Redfern to Junction of George-street West and Glebe Road.	15th August, 1882 .....	.....	.....	0	43-94	0	43-94
George-street West to Glebe Point	15th August, 1882	0	72-75	0	4-85	0	77-60
Junction of George-street West and Glebe Road to Forest Lodge.	15th August, 1882	0	57-06	0	6-53	0	63-59
University Gates to Johnstone-street, Leichhardt ...	18th June, 1883 .....	.....	.....	1	21-41	1	21-41
Johnstone-street to Short-street, Leichhardt	1st May, 1884 .....	.....	.....	1	9	1	9
George-street West to Newtown Bridge	2nd October, 1882.....	.....	.....	1	27-09	1	27-09
Newtown to Marrickville.....	31st December, 1881	1	26-68	0	42-25	1	68-93
Redfern to Botany	17th May, 1882	2	52-09	4	14-03	6	66-12
Campbelltown to Camden	10th March, 1882.....	7	33	.....	.....	7	33
North Shore Tramway (Cable Line)	22nd May, 1886 .....	.....	.....	1	31	1	31
	Total	15	34-35	20	60-59	36	14-94

Metropolitan Lines.—During the year these lines have been well maintained, and from Bridge-street to Hunter-street both roads have been relaid with 70-lb. T rails with a new design of *Guard and Fish Rail* screwed together with Ibbotson's patent screw bolts. The guards are fixed to break joint with the rails, and appear to make a good, sound road. It is proposed to relay the remainder of the road to Redfern Station, and from the junction at Liverpool-street to the wood blocking in Oxford-street early in the new year, which, when completed, I have no doubt will materially lessen the cost of maintenance.

North Shore Cable-Tramway.—This line has been completed this year and is working satisfactorily.

The Department is saddled with a great deal more expense on these roads than can be considered maintenance. In many places the sides of the streets are kept in such bad repair that all the vehicular traffic is thrown on to the lines; then there is the cleaning and watering of the streets, none of which the Department should be charged with, as the trams do not contribute to the dirt and dust.

Waverley to Randwick.—This line is being carried out by the "unemployed" at task work.

Plans for the line from Kogarah to Sans Souci are completed.

The tram line from Newcastle to Plattsburg, a distance of about 8 miles, is making good progress towards completion.

I have, &c.,

GEORGE COWDERY,
Engineer for Tramways.

The

The following sidings have been laid in during the year:—

<i>Moore Park to Racecourse—</i>		feet.
New siding at Moore Park	... ..	599
<i>Racecourse to Randwick—</i>		
Triangle	... ..	603
Through road to main line	... ..	106
Total	... ..	1,308

PERMANENT-WAY RELAID.

	1881.	1882.	1883.	18 4	1885.	1886.	Totals.
	Fect.	Fect.	Fect.	Fect.	Fect.	Fect.	Fect.
Redfern to Macquarie-street.....	4,620	9,961	.....	384	555	4,396	19,916
Liverpool-street to Darlinghurst	2,932	5,570	.....	.....	.....	.....	8,502
Darlinghurst to Moore Park.....	1,140	652	506	2,626	.....	.....	4,924
Crown-street line.....	.....	153	2,587	1,125	42	1,131	5,038
Darlinghurst to Waverley	386	7,716	5,564	1,383	525	33	15,607
Woollahra line.....	.....	542	368	2,193	.....	336	3,439
Redfern to Botany .....	.....	384	8,610	8,715	6,685	5,125	29,519
Moore Park to Randwick .....	.....	.....	420	2,004	774	.....	3,912
Redfern to Glebe Point and Forest Lodge .....	.....	.....	4,650	2,947	930	843	9,370
Newtown to Marrickville .....	.....	.....	3,499	4,956	1,161	480	10,096
Parramatta-street to Newtown.....	.....	.....	.....	671	568	.....	1,239
University Gates to Leichhardt .....	.....	.....	.....	1,645	6,801	2,236	10,682
Total	9,078	24,978	26,204	28,649	18,041	15,294	122,244

The following sidings have been relaid with steel rails during the year:—

Randwick workshops 385 feet

The following sleepers have been used for renewals of main lines during the year:—

Redfern to Macquarie-street 241

Redfern to Glebe Point and Forest Lodge 1

Liverpool-street to Randwick and Coogee 92

Darlinghurst to Waverley and Woollahra 36

Crown-street Line... .. 604

Relaying, Hunter-street to Bridge-street 896

Total 1,870

The following quantities of ballast have been used for maintenance of the various lines during the year:—

Section.	Gravel.	Blue Metal.	Blue metal Screenings.
	Tons cwt. qrs. lbs.	Tons cwt. qrs. lbs.	Tons cwt. qrs. lbs.
Redfern to Macquarie-street.....	179 0 0 0	369 19 3 0	988 0 1 8
Redfern to Glebe and Forest Lodge .....	.....	532 9 2 0	201 15 3 17
Redfern to Botany.....	12 3 3 0	1,473 4 0 0	593 12 0 27
Liverpool-street to Randwick and Coogee .....	.....	150 2 0 0	352 14 2 22
Darlinghurst to Waverley and Woollahra .....	.....	801 14 2 0	881 5 2 9
Crown-street Line .....	.....	93 7 2 0	114 4 1 20
Parramatta-street to Newtown and Marrickville .....	.....	1,190 13 0 26	63 4 0 14
University Gates to Leichhardt .....	.....	1,763 2 0 0	137 15 0 23
North Shore Cable Tramway .....	.....	3 0 2 0	27 1 2 1
Total	191 3 3 0	6,382 12 3 26	3,359 14 0 1

The following shows the number of men per mile of single line engaged in the maintenance of the permanent way:—

Redfern to Macquarie-street	... ..	Men per mile.
Liverpool-street to Randwick	... ..	1.15
Randwick to Coogee	... ..	1.30
Crown-street Line	... ..	0.92
Darlinghurst to Waverley and Woollahra	... ..	1.16
Waverley Tea Gardens to Bondi	... ..	1.52
Redfern to Botany	... ..	0.43
Redfern to Glebe Point and Forest Lodge	... ..	0.64
George-street West to Marrickville	... ..	1.00
Leichhardt Line	... ..	1.18
Campbelltown to Camden	... ..	0.84
North Shore Cable Line	... ..	0.54
		1.09

No. 2.

The Locomotive Engineer to The Commissioner for Railways.

Department of Public Works, Railway Branch,

Locomotive Engineer's Office, Sydney, 22 July, 1887.

Sir,

I have the honor to report as follows on matters connected with the Locomotive Branch for the year ending 31st December, 1886:—

SHOP ACCOMMODATION.

Depôt.	Remarks.
Eveleigh ...	During the year we have been able to occupy shops Nos. 1 to 4. The whole of the machinery, &c., has however not been erected therein. We hope to have entire possession of shops Nos. 1 to 15 by the end of 1887. The delay in the completion of the carriage, waggon, and paint shops has caused us considerable inconvenience.
Newcastle ...	Contrary to our expectation the new boiler-shop has not been completed, and the demand for a new running-shed becomes more urgent every day.
Nyngan ...	A new running-shed is required, as it has been decided to remove the "depôt" from Dubbo to this place.

ADDITIONAL ENGINES and other ROLLING STOCK received during the year.

Classification.	No.	Remarks.
Engines	19	3 of these were to replace worn-out Engines.
Passenger stock	90	2 of these were to replace vehicles destroyed at Cootamundra.
Goods stock	427	35 of these were to replace worn-out.
Total	536	

NOTE.—The cost of replacing these engines and stock—worn out or destroyed—was charged to working expenses, less as in the case of the engines alone, the value of the old material.

ENGINES under order.

No.	Description.	Contractors.
12	Passenger	The Vulcan Foundry Company.
6	Tank	Henry Vale.
18		

ABSTRACT of ROLLING STOCK with Average per Mile open for Traffic, on 31st December, 1886.

Classification.	Total in Stock.		No. under Repair.		No. awaiting Repairs.		No. available for Traffic.		Average No. available per mile open for Traffic.	
	Pas-senger.	Goods.	Pas-senger.	Goods.	Pas-senger.	Goods.	Pas-senger.	Goods.	Pas-senger.	Goods.
Engines	208	198	18	24	6	6	184	168	·097	·089
Vehicles	940	8,364	40	354	...	...	900	8,010	·476	4·234

Total mileage of engines for the year = 8,266,988 miles.
 Total number of engines = 406.
 Average mileage per engine (all engines) = 20,362 miles.
 Available for traffic = 23,486 „

THE mileage of engines under steam during the year was as follows:—

Number of Engines.	Mileage Run.
9	Nil (under or awaiting repairs).
41	Under 10,000 miles.
133	10 to 20,000 „
168	20 to 30,000 „
52	30 to 40,000 „
3	Over 40,000 „
406	

NATURE of principal repairs to Engines, Passenger and Goods Stock during the year.

Engines.

Thoroughly overhauled.	Extensively repaired.	Boilers thoroughly examined and repaired.	New Boilers.	New Pistons.	New cylinders.	New Crank Axles.	New slide valve faces fitted.	New tyres fitted.	New spark arresters fitted.	Fitted with Westinghouse Brake gear.
160	370*	45	6	37	3	7	20	198	90	6

NOTE—Six new express engines were erected at the shops during the year.

* Some under repairs more than once during the year.

Passenger

Passenger Stock.

Thoroughly repaired in Woodwork.	Minor Woodwork Repairs.	Thoroughly painted.	Improved Draw-gear fitted.	Continuous Draw-gear applied.	New Turton Buffers fitted.	Turned-up Tyres put under.	New Tyres put under.	New Wheels put under.	New Axles put under.	New Brasses fitted.	New Cushions.	New Iron Brake Blocks fitted.	New Westinghouse Brake gear complete, fitted.	Trough Air-pipes and Hose connections fitted.	Cocks fitted in Brake Vans.
201	477	230	87	25	56	405	180	22	...	799	1,508	7,219	163	32	15
<i>Goods Stock.</i>															
1,017	2,609	612	193	17	296	1,960	546	66	34	2,871	...	...	...	...	...

WATER SUPPLIES.

Depôt.	Nature of Additions and Improvements during the year.
Rockdale	Additional water tank, crane, and dam.
Blackheath	New dam and line of suction pipes.
Eskbank	New watering station (temporary—permanent arrangements in hand).
Bathurst	Pumping machinery and house raised to level of surrounding yard.
Wellington	New well—pumping machinery removed to new site.
Dubbo	Two additional water cranes.
Trangie	New well.
Menangle	Additional water crane.
Wingecarribee	Engine and boiler thoroughly repaired.
Muttama	New watering station.
Darlington	” ”
West Maitland	New Tangye boiler and pump.
Deepwater	New watering station.
Tenterfield	” ”

GAS WORKS.

Depôt.	Gas manufactured for lighting station, yards, sheds, shops, &c.	Do. for lighting carriages.	No. of vehicles fitted with gas apparatus during the year.	No. of vehicles fitted with improved lamps during the year.
Sydney	c. ft. 8,000,000	c. ft. 4,320,000	48	95
Bathurst	2,236,000	1,183,000	.....	.....
Junee	1,176,000	1,026,400	.....	.....
Newcastle ... ..	.....	775,000	21	.....

GENERAL REMARKS.

The locomotive, carriage, and waggon stock, and machinery have been maintained in good working order.

All our stock of patterns was destroyed, and a number of machines were damaged by fire in August last, but no very serious hindrance to the carrying on of the work resulted therefrom as a temporary pattern shop was at once provided at Eveleigh, and the damaged machinery was repaired and put in working order.

Owing to the sufficiency of the rainfall during the year, we have felt less inconvenience in maintaining our water supplies in a state of efficiency than has been the case for several years.

The drought having broken up there is every probability of increased traffic on our lines during the present year, and as in the past great difficulty was experienced in supplying motive power for the traffic, I would again urge upon the Commissioner the necessity for increasing the number of passenger and goods engines with as little delay as possible.

I have &c.,
W. SCOTT,
Locomotive Engineer.

LIST OF MACHINERY ADDED TO STOCK DURING THE YEAR 1886.*

No.	Description.	Remarks.
GREAT SOUTHERN AND WESTERN LINES.		
302	6-in. screw-cutting lathe	In running shed, Eveleigh.
303	10-in. do	do do
305	4-ft. wheel turning lathe	In machine shop, Junee.
306	Overhead crab-winch	do do
307	Double circular saw	In temporary pattern-shop, Eveleigh.
308	Vertical drilling machine	In running shed, Eveleigh.
309	12-in. wood lathe	In temporary pattern-shop, Eveleigh.
310	Emery machine	
311	Band saw	
312	6-in. wood lathe	In machine shop, Sydney.
313	6-in. screw cutting lathe...	
314	Grindstone and trough	do do
315	12-in. screw cutting lathe	In running shed, Eveleigh.
316	8-in. do do	do do
317	Shaping machine ...	do do
318	Locomotive steam travelling crane	In general use at Sydney.
319	3-cwt. steam hammer	In use at Bathurst.
320	Valve facing machine (outside cylinders)	do Sydney.
321	Do do do	do do
323	Gas reservoir	In gas-works, Junee.
324	12-h.p. boiler	do Bathurst.
338	Spring testing machine	No. 2 shop, Eveleigh.
344	Punching and shearing machine	do do
345	Nut making machine and furnace	do do
346	Bolt heading machine	do do
347	Bar cropping machine	do do
349	Power-hammer	do do
351	3-cwt. steam hammer	do do
352	3-cwt. do.	do do
354	20-h.p. wall engine	No. 3 shop, do
356	40-h.p. tubular boiler	do do
358	16-ton travelling crane	do do
359	Large plate furnace	do do
360	Small do	do do
364	Automatic punching and shearing machine	do do
368	Large bending roll	No. 3 shop, Eveleigh, received from Permanent Way Branch to replace No. 156 lent to that branch.
369	Small do	No. 3 shop, Eveleigh.
374	Large grindstone and trough	do do
382	Wrought-iron reservoir	In gas-works, Bathurst.

* A statement of the machinery in workshops prior to 1886 will be found in the Report for 1885.

No. 2—continued.

LIST OF MACHINERY ADDED TO STOCK DURING THE YEAR 1886—continued.

No.	Description.	Remarks.
GREAT NORTHERN LINE.		
94	8-in. stroke slotting machine	In machine shop, Honeysuckle Point.
95	Drilling-machine (small)	In carriage shop do
96	Steam spring tester	In blacksmiths' shop do
97	30-h.p. engine and boiler (Robey's)	In machine shop do
98	6-in. screw cutting lathe... ..	Armidale.
99	4 pairs portable steel-yards	General at Honeysuckle Point.
100	Crab winch on iron gauntree for lifting engines, boilers, &c... ..	do do
101	30-in. fan blast	Blacksmiths' shop, Honeysuckle Pt.
102	10-in. self-acting screw cutting lathe	Machine shop, Honeysuckle Point.
111	4 pairs portable steel-yards	Singleton.

PUMPING MACHINERY ADDED TO STOCK DURING THE YEAR 1886.

No.	Place.	Description.	Remarks.
GREAT SOUTHERN AND WESTERN LINES.			
253	Menangle	Water crane	Addition to water-supply works
254	Esk Bank	20,000-gallon tank	do do
255	Do	Pillar crane	do do
256	Rockdale	20,000-gallon tank	do do
257	Do	Pillar crane	do do
258	Do	do	do do
259	Gundagai	6-h.p. horizontal engine and boiler, and 3 4½" deep well-pumps.	New extension of line.
260	Do	20,000-gallon tank with jib-crane attached	do do
261	Dubbo	Pillar crane	Addition to water-supply works
262	Bathurst	do	do do
263	Do	do	do do
264	Do	do	do do
265	Do	42,000-gallon tank	do do
266	Do	14,000 do	do do
267	Orange	20,000 do	do do
268	Do	Pillar crane	do do
269	Heathcote	Tangye steam-pump, 8" x 4"	New extension of line.
270	Do	20,000-gallon tank with jib-crane attached	do do
271	(2 miles) Gundagai Branch.	Tangye steam-pump, 7" x 5"	do do
272	Do	20,000-gallon tank with jib-crane attached	do do
273	Dubbo	Pillar crane	Addition to water-supply works
GREAT NORTHERN LINE.			
69	West Maitland	8" x 6" Tangye engine-boiler and pump	Addition to water-supply works
70	Deepwater	7" x 5" do do do	New extension of line.
71	Do	20,000-gallon tank with jib-crane attached	do do
72	Tenterfield	Shanks and Sons' engine-boiler, and three single-acting 4" deep well-pumps.	do do
73	Do	20,000-gallon tank with jib-crane attached	do do
74	Do	Pillar crane	do do
75	Do	do	do do

GREAT SOUTHERN, WESTERN, AND RICHMOND RAILWAYS.

LIST AND CONDITION OF LOCOMOTIVE ENGINES AND TENDERS ON 31ST DECEMBER, 1886.

Stock No.	Maker's Name.	Maker's No.	Class.	Description.	Cylinders.			Number of wheels on Engine.	Coupled or single Wheels.	Diameter of Wheels.			Commenced to run.	Condition.
					Position.	Diameter.	Length of stroke.			Leading.	Driving.	Trailing.		
1	Beyer, Peacock, & Co.....	1892	Goods	Tender engine	Inside...	inches 18	inches 24	6	All coupled	ft. in. 4 0	ft. in. 4 0	ft. in. 4 0	April, 1880...	In fair order.
2	Do	1893	do	do	do	18	24	6	do	4 0	4 0	4 0	do	In good order.
3	Do	1894	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do
4	Do	1895	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do
5	Hawthorne & Sons	944	Passenger.	do	do	14	22	6	4-coupled	4 6	4 6	3 6	Nov., 1856...	do
10	Railway Works, Sydney	1	do	do	do	17	24	6	do	3 6	5 6	5 6	June, 1870...	Under repairs.
13	Manning, Wardle, & Co.	43	do	do	Outside	16	22	6	do	3 6	5 0	5 0	Jan., 1863...	do
14	Beyer, Peacock, & Co.	541	do	do	Inside...	16	20	6	Single	3 6	6 0	3 6	Nov., 1865...	Requires overhaul.
15	Do	543	do	do	do	16	20	6	do	3 6	6 0	3 6	Jan., 1866...	Under repairs.
16	Do	542	do	do	do	16	20	6	do	3 6	6 0	3 6	Dec., 1865...	In good order.
17	R. Stephenson & Sons.....	1541	Goods	do	do	18	24	6	4-coupled	4 0	4 0	4 0	May, 1865...	Under repairs.
18	Do	1542	do	do	do	18	24	6	do	4 0	4 0	4 0	Sept., 1866...	In good order.
19	Do	1543	do	do	do	18	24	6	do	4 0	4 0	4 0	" 1865...	do
20	Do	1547	do	do	do	18	24	6	do	4 0	4 0	4 0	Jan., 1867...	do
21	Do	1548	do	do	do	18	24	6	do	4 0	4 0	4 0	do	In fair order.
22	Do	1549	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do
23	Beyer, Peacock, & Co.	443	Passenger.	2-wheel bogie and tender	Outside	18	24	6	do	3 0	5 9	5 9	April, 1867...	Waiting for repairs.
24	Do	444	do	do	do	18	24	6	do	3 0	5 9	5 9	Feb., 1867...	Under repairs.
25	Do	445	do	do	do	18	24	6	do	3 0	5 9	5 9	April, 1867...	Waiting for repairs.
26	Do	449	do	do	do	18	24	6	do	3 0	5 9	5 9	Oct., 1865...	In fair order.
27	Do	450	do	do	do	18	24	6	do	3 0	5 9	5 9	Nov., 1866...	Under repairs.
28	Do	451	do	do	do	18	24	6	do	3 0	5 9	5 9	Mar., 1867...	Requires overhaul.
29	Manning, Wardle, & Co.	88	do	Tank engine	Inside...	11	17	6	6-coupled	3 0	3 0	3 0	" 1864...	In good order.
30	Do	109	do	do	do	11	17	6	do	3 0	3 0	3 0	Aug., 1864...	In fair order.
31	Do	89	do	do	do	11	17	6	do	3 0	3 0	3 0	do	In good order.
32	Beyer, Peacock, & Co.	928	do	2-wheel bogie and tender	Outside	18	24	6	4-coupled	3 0	5 6	5 6	Nov., 1870...	Under repairs.
33	Do	929	do	do	do	18	24	6	do	3 0	5 6	5 6	do	In good order.
34	Do	930	do	do	do	18	24	6	do	3 0	5 6	5 6	Dec., 1870...	In fair order.
35	Do	931	do	do	do	18	24	6	do	3 0	5 6	5 6	do	Under repairs.
36	Mort & Co.	1	Mixed	Tender engine	Inside...	16	24	6	do	5 6	5 6	3 6	Sept., 1870...	In good order.
37	Do	2	do	do	do	16	24	6	do	5 6	5 6	3 6	Nov., 1870...	do
38	Do	3	do	do	do	16	24	6	do	5 6	5 6	3 6	Dec., 1870...	do
39	Do	4	do	do	do	16	24	6	do	5 6	5 6	3 6	Feb., 1871...	do
40	Vale & Lacy	5	Goods	do	do	18	24	6	All coupled	4 0	4 0	4 0	Dec., 1870...	do
41	Do	6	do	do	do	18	24	6	do	4 0	4 0	4 0	Jan., 1871...	do
42	Do	7	do	do	do	18	24	6	do	4 0	4 0	4 0	Mar., 1871...	do
43	Do	8	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do
44	R. Stephenson & Sons.....	1981	do	do	do	18	24	6	do	4 0	4 0	4 0	Dec., 1870...	Under repairs.
45	Do	1982	do	do	do	18	24	6	do	4 0	4 0	4 0	Feb., 1871...	In good order.
46	Do	1983	do	do	do	18	24	6	do	4 0	4 0	4 0	Mar., 1871...	Requires overhaul.
47	Do	1984	do	do	do	18	24	6	do	4 0	4 0	4 0	do	In good order.
48	Do	2181	do	do	do	19	26	6	do	4 0	4 0	4 0	Dec., 1874...	Requires overhaul.
49	Do	2182	do	do	do	19	26	6	do	4 0	4 0	4 0	do	In fair order.
50	Do	2183	do	do	do	19	26	6	do	4 0	4 0	4 0	do	do
51	Do	2184	do	do	do	19	26	6	do	4 0	4 0	4 0	do	In good order.

List and Condition of Locomotive Engines and Tenders, &c., 1886—continued.

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Stock No	Maker's Name	Maker's No	Class.	Description	Cylinders.			Number of wheels on Engine.	Coupled or single Wheels	Diameter of Wheels.			Commenced to run.	Condition
					Position.	Diameter.	Length of stroke.			Leading	Driving.	Trailing.		
52	R Stephenson & Sons.....	2348	Goods	Tender engine	Inside...	inches 18	inches 24	6	All coupled ...	ft. in. 4 0	ft. in. 4 0	ft. in. 4 0	July, 1879	In good order.
53	Do	2185	do	do	do	19	26	6	do	4 0	4 0	4 0	Feb, 1875	Under repairs.
54	Do	2187	do	do	do	19	26	6	do	4 0	4 0	4 0	May, 1875...	In fair order.
55	Do	2188	do	do	do	19	26	6	do	4 0	4 0	4 0	do	Requires overhaul.
56	Do	2189	do	do	do	19	26	6	do	4 0	4 0	4 0	Aug, 1875	Under repairs.
57	Do	2190	do	do	do	19	26	6	do	4 0	4 0	4 0	July, 1875	In fair order.
58	Do	2191	do	do	do	19	26	6	do	4 0	4 0	4 0	Aug, 1875	In good order.
59	Do	2192	do	do	do	19	26	6	do	4 0	4 0	4 0	do	Under repairs.
60	Do	2194	Passenger.	do	do	19	28	6	do	5 0	5 0	5 0	Oct, 1874	In fair order.
61	Do	2193	do	do	do	19	28	6	do	5 0	5 0	5 0	Nov, 1874	Waiting for repairs.
62	Do	2195	do	do	do	19	28	6	do	5 0	5 0	5 0	Dec, 1874	do
63	Do	2196	do	do	do	19	28	6	do	5 0	5 0	5 0	do	Under repairs.
64	Do	2198	do	do	do	19	28	6	do	5 0	5 0	5 0	do	In good order.
65	Do	2197	do	do	do	19	28	6	do	5 0	5 0	5 0	do	In fair order.
66	Manning, Wardle, & Co.	182	do	Tank engine ...	do	12	17	6	do	3 0	3 0	3 0	Jan., 1875	Waiting for repairs.
67	Mort & Co	15	do	do	do	13	20	6	do	4 0	4 0	4 0	Feb, 1874	Under repairs.
68	Do	16	do	do	do	13	20	6	do	4 0	4 0	4 0	Mar., 1875	In good order.
69	Do	17	do	do	do	13	20	6	do	4 0	4 0	4 0	July, 1875	In fair order.
70	Do	18	do	do	do	13	20	6	do	4 0	4 0	4 0	do	do
71	Valc & Lacy	Nil.	do	do	do	13	20	6	do	4 0	4 0	4 0	do	In good order.
72	Do	do	do	do	do	13	20	6	do	4 0	4 0	4 0	do	In fair order.
73	Do	do	do	do	do	13	20	6	do	4 0	4 0	4 0	do	In good order.
74	Do	do	do	do	do	13	20	6	do	4 0	4 0	4 0	do	In fair order.
75	Railway Works	do	Mixed	Tender engine	do	16	24	6	4-coupled	5 6	5 6	3 9	Aug., 1875.	do
76	Do	do	do	do	do	16	24	6	do	5 6	5 6	3 9	„ 1876...	do
77	Do	do	do	do	do	17	24	6	do	5 6	5 6	3 9	April, 1877	Waiting for repairs.
78	Do	do	do	do	do	17	24	6	do	5 6	5 6	3 9	Sept., 1877	In good order.
79	Beyer, Peacock, & Co	1624	Passenger.	4-wheel bogie and tender	Outside.	18	24	8	do	3 0	5 6	5 6	Dec, 1877	do
80	Do	1625	do	do	do	18	24	8	do	3 0	5 6	5 6	May, 1877	do
81	Do	1626	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do
82	Do	1627	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do
83	Do	1628	do	do	do	18	24	8	do	3 0	5 6	5 6	April, 1877	Requires overhaul.
84	Do	1629	do	do	do	18	24	8	do	3 0	5 6	5 6	June, 1877...	In good order.
85	Do	1630	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do
86	Do	1631	do	do	do	18	24	8	do	3 0	5 6	5 6	do	In fair order.
87	Do	1632	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do
88	Do	1633	do	do	do	18	24	8	do	3 0	5 6	5 6	do	In good order.
89	Do	1634	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do
90	Do	1635	do	do	do	18	24	8	do	3 0	5 6	5 6	do	In fair order.
91	Do	1636	do	do	do	18	24	8	do	3 0	5 6	5 6	do	Requires overhaul.
92	Do	1637	do	do	do	18	24	8	do	3 0	5 6	5 6	Sept, 1877	In good order.
93	Do	1643	Goods	Tender engine	Inside...	18	24	6	All coupled	4 0	4 0	4 0	do	In fair order.
94	Do	1644	do	do	do	18	24	6	do	4 0	4 0	4 0	Aug., 1877...	In good order.
95	Do	1645	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do
96	Do	1646	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do
97	Do	1647	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do
98	Do	1648	do	do	do	18	24	6	do	4 0	4 0	4 0	July, 1877...	In fair order.

List and Condition of Locomotive Engines and Tenders, &c.—continued.

Stock No.	Maker's Name	Maker's No.	Class.	Description.	Cylinders			Number of wheels on Engine	Coupled or single Wheels.	Diameter of Wheels.			Commenced to run.	Condition.	
					Position.	Diameter.	Length of Stroke			Leading	Driving	Trailing.			
						inches	inches				ft. in.	ft. in.	ft. in.		
99	Beyer, Peacock, & Co.	1675	Goods	Tender engine	Inside	18	24	6	All coupled ...	4 0	4 0	4 0	July, 1877	In good order.	
100	Do ..	1676	do ..	do ...	do ...	18	24	6	do ..	4 0	4 0	4 0	do	do	
101	Do ..	1683	do ..	do ..	do ..	18	24	6	do ..	4 0	4 0	4 0	Nov, 1877	do	
102	Do ..	1684	do ..	do ..	do ..	18	24	6	do ..	4 0	4 0	4 0	do	do	
103	Stephenson & Sons	2349	do	do	do	18	24	6	do ..	4 0	4 0	4 0	July, 1879	do	
104	Beyer, Peacock, & Co	1686	do	do	do	18	24	6	do ..	4 0	4 0	4 0	Nov, 1877	do	
105	Baldwin Locomotive Works	4074	Passenger	4-wheel bogie and tender	Outside	18	24	8	4-coupled ...	2 6	5 3	5 3	Oct, 1877	Waiting for repairs.	
106	Beyer, Peacock, & Co	1753	Goods	Tender engine	Inside..	18	24	6	All coupled	4 0	4 0	4 0	Aug, 1878	In good order.	
107	Do	1754	do ..	do ..	do ..	18	24	6	do ..	4 0	4 0	4 0	Sept, 1878	Under repairs.	
108	Do ..	1755	do ..	do ..	do ...	18	24	6	do ..	4 0	4 0	4 0	do	In good order.	
109	Do ..	1756	do ..	do ..	do ..	18	24	6	do ..	4 0	4 0	4 0	do	do	
110	Do ..	1757	do ..	do ..	do ..	18	24	6	do ..	4 0	4 0	4 0	Aug, 1878	do	
111	Do ..	1758	do ..	do ..	do ..	18	24	6	do ..	4 0	4 0	4 0	do	In fair order.	
112	Do ..	1759	do ..	do ..	do ..	18	24	6	do ..	4 0	4 0	4 0	Dec, 1878	Under repairs	
113	Do ..	1760	do ..	do ..	do ..	18	24	6	do ..	4 0	4 0	4 0	do	In good order.	
114	Do ..	1761	do ..	do ..	do ..	18	24	6	do ..	4 0	4 0	4 0	do	In fair order	
115	Do ..	1762	do ..	do ..	do ..	18	24	6	do ..	4 0	4 0	4 0	do	In good order.	
116	Do ..	1763	do ..	do ..	do ..	18	24	6	do ..	4 0	4 0	4 0	do	do	
117	Do ..	1764	do ..	do ..	do ..	18	24	6	do ..	4 0	4 0	4 0	do	do	
118	Do ..	1765	Passenger	4-wheel bogie and tender	Outside	18	24	8	4-coupled .	3 0	5 6	5 6	Sept, 1878..	do	
119	Do ..	1766	do ..	do ..	do ..	18	24	8	do ..	3 0	5 6	5 6	do	Requires overhaul.	
120	Do ..	1767	do ..	do ..	do ..	18	24	8	do ..	3 0	5 6	5 6	do	Under repairs	
121	Do ..	1768	do ..	do ..	do ..	18	24	8	do ..	3 0	5 6	5 6	do	In good order.	
122	Do ..	1769	do ..	do ..	do ..	18	24	8	do ..	3 0	5 6	5 6	do	do	
123	Do ..	1770	do ..	do ..	do ..	18	24	8	do ..	3 0	5 6	5 6	do	do	
124	Do ..	1772	do ..	do ..	do ..	18	24	8	do ..	3 0	5 6	5 6	Jan, 1879	do	
125	Do ..	1774	do ..	do ..	do ..	18	24	8	do ..	3 0	5 6	5 6	do	In fair order.	
126	Do ..	1776	do ..	do ..	do ..	18	24	8	do ..	3 0	5 6	5 6	do	Under repairs.	
127	Vulcan Foundry Co ...	833	do ..	Tank engine	Inside ..	12	17	6	All coupled ...	3 0	3 0	3 0	April, 1879	In good order.	
128	Do ..	834	do ..	do ..	do ..	12	17	6	do ..	3 0	3 0	3 0	do	do	
129	Do ..	835	do ..	do ..	do ..	12	17	6	do ..	3 0	3 0	3 0	do	Under repairs.	
130	Baldwin Locomotive Works	4395	do	4-wheel bogie and tender	Outside	18	24	8	4-coupled	2 6	5 3	5 3	do	Requires overhaul.	
131	Do ..	4405	Goods ..	2-wheel bogie and tender	do ..	20	24	10	8-coupled	2 6	4 0	4 0	do	In good order.	
132	Do ..	4414	do ..	do ..	do ..	20	24	10	do ..	2 6	4 0	4 0	do	In fair order	
133	Do ..	4525	do ..	do ..	do ..	20	24	10	do ..	2 6	4 0	4 0	Sept, 1879	In good order.	
134	Do ..	4526	do ..	do ..	do ..	20	24	10	do ..	2 6	4 0	4 0	do	Under repairs.	
135	Do ..	4 27	do ..	do ..	do ..	20	24	10	do ..	2 6	4 0	4 0	Aug, 1879	Waiting for repairs.	
136	Do ..	4528	do ..	do ..	do ..	20	24	10	do ..	2 6	4 0	4 0	Sept, 1879	do	
137	Do ..	4529	do ..	do ..	do ..	20	24	10	do ..	2 6	4 0	4 0	do	In good order.	
138	Do ..	4530	do ..	do ..	do ..	20	24	10	do ..	2 6	4 0	4 0	do	do	
139	Do ..	4531	do ..	do ..	do ..	20	24	10	do ..	2 6	4 0	4 0	Aug, 1879.	In fair order.	
140	Do ..	4533	do ..	do ..	do ..	20	24	10	do ..	2 6	4 0	4 0	Sept, 1879	do	
141	Do ..	4535	do ..	do ..	do ..	20	24	10	do ..	2 6	4 0	4 0	do	In good order.	
142	Beyer, Peacock, & Co. .	1890	do	Tender engine ...	Inside	18	24	6	All coupled	4 0	4 0	4 0	Dec, 1879	do	
143	Dubs & Co.	1275	Passenger	4-wheel bogie and tender	Outside	18	24	8	4-coupled	3 0	5 6	5 6	April, 1880 .	Under repairs.	
144	Do ..	1269	do ..	do ..	do ..	18	24	8	do ..	3 0	5 6	5 6	Mar, 1880...	In fair order	
145	Do ..	1270	do ..	do ..	do ..	18	24	8	do ..	3 0	5 6	5 6	do	Requires overhaul.	

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No. 2—continued.

LIST and Condition of Locomotive Engines and Tenders, &c.—continued.

Stock No	Maker's Name.	Maker's No	Class.	Description.	Cylinders			Number of wheels on Engine	Coupled or single Wheels.	Diameter of Wheels.			Commenced to run.	Condition.
					Position	Diameter	Length of stroke			Leading	Driving.	Trailing.		
					inches				ft. in.					
146	Dubs & Co.	1271	Passenger	4-wheel bogie and tender	Outside	18	24	8	4-coupled	3 0	5 6	5 6	March, 1880	In good order.
147	Do	1272	do	do	do	18	24	8	do	3 0	5 6	5 6	do	In fair order.
148	Do	1273	do	do	do	18	24	8	do	3 0	5 6	5 6	do	Under repairs.
149	Do	1274	do	do	do	18	24	8	do	3 0	5 6	5 6	do	Requires overhaul.
150	Do	1276	do	do	do	18	24	8	do	3 0	5 6	5 6	April, 1880	In good order.
151	Do	1277	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do
152	Do	1278	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do
153	Do	1279	do	do	do	18	24	8	do	3 0	5 6	5 6	do	In fair order.
154	Do	1285	do	do	do	18	24	8	do	3 0	5 6	5 6	May, 1880...	Requires overhaul.
155	Do	1286	do	do	do	18	24	8	do	3 0	5 6	5 6	do	Waiting for repairs
156	Do	1287	do	do	do	18	24	8	do	3 0	5 6	5 6	do	In fair order.
157	Do	1288	do	do	do	18	24	8	do	3 0	5 6	5 6	do	In good order.
158	Beyer, Peacock, & Co.	1909	do	4-wheel bogie and tank	Inside	16	24	8	do	3 0	5 0	5 0	Sept., 1880	do
159	Do	1910	do	do	do	16	24	8	do	3 0	5 0	5 0	Aug., 1880	do
160	Do	1911	do	do	do	16	24	8	do	3 0	5 0	5 0	do	do
161	Do	1912	do	do	do	16	24	8	do	3 0	5 0	5 0	Sept., 1880	do
162	Do	1913	do	do	do	16	24	8	do	3 0	5 0	5 0	do	do
163	Do	1914	do	do	do	16	24	8	do	3 0	5 0	5 0	do	do
164	Do	1920	Goods	Tender engine	do	18	24	6	All coupled	4 0	4 0	4 0	July, 1880	In fair order.
165	Dubs & Co.	1430	Passenger	4-wheel bogie and tender	Outside	18	24	8	4-coupled	3 0	5 6	5 6	Sept., 1880	In fair order.
166	Do	1431	do	do	do	18	24	8	do	3 0	5 6	5 6	April, 1881	In good order.
167	Do	1432	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do
168	Do	1433	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do
169	Do	1434	do	do	do	18	24	8	do	3 0	5 6	5 6	Mar., 1881	do
170	Do	1435	do	do	do	18	24	8	do	3 0	5 6	5 6	April, 1881	In fair order.
171	Beyer, Peacock, & Co.	2060	do	do	do	18	24	8	do	3 0	5 6	5 6	do	In good order.
172	Do	2061	do	do	do	18	24	8	do	3 0	5 6	5 6	Nov., 1881	do
173	Do	2062	do	do	do	18	24	8	do	3 0	5 6	5 6	do	In fair order.
174	Do	2063	do	do	do	18	24	8	do	3 0	5 6	5 6	do	In good order.
175	Atlas Company, Sydney	1	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do
176	Do	2	do	do	do	18	24	8	do	3 0	5 6	5 6	Jan., 1882	Requires overhaul
177	Do	3	do	do	do	18	24	8	do	3 0	5 6	5 6	Mar., 1882	In fair order.
178	Do	4	do	do	do	18	24	8	do	3 0	5 6	5 6	Feb., 1882...	do
179	Do	5	do	do	do	18	24	8	do	3 0	5 6	5 6	Mar., 1882	do
180	Do	6	do	do	do	18	24	8	do	3 0	5 6	5 6	Sept., 1882...	In good order.
181	Do	7	do	do	do	18	24	8	do	3 0	5 6	5 6	Oct., 1882...	do
182	Do	8	do	do	do	18	24	8	do	3 0	5 6	5 6	Dec., 1882	do
183	Beyer, Peacock, & Co.	2064	Goods	Tender engine	Inside	18	24	6	All coupled	4 0	4 0	4 0	do	do
184	Do	2065	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do
185	Do	2066	do	do	do	18	24	6	do	4 0	4 0	4 0	do	Requires overhaul.
186	Do	2067	do	do	do	18	24	6	do	4 0	4 0	4 0	do	In fair order.
187	Do	2068	do	do	do	18	24	6	do	4 0	4 0	4 0	do	Under repairs.
188	Do	2069	do	do	do	18	24	6	do	4 0	4 0	4 0	do	In good order.
189	Do	2070	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do
190	Do	2071	do	do	do	18	24	6	do	4 0	4 0	4 0	Nov., 1881...	do
191	Henry Vale, Sydney	16	do	do	do	18	24	6	do	4 0	4 0	4 0	do	In fair order.
192	Do	17	do	do	do	18	24	6	do	4 0	4 0	4 0	April, 1882...	In good order.
										4 0	4 0	4 0	May, 1882	In fair order.

No. 2—continued.

LIST and Condition of Locomotive Engines and Tenders, &c.—continued.

Stock No.	Maker's Name.	Maker's No.	Class.	Description.	Cylinders.			Number of wheels on Engine.	Coupled or single Wheels.	Diameter of Wheels.			Commenced to run.	Condition.
					Position.	Diameter.	Length of stroke.			Leading.	Driving.	Trailing.		
						inches.	inches.		ft. in.	ft. in.	ft. in.			
193	Henry Vale, Sydney	18	Goods	Tender engine	Inside	18	24	6	All coupled	4 0	4 0	4 0	July, 1882	Under repairs.
194	Do	19	do	do	do	18	24	6	do	4 0	4 0	4 0	do	In good order.
195	Do	20	do	do	do	18	24	6	do	4 0	4 0	4 0	Mar., 1883	Requires overhaul.
196	Do	21	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do
197	Do	22	do	do	do	18	24	6	do	4 0	4 0	4 0	do	In good order.
198	Do	23	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do
199	Do	24	do	do	do	18	24	6	do	4 0	4 0	4 0	April, 1884	do
200	Do	25	do	do	do	18	24	6	do	4 0	4 0	4 0	do	Under repairs.
201	Do	26	do	do	do	18	24	6	do	4 0	4 0	4 0	do	In good order.
202	Do	27	do	do	do	18	24	6	do	4 0	4 0	4 0	Sept., 1884	do
203	Do	28	do	do	do	18	24	6	do	4 0	4 0	4 0	do	In fair order.
204	Do	29	do	do	do	18	24	6	do	4 0	4 0	4 0	do	Requires overhaul.
205	Beyer, Peacock, & Co.	2073	do	2-wheel bogie and tender	Outside	18	26	8	6-coupled	2 9	4 0	4 0	Jan., 1882	In fair order.
206	Do	2074	do	do	do	18	26	8	do	2 9	4 0	4 0	do	In good order.
207	Do	2075	do	do	do	18	26	8	do	2 9	4 0	4 0	do	In fair order.
208	Do	2076	do	do	do	18	26	8	do	2 9	4 0	4 0	do	In good order.
209	Do	2077	do	do	do	18	26	8	do	2 9	4 0	4 0	Feb., 1882	do
210	Do	2078	do	do	do	18	26	8	do	2 9	4 0	4 0	do	do
211	Do	2079	do	do	do	18	26	8	do	2 9	4 0	4 0	Mar., 1882	do
212	Do	2080	do	do	do	18	26	8	do	2 9	4 0	4 0	Feb., 1882	do
213	Do	2081	do	do	do	18	26	8	do	2 9	4 0	4 0	Mar., 1882	do
214	Do	2082	do	do	do	18	26	8	do	2 9	4 0	4 0	do	In fair order.
215	Do	2083	do	do	do	18	26	8	do	2 9	4 0	4 0	April, 1882	In good order.
216	Do	2084	do	do	do	18	26	8	do	2 9	4 0	4 0	do	In fair order.
217	Do	2085	do	do	do	18	26	8	do	2 9	4 0	4 0	do	In good order.
218	Do	2086	do	do	do	18	26	8	do	2 9	4 0	4 0	do	do
219	Do	2091	do	do	do	18	26	8	do	2 9	4 0	4 0	May, 1882	Under repairs.
220	Do	2092	do	do	do	18	26	8	do	2 9	4 0	4 0	do	In good order.
225	Do	2308	do	do	do	18	26	8	do	2 9	4 0	4 0	Sept., 1883	do
226	Do	2309	do	do	do	18	26	8	do	2 9	4 0	4 0	do	In fair order.
227	Do	2310	do	do	do	18	26	8	do	2 9	4 0	4 0	do	In good order.
228	Do	2311	do	do	do	18	26	8	do	2 9	4 0	4 0	do	do
229	Do	2312	do	do	do	18	26	8	do	2 9	4 0	4 0	do	do
230	Do	2313	do	do	do	18	26	8	do	2 9	4 0	4 0	do	do
239	Do	2322	do	do	do	18	26	8	do	2 9	4 0	4 0	May, 1884	In fair order.
240	Do	2323	do	do	do	18	26	8	do	2 9	4 0	4 0	do	Under repairs.
241	Do	2324	do	do	do	18	26	8	do	2 9	4 0	4 0	do	In fair order.
242	Do	2325	do	do	do	18	26	8	do	2 9	4 0	4 0	do	In good order.
243	Do	2326	do	do	do	18	26	8	do	2 9	4 0	4 0	July, 1884	do
244	Do	2327	do	do	do	18	26	8	do	2 9	4 0	4 0	do	Requires overhaul.
245	Do	2328	do	do	do	18	26	8	do	2 9	4 0	4 0	do	In good order.
246	Do	2329	do	do	do	18	26	8	do	2 9	4 0	4 0	do	do
247	Do	2330	do	do	do	18	26	8	do	2 9	4 0	4 0	do	In fair order.
248	Do	2331	do	do	do	18	26	8	do	2 9	4 0	4 0	do	do
249	Do	2332	do	do	do	18	26	8	do	2 9	4 0	4 0	Aug., 1884	In good order.
250	Do	2333	do	do	do	18	26	8	do	2 9	4 0	4 0	do	In fair order.
251	Do	2334	do	do	do	18	26	8	do	2 9	4 0	4 0	do	do
252	Do	2335	do	do	do	18	26	8	do	2 9	4 0	4 0	do	do
253	Do	2336	do	do	do	18	26	8	do	2 9	4 0	4 0	do	Under repairs.

No. 2—continued.

List and Condition of Locomotive Engines and Tenders, &c.—continued.

Stock No.	Maker's Name.	Maker's No.	Class.	Description.	Cylinders.			Number of wheels on Engine.	Coupled or single Wheels.	Diameter of Wheels.			Commenced to run.	Condition.
					Position.	Diameter.	Length of stroke.			Leading.	Driving.	Trailing.		
					inches				ft. in.					
254	Beyer, Peacock, & Co.	2337	Goods	2-wheel bogie and tender	Outside	18	26	8	6-coupled	2 9	4 0	4 0	Aug, 1884	Under repairs.
255	Do	2150	Passenger	4-wheel bogie and tender	Inside	17	26	8	4-coupled	3 6	6 0	6 0	Nov, 1882	In good order.
256	Do	2151	do	do	do	17	26	8	do	3 6	6 0	6 0	Dec., 1882..	do
257	Do	2152	do	do	do	17	26	8	do	3 6	6 0	6 0	do	do
258	Do	2153	do	do	do	17	26	8	do	3 6	6 0	6 0	Jan., 1883...	do
259	Do	2154	do	do	do	17	26	8	do	3 6	6 0	6 0	do	do
260	Do	2155	do	do	do	17	26	8	do	3 6	6 0	6 0	do	do
265	Dubs & Co.	1764	do	do	do	18	26	8	do	3 6	6 0	6 0	Jan, 1884 .	do
266	Do	1765	do	do	do	18	26	8	do	3 6	6 0	6 0	do	In fair order.
267	Do	1766	do	do	do	18	26	8	do	3 6	6 0	6 0	do	In good order.
268	Do	1767	do	do	do	18	26	8	do	3 6	6 0	6 0	do	do
269	Do	1768	do	do	do	18	26	8	do	3 6	6 0	6 0	do	In fair order.
270	Do	1769	do	do	do	18	26	8	do	3 6	6 0	6 0	do	In good order.
271	Do	1770	do	do	do	18	26	8	do	3 6	6 0	6 0	do	Under repairs.
272	Do	1771	do	do	do	18	26	8	do	3 6	6 0	6 0	Dec, 1883 .	do
273	Do	1772	do	do	do	18	26	8	do	3 6	6 0	6 0	Jan, 1884	In good order.
274	Do	1773	do	do	do	18	26	8	do	3 6	6 0	6 0	Dec, 1883	do
275	Do	1774	do	do	do	18	26	8	do	3 6	6 0	6 0	Mar, 1884	do
276	Do	1775	do	do	do	18	26	8	do	3 6	6 0	6 0	do	In fair order.
277	Do	1776	do	do	do	18	26	8	do	3 6	6 0	6 0	do	In good order.
278	Do	1777	do	do	do	18	26	8	do	3 6	6 0	6 0	do	do
279	Do	1778	do	do	do	18	26	8	do	3 6	6 0	6 0	do	do
280	Do	1779	do	do	do	18	26	8	do	3 6	6 0	6 0	April, 1884	do
281	Do	1780	do	do	do	18	26	8	do	3 6	6 0	6 0	do	do
282	Do	1781	do	do	do	18	26	8	do	3 6	6 0	6 0	do	In fair order.
283	Do	1782	do	do	do	18	26	8	do	3 6	6 0	6 0	do	In good order.
284	Do	1783	do	do	do	18	26	8	do	3 6	6 0	6 0	do	do
285	Vulcan Foundry Company	992	do	Tank Engine	do	15	22	6	All coupled	4 0	4 0	4 0	do	do
286	Do	993	do	do	do	15	22	6	do	4 0	4 0	4 0	do	do
287	Do	994	do	do	do	15	22	6	do	4 0	4 0	4 0	May, 1884..	Waiting for repairs.
288	Do	995	do	do	do	15	22	6	do	4 0	4 0	4 0	do	In good order.
289	Do	996	do	do	do	15	22	6	do	4 0	4 0	4 0	do	do
290	Do	997	do	do	do	15	22	6	do	4 0	4 0	4 0	do	do
294	Baldwin Loco. Works	7387	Goods	Single bogie (Mogul class) and tender.	Outside	19	24	8	6-coupled	2 6	4 0	4 0	Mar., 1885 .	do
295	Do	7388	do	do	do	19	24	8	do	2 6	4 0	4 0	do	Waiting for repairs.
296	Do	7389	do	do	do	19	24	8	do	2 6	4 0	4 0	April, 1885 ..	do
297	Do	7390	do	do	do	19	24	8	do	2 6	4 0	4 0	Feb., 1885...	Under repairs.
298	Do	7391	do	do	do	19	24	8	do	2 6	4 0	4 0	do	do
299	Do	7392	do	do	do	19	24	8	do	2 6	4 0	4 0	do	Requires overhaul.
300	Do	7394	do	do	do	19	24	8	do	2 6	4 0	4 0	Mar., 1885...	do
301	Do	7395	do	do	do	19	24	8	do	2 6	4 0	4 0	do	Under repairs.
302	Do	7396	do	do	do	19	24	8	do	2 6	4 0	4 0	Feb, 1885 ..	do
303	Do	7398	do	do	do	19	24	8	do	2 6	4 0	4 0	do	In good order.
304	Do	7417	Passenger.	do	do	18	26	8	do	3 0	5 0	5 0	July, 1885	do
305	Do	7418	do	do	do	18	26	8	do	3 0	5 0	5 0	do	do
306	Do	7424	do	do	do	18	26	8	do	3 0	5 0	5 0	Aug., 1885...	do
307	Do	7425	do	do	do	18	26	8	do	3 0	5 0	5 0	Mar., 1885	do
308	Do	7426	do	do	do	18	26	8	do	3 0	5 0	5 0	April, 1885	In fair order.

No. 2—continued.

List and Condition of Locomotive Engines and Tenders, &c.—continued.

Stock No.	Maker's Name.	Maker's No.	Class.	Description.	Cylinders.			Number of wheels on Engine.	Coupled or single Wheels.	Diameter of Wheels.			Commenced to run.	Condition
					Position	Diameter.	Length of stroke.			Leading.	Driving.	Trailing.		
309	Baldwin Loco. Works	7528	Passenger.	Single bogie (Mogul class) and tender.	Outside.	inches 18	inches 26	8	6-coupled	ft. in. 3 0	ft. in. 5 0	ft. in. 5 0	Sept., 1885	In good order.
310	Do	7430	do	do	do ..	18	26	8	do	3 0	5 0	5 0	April, 1885	Under repairs.
311	Do	7431	do	do	do ..	18	26	8	do	3 0	5 0	5 0	Mar., 1885	In good order.
312	Do	7435	do	do	do ..	18	26	8	do	3 0	5 0	5 0	July, 1885	Under repairs.
313	Do	7437	do	do	do ..	18	26	8	do	3 0	5 0	5 0	Mar., 1885	In good order.
314	Beyer, Peacock, & Co.....	2547	Goods	do	do ..	18	26	8	do	2 9	4 0	4 0	June, 1885 ..	do
315	Do	2548	do	do	do ..	18	26	8	do	2 9	4 0	4 0	do	do
316	Do	2549	do	do	do ..	18	26	8	do	2 9	4 0	4 0	do	do
317	Do	2550	do	do	do ..	18	26	8	do	2 9	4 0	4 0	do	do
318	Do	2551	do	do	do ..	18	26	8	do	2 9	4 0	4 0	July, 1885	do
319	Do	2552	do	do	do ..	18	26	8	do	2 9	4 0	4 0	do	do
320	Do	2553	do	do	do ..	18	26	8	do	2 9	4 0	4 0	do	do
321	Do	2554	do	do	do ..	18	26	8	do	2 9	4 0	4 0	do	do
322	Do	2560	do	do	do ..	18	26	8	do	2 9	4 0	4 0	Sept., 1885 ..	do
323	Do	2561	do	do	do ..	18	26	8	do	2 9	4 0	4 0	do	do
324	Do	2562	do	do	do ..	18	26	8	do	2 9	4 0	4 0	do	do
325	Do	2563	do	do	do ..	18	26	8	do	2 9	4 0	4 0	Oct., 1885	do
326	Do	2564	do	do	do ..	18	26	8	do	2 9	4 0	4 0	do	do
327	Do	2565	do	do	do ..	18	26	8	do	2 9	4 0	4 0	do	do
328	Do	2566	do	do	do ..	18	26	8	do	2 9	4 0	4 0	do	do
341	Dubs & Co.	2136	Passenger.	Express: double bogie and tender with Joy's patent valve gear.	Inside..	18	26	8	4-coupled ...	3 6	6 0	6 0	Nov., 1885 ..	do
342	Do	2137	do	do	do ..	18	26	8	do	3 6	6 0	6 0	do	do
343	Do	2138	do	do	do ..	18	26	8	do	3 6	6 0	6 0	Oct., 1885 ..	do
344	Do	2139	do	do	do ..	18	26	8	do	3 6	6 0	6 0	Dec., 1885	do
345	Do	2147	do	do	do ..	18	26	8	do	3 6	6 0	6 0	Feb., 1886 ..	do
346	Do	2148	do	do	do ..	18	26	8	do	3 6	6 0	6 0	Jan., 1886...	do
347	Do	2140	do	do	do ..	18	26	8	do	3 6	6 0	6 0	Mar., 1886 ..	do
348	Do	2150	do	do	do ..	18	26	8	do	3 6	6 0	6 0	Feb., 1886 ..	do
349	Do	2151	do	do	do ..	18	26	8	do	3 6	6 0	6 0	Mar., 1886 ..	do
350	Do	2152	do	do	do ..	18	26	8	do	3 6	6 0	6 0	Feb., 1886...	do
351	Beyer, Peacock, & Co.....	2657	do	Tank engine	do ..	15	22	6	do	3 6	5 0	5 0	Dec., 1885	do
352	Do	2658	do	do	do ..	15	22	6	do	3 6	5 0	5 0	Nov., 1885	do
353	Do	2659	do	do	do ..	15	22	6	do	3 6	5 0	5 0	do	do
354	Do	2660	do	do	do ..	15	22	6	do	3 6	5 0	5 0	do	do
355	Do	2661	do	do	do ..	15	22	6	do	3 6	5 0	5 0	Dec., 1885...	do
356	Do	2662	do	do	do ..	15	22	6	do	3 6	5 0	5 0	do	do
357	Do	2663	do	do	do ..	15	22	6	do	3 6	5 0	5 0	Feb., 1886	do
358	Do	2664	do	do	do ..	15	22	6	do	3 6	5 0	5 0	Mar., 1886 ..	do
359	Do	2665	do	do	do ..	15	22	6	do	3 6	5 0	5 0	do	do
360	Do	2666	do	do	do ..	15	22	6	do	3 6	5 0	5 0	Feb., 1886...	do
361	Do	2667	do	do	do ..	15	22	6	do	3 6	5 0	5 0	Jan., 1886	do
362	Do	2668	do	do	do ..	15	22	6	do	3 6	5 0	5 0	Mar., 1886...	do
369	Henry Vale	31	Goods	Tender engine	do ..	18	24	6	All coupled	4 0	4 0	4 0	Feb., 1886	do
370	Do	32	do	do	do ..	18	24	6	do	4 0	4 0	4 0	do	In fair order.
371	Do	33	do	do	do ..	18	24	6	do	4 0	4 0	4 0	do	In good order.
372	Do	34	do	do	do ..	18	24	6	do	4 0	4 0	4 0	Jan., 1886 ..	do

No. 2—continued.

GREAT NORTHERN RAILWAY.

List and Condition of Locomotive Engines and Tenders on 31st December, 1886.

Stock No	Maker's Name.	Maker's No.	Class.	Description	Cylinders.			Number of wheels on Engine	Coupled or single Wheels.	Diameter of Wheels.			Commenced to run.	Condition.	
					Position.	Diameter	Length of Stroke			Leading.	Driving.	Trailing.			
						inches	inches				ft. in.	ft. in.	ft. in.		
1	Fairbairn & Sons	...	Passenger	Tender engine	Inside...	16	24	6	4-coupled	5 6	5 6	3 9	Mar., 1857	In good order.	
2	Do	...	do	do	do	16	24	6	do	5 6	5 6	3 9	do	do	
3	Do	...	do	do	do	16	24	6	do	5 6	5 6	3 9	do	Undergoing repairs.	
4	Do	...	do	do	do	14	22	6	do	4 6	4 6	3 0	Mar., 1856	Requires repairs.	
6	Manning, Wardle, & Co.	39	Goods	4-wheel bogie and tank.	Outside	16	24	6	do	3 0	4 6	4 6	Mar., 1863...	In good order	
7	Do	38	do	do	do	16	24	6	do	3 0	4 6	4 6	do	In fair order.	
9	Do	32	do	Tank engine	Inside	12	17	6	All-coupled	3 0	3 0	3 0	June, 1864	In good order.	
10	Do	42	do	2-wheel bogie and tender	Outside	16	22	6	4-coupled	3 6	5 0	5 0	Sept., 1864	In fair order.	
11	Stephenson & Co	1544	do	Tender engine	Inside..	18	24	6	All-coupled	4 0	4 0	4 0	July, 1865	Undergoing repairs.	
12	Do	1545	do	do	do	18	24	6	do	4 0	4 0	4 0	do	In fair order.	
13	Do	1546	do	do	do	18	24	6	do	4 0	4 0	4 0	do	In good order.	
14	Beyer, Peacock, & Co	446	do	2-wheel bogie and tender	Outside	18	24	6	4-coupled	3 0	5 9	5 9	Sept., 1865...	do	
15	Do	447	do	do	do	18	24	6	do	3 0	5 9	5 9	do	Undergoing repairs.	
16	Do	448	do	do	do	18	24	6	do	3 0	5 9	5 9	do	In fair order	
18	Mort & Co.	8	do	Tender engine	Inside	18	24	6	All-coupled	4 0	4 0	4 0	May, 1871...	In good order.	
19	Do	9	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do	
20	Kittson & Co.	1620	do	Tank engine	do	16	24	6	do	4 0	4 0	4 0	June, 1872...	do	
21	Vale & Lacy	...	do	Tender engine	do	18	24	6	do	4 0	4 0	4 0	Nov., 1873...	do	
22	Do	...	do	do	do	18	24	6	do	4 0	4 0	4 0	do	Requires repairs	
23	Mort & Co	12	do	do	do	18	24	6	do	3 9	3 9	3 9	July, 1874	In fair order.	
24	Do	14	do	do	do	18	24	6	do	3 9	3 9	3 9	Aug., 1874...	do	
25	Do	11	do	do	do	18	24	6	do	3 9	3 9	3 9	June, 1875	Requires repairs.	
26	Do	13	do	do	do	18	24	6	do	3 9	3 9	3 9	do	do	
27	Beyer, Peacock, & Co	1620	Passenger	4-wheel bogie and tender	Outside	18	24	8	4-coupled	3 0	5 6	5 6	July, 1877 ..	In good order.	
28	Do	1621	do	do	do	18	24	8	do	3 0	5 6	5 6	Aug., 1877...	do	
29	Do	1622	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do	
30	Do	1623	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do	
31	Do	1677	Goods	Tender engine	Inside	18	24	6	All-coupled	4 0	4 0	4 0	Oct., 1877	Requires repairs.	
32	Do	1678	do	do	do	18	24	6	do	4 0	4 0	4 0	do	In good order.	
33	Do	1679	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do	
34	Do	1680	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do	
35	Do	1681	do	do	do	18	24	6	do	4 0	4 0	4 0	Sept., 1877...	Requires repairs.	
36	Do	1682	do	do	do	18	24	6	do	4 0	4 0	4 0	do	In fair order.	
37	Do	1771	Passenger	4-wheel bogie and tender	Outside	18	24	8	4-coupled	3 0	5 6	5 6	Feb, 1879 .	do	
38	Do	1773	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do	
39	Do	1775	do	do	do	18	24	8	do	3 0	5 6	5 6	do	In good order.	
40	Do	1887	Goods	Tender engine	Inside .	18	24	6	All-coupled	4 0	4 0	4 0	Feb., 1880	do	
41	Do	1888	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do	
42	Do	1889	do	do	do	18	24	6	do	4 0	4 0	4 0	do	In fair order.	

No. 2—continued.

LIST and Condition of Locomotive Engines and Tenders, &c.—continued.

Stock No	Maker's Name.	Maker's No	Class.	Description.	Cylinders.			Number of wheels on Engine.	Coupled or single Wheels.	Diameter of Wheels.			Commenced to run	Condition.
					Position	Diameter	Length of stroke.			Leading	Driving.	Trailing		
43	Beyer, Peacock, & Co.....	1896	Goods ...	Tender engine	Inside...	inches	inches	6	All coupled	ft. in.	ft. in.	ft. in.	May, 1880 .	In good order.
44	Do	1897	do ..	do	do ..	18	24	6	do	4 0	4 0	4 0	June, 1880	Requires repairs.
45	Do	1898	do ..	do	do ..	18	24	6	do	4 0	4 0	4 0	Aug., 1880...	In fair order.
46	Do	1899	do ..	do	do ..	18	24	6	do	4 0	4 0	4 0	do	In good order.
47	Dubs & Co.	1280	Passenger	4-wheel bogie and tender	Outside .	18	24	8	4-coupled	3 0	5 6	5 6	Dec., 1880	do
48	Do	1281	do ..	do	do ..	18	24	8	do	3 0	5 6	5 6	do	In fair order.
49	Do	1282	do ..	do	do ..	18	24	8	do	3 0	5 6	5 6	Jan., 1881...	do
50	Do	1283	do ..	do	do ..	18	24	8	do	3 0	5 6	5 6	do	In good order.
51	Do	1284	do ..	do	do ..	18	24	8	do	3 0	5 6	5 6	Feb., 1881	do
221	Beyer, Peacock, & Co.	2087	Goods ...	2-wheel bogie and tender	do	18	26	8	6-coupled .. .	2 9	4 0	4 0	May, 1882	do
222	Do	2088	do ..	do	do	18	26	8	do	2 9	4 0	4 0	do	do
223	Do	2089	do ..	do	do	18	26	8	do	2 9	4 0	4 0	do	do
224	Do	2090	do ..	do	do	18	26	8	do	2 9	4 0	4 0	do	Undergoing repairs.
231	Do	2314	do ..	do	do	18	26	8	do	2 9	4 0	4 0	Oct., 1883...	In fair order.
232	Do	2315	do ..	do	do ..	18	26	8	do	2 9	4 0	4 0	do	In good order.
233	Do	2316	do ..	do	do ..	18	26	8	do	2 9	4 0	4 0	do	do
234	Do	2317	do ..	do	do ..	18	26	8	do	2 9	4 0	4 0	do	do
235	Do	2318	do ..	do	do ..	18	26	8	do	2 9	4 0	4 0	Nov., 1883	do
236	Do	2319	do ..	do	do ...	18	26	8	do	2 9	4 0	4 0	do	do
237	Do	2320	do ..	do	do ..	18	26	8	do	2 9	4 0	4 0	Dec., 1883...	Requires repairs.
238	Do	2321	do ..	do	do ..	18	26	8	do	2 9	4 0	4 0	do	In good order.
261	Dubs & Co.	1760	Passenger.	4-wheel bogie and tender	Inside .	18	26	8	4-coupled	3 6	6 0	6 0	Oct., 1883...	do
262	Do	1761	do ..	do	do ..	18	26	8	do	3 6	6 0	6 0	do	do
263	Do	1762	do ..	do	do ..	18	26	8	do	3 6	6 0	6 0	do	In fair order.
264	Do	1763	do ..	do	do ..	18	26	8	do	3 6	6 0	6 0	do	do
291	Beyer, Peacock, & Co.	1891	Goods ..	Tender engine	do ...	18	24	6	All coupled	4 0	4 0	4 0	Feb., 1883	do
329	Do	2555	do ..	2-wheel bogie and tender	Outside	18	26	8	6-coupled	2 9	4 0	4 0	Sept., 1885 .	In good order.
330	Do	2556	do ..	do	do	18	26	8	do	2 9	4 0	4 0	Aug., 1885	do
331	Do	2557	do ..	do	do	18	26	8	do	2 9	4 0	4 0	do	do
332	Do	2558	do ..	do	do ..	18	26	8	do	2 9	4 0	4 0	do	do
333	Do	2559	do ..	do	do ..	18	26	8	do	2 9	4 0	4 0	do	do
334	Dubs & Co.	2132	Passenger.	Express, 4 wheel bogie and tender, with Joy's patent valve gear.	Inside .	18	26	8	4-coupled	3 6	6 0	6 0	Oct., 1885	do
335	Do	2133	do ..	do	do	18	26	8	do	3 6	6 0	6 0	do	do
336	Do	2134	do ..	do	do ..	18	26	8	do	3 6	6 0	6 0	do	do
337	Do	2135	do ..	do	do ..	18	26	8	do	3 6	6 0	6 0	do	do
338	Do	2164	do ..	do	do ...	18	26	8	do	3 6	6 0	6 0	Jan., 1886	do
339	Do	2165	do ..	do	do ..	18	26	8	do	3 6	6 0	6 0	Feb., 1886 .	do
340	Do	2166	do ..	do	do	18	26	8	do	3 6	6 0	6 0	do	do

No. 3.

The Superintendent of Tramway Rolling Stock to The Commissioner for Railways.

Sir, New South Wales Government Tramways, Randwick Works, 30 May, 1887.

In reporting upon the working of the Rolling Stock Branch of the Tramways for the year 1886, I preface my remarks by pointing out that I did not assume control as Superintendent till 5th October, so that my personal experience of the working and maintenance of the stock, shops, &c., covers the last three months of the year only.

At the beginning of the year, the total number of vehicles in stock consisted of 95 locomotives, 108 cars (94 with double, and 14 with single floors), 16 service trucks, and 2 water tanks used for watering the streets. During the year the rolling stock was added to by 1 engine, built by Mr. Thomas Wearne, and 21 single floor cars each capable of seating 60 passengers. Eleven of these were built by Messrs. Stanfield and Carcy, and 10 by Messrs. Hudson Bros., Ltd., both of Sydney. Two cars, Nos. 12 and 16, which were lent to Mr. C. E. Jeanneret, of Parramatta, in 1885, were purchased by that gentleman in June last.

When I took charge, there were 38 unserviceable engines standing in the Randwick yard, all requiring such extensive repairs that there was no prospect of their being made available for traffic for some time to come. There were also 25 boilers standing in the said yard, all of which require new fire-boxes and other heavy repairs. This I need not say is serious, and although every effort will be made to make use of this idle stock by first putting it into good order, I do not see how it can be done without increasing the working expenses to a larger extent than I could have wished. I may state that fair progress is being made with the work at the present time, two boilers having been thoroughly repaired already, and the number of unavailable motors reduced.

I also found several cases of new machinery lying in the Randwick yard; this has been unpacked, cleaned, and put together ready for use, and fair progress is being made with the new shafting, pulleys, &c., which I intend putting up in the present machine shop for driving this additional machinery.

The average number of unserviceable engines throughout the year was equal to 31 daily, thus rendering the locomotive stock only equivalent to 65 engines, about 75 per cent. of which were in fairly efficient condition, and of this number the average in steam daily was 50.52. The engine mileage for the year was 1,389,555 miles, which is equal to 21,377 miles per serviceable engine, or 27,505 miles per engine in steam, which I consider extraordinary work, considering the muddy state of the streets in wet weather, and their very dusty state in dry weather.

In directing attention to the unserviceable condition of so large a percentage of the locomotive stock, I do so in justice to myself, as it is only right that the facts should be recorded to admit of subsequent efforts to bring the whole of the 97 locomotives in stock to a state of efficiency, being properly gauged and compared.

The cars have been maintained in good working order. In pursuance of the decision arrived at in 1885, to remove the top "deck" or floor of the 90 passenger cars as they came into the shops for extensive repairs, 7 cars were so altered during the year, the seating accommodation being thereby reduced to 70 passengers each. Therefore, to maintain the carrying capacity of the stock, more new cars must be constructed.

The whole of the machinery in the workshops here, and at Pitt-street, has been kept in good order, and the new boiler shop and smithy—recently erected—were occupied in December, and the extra accommodation afforded is producing beneficial results.

I think if economy in working is to be secured, that the Running Department must be conducted at a central spot in the city, and I beg to draw your attention to my recommendation, of 1883, and December, 1886, respecting increased accommodation at Pitt-street yard for the whole of the running engines.

Although every effort will be made to economise, I fear the working expenses will increase on account of employing more men and increasing our shop accommodation, &c., here at Randwick, and I take this opportunity of remarking that it is most discouraging to see locomotives which are put into good working order running through the very dirty and sloppy streets of the city, and unless the roads are kept dry and better drained generally, I do not see how the efforts of the Locomotive Department can reduce working expenses.

The North Shore Cable Tramway was opened on the 22nd of May, and the whole of the rolling stock and machinery has been kept in good order. The wire rope made by Messrs. Bullivant & Co., having now been in constant use for over twelve months, shows that it has done good service.

Attached are detailed returns as usual.

I have, &c.,

THOS. MIDELTON,
Superintendent of Tramway Rolling Stock.

Minute

Minute by The Commissioner for Railways.

REPORT ON TRAMWAYS FOR 1886.

MR. MIDELTON in the above report says:—"When I took charge there were thirty-eight unserviceable engines standing in the Randwick yard, all requiring such extensive repairs that there was no prospect of their being made available for traffic for some time to come. There were also twenty-five boilers standing in the said yard, all of which require new fire-boxes and other heavy repairs. This, I need not say, is serious, and although every effort will be made to make use of this idle stock by first putting it into good order, I do not see how it can be done without increasing the working expenses to a larger extent than I could have wished. I may state that fair progress is being made with the work at the present time, two boilers having been thoroughly repaired already, and the number of unavailable motors reduced.

"I also found several cases of new machinery lying in the Randwick yard; this has been unpacked, cleaned, and put together ready for use, and fair progress is being made with the new shafting, pulleys, &c., which I intend putting up in the present machine-shop for driving this additional machinery."

I shall be glad to have any observations which Mr. Downe may have to make upon these representations.—CHAS. A. G. Reply herewith.—GEO. DOWNE.

Mr. Assistant-Locomotive Engineer Downe to The Commissioner for Railways.

IN reference to the paragraphs referred to, I dare say there were thirty-eight engines requiring overhaul at Randwick at the time Mr. Midelton took charge, and there were many boilers with steel fire-boxes that required renewal.

With regard to the number of engines requiring overhaul, the number is not so excessive as at first sight appears, for steam companies using motors have found from experience that after a few years working it must allow for 25 per cent. to be in the repairing shop; the percentage represented by thirty-eight under repair is thirty-nine of the total number in stock. This leaves a difference of 14 per cent. against the Department. The want of proper facilities, pointed out from time to time, and referred to in previous Commissioner's annual reports, fully accounts for the difference.

Further on Mr. Midelton says the average for the year was thirty-one, which represents just 31 per cent., only 6 per cent. above what is expected by other companies, thus proving that the utmost was done with the facilities at command to maintain them in an efficient state; and as Mr. Midelton did not take charge until October, the paragraphs which appear to reflect in some degree upon previous management have not on examination much weight.

With regard to the machinery lying unpacked, Commissioner will remember this was ordered for the new machine shop, but from various reasons its erection was deferred from time to time.

In my report for 1884 I followed up previous representations for further workshop accommodation. In addition to the cleaning-shed at Randwick, the only other building available for a considerable time was a car-shed, and in it I had to employ machinists, fitters, smiths, carriage repairers, and painters. It was not until 1885 a second car-shed was completed. In this I had to transfer the carriage repairers and painters, and make it a temporary repairing-shop for these branches.

Subsequently the erection of a boiler and a smiths' shop was approved, but these were only completed and occupied since my transfer to the Railway Department.

Finding that further delay would take place with regard to the machine-shops, I began to anticipate the additional space that would be at my disposal in the temporary building by the removal of the smiths to their new shop, and had, before I left, commenced to put down additional driving power, and was preparing to fix the machines referred to as in cases, directly the smiths took possession of their new shop.

It is unnecessary to go into the causes of delay in these matters respecting non-erection of proper facilities for executing repairs, so many things have operated to prevent same—expenditure, changes of government, alternate proposals put forward, &c., &c.

I notice Mr. Midelton asks that the fact of the number requiring overhaul should be recorded to admit of his efforts to bring the whole into a state of efficiency may be gauged. This certainly calls for remark from me.

Mr. Midelton takes charge of the department just as proper facilities for dealing with smith and boiler works are about ready to be availed of, and also at the same time he finds I was preparing to utilise the machinery I had ordered for engine and carriage repairs; he therefore takes charge with greater facilities for keeping down repairs, will have the use of £3,000 worth of additional machinery beyond what I had, and asks that his action with the additional advantages and facilities at his command, may be compared with the difficulties and inconvenience experienced for want of same, and that his management may receive credit of any reduction in the number of engines requiring overhaul, and not the provision made of additional machinery, &c., for doing the work before he took charge.

I can only say I shall be pleased to see Mr. Midelton (with the additional plant at his command) succeed in his efforts to maintain the motive power in a more efficient condition.

The foregoing will I trust be considered an explanation such as desired by Commissioner.

GEO. DOWNE.

No. 3—continued.
LIST OF TRAMWAY MOTORS ON HAND ON 31ST DECEMBER, 1886.

Stock No.	[Maker's Name	Maker's No.	Class.	Description.	Cylinders.			Number of wheels on Motor.	Coupled or Single Wheels.	Diameter of Wheels.			Commenced to run.	Condition
					Position.	Diameter.	Length of stroke.			Leading.	Driving.	Trailing.		
1	Baldwin & Co.....	4 16 C 19	Passenger	Motor, 4 wheels	Outside	inches.	inches.	4	Coupled	ft. in.	ft. in.	ft. in.	15 Sept., 1879	In good order.
2	Do	" 18	do	do	do	11	16	4	do	2 11	2 11	.....	15 do 1879	In fair order.
3	Do	" 16	do	do	do	11	16	4	do	2 11	2 11	.....	15 do 1879	do
4	Do	" 17	do	do	do	11	16	4	do	2 11	2 11	.....	15 do 1879	In for new boiler.
5	Do	" 22	do	do	do	11	16	4	do	2 11	2 11	.....	6 Dec., 1880	Requires general overhaul.
6	Do	" 21	do	do	do	11	16	4	do	2 11	2 11	.....	6 do 1880	do do
7	Do	" 20	do	do	do	11	16	4	do	2 11	2 11	.....	6 do 1880	In good order.
8	Do	" 23	do	do	do	11	16	4	do	2 11	2 11	.....	12 do 1880	Requires general overhaul.
9	Do	" 24	do	do	do	11	16	4	do	2 11	2 11	.....	19 do 1880	In fair order.
10	Do	" 25	do	do	do	11	16	4	do	2 11	2 11	.....	5 do 1880	In good order.
11	Do	4 14 C 29	do	do	do	10	14	4	do	2 11	2 11	.....	25 April, 1881	In for new boiler.
12	Do	6 16½ C 2	do	Motor, 6 wheels	do	11	16	4	do	2 11	2 11	.....	17 do 1881	Requires to be stopped to have wheels turned and link motion repaired.
13	Do	4 14 C 28	do	Motor, 4 wheels	do	10	14	4	do	2 11	2 11	.....	18 do 1881	Stopped for new boiler.
14	Do	6 16½ C 1	do	Motor, 6 wheels	do	11	16	4	do	2 11	2 11	.....	20 April, 1881	Requires to be stopped for jobbing repairs.
15	Do	4 14 C 30	do	Motor, 4 wheels	do	10	14	4	do	2 11	2 11	.....	9 June, 1881	Being fitted with new boiler.
16	Do	" 31	do	do	do	10	14	4	do	2 11	2 11	.....	11 do 1881	Stopped for new boiler.
17	Do	" 32	do	do	do	10	14	4	do	2 11	2 11	.....	6 July, 1881	do do
18	Do	" 33	do	do	do	10	14	4	do	2 11	2 11	.....	13 do 1881	Requires wheels turning, new crank pins, and jobbing repairs.
19	Do	6 16½ C 9	do	Motor, 6 wheels	do	11	16	6	do	2 11	2 11	2 0	15 do 1881	Stopped for new boiler.
20	Do	" 6	do	do	do	11	16	6	do	2 11	2 11	2 0	23 do 1881	do do
21	Do	" 5	do	do	do	11	16	6	do	2 11	2 11	2 0	23 do 1881	do do
22	Do	" 8	do	do	do	11	16	6	do	2 11	2 11	2 0	31 do 1881	do do
23	Do	" 3	do	do	do	11	16	6	do	2 11	2 11	2 0	2 Aug., 1881	In fair order.
24	Do	" 7	do	do	do	11	16	6	do	2 11	2 11	2 0	31 July, 1881	Being fitted with new boiler.
25	Do	" 4	do	do	do	11	16	6	do	2 11	2 11	2 0	2 Aug., 1881	Requires general overhaul.
26	Do	4 14 C 34	do	Motor, 4 wheels	do	10	14	4	do	2 11	2 11	.....	4 do 1881	In good order.
27	Do	4 11 C 45	do	do	do	9	12	4	do	2 8	2 8	.....	28 Oct., 1881	Requires new tubes and repairs to fire-box.
28	Do	" 59	do	do	do	9	12	4	do	2 8	2 8	.....	28 Dec., 1881	In good order.
29	Do	" 56	do	do	do	9	12	4	do	2 8	2 8	.....	16 do 1881	Requires new tubes and repairs to fire-box.
30	Do	" 60	do	do	do	9	12	4	do	2 8	2 8	.....	26 Jan., 1882	In for new tubes and general overhaul.
31	Do	" 55	do	do	do	9	12	4	do	2 8	2 8	.....	26 do 1882	In good order.
32	Do	" 58	do	do	do	9	12	4	do	2 8	2 8	.....	26 do 1882	do do
33	Do	" 57	do	do	do	9	12	4	do	2 8	2 8	.....	16 Feb., 1882	Requires general overhau

No. 3—continued.

List of Tramway Motors on hand on 31st December, 1886—continued.

Stock No	Maker's Name	Maker's No	Class	Description	Cylinders			No. of Wheels on Motor.	Coupled or Single Wheels	Diameter of Wheels.			Commenced to run.	Condition
					Position.	Diameter.	Length of stroke.			Leading.	Driving.	Trailing.		
34	Baldwin & Co.	4 16 C 35	Passenger	Motor, 4 wheels	Outside	inches. 9	inches. 16	4	Coupled	ft. in. 2 11	ft. in. 2 11	ft. in.	1 July, 1882	Being fitted with new boiler.
35	Do	" 38	do	do	do	11	16	4	do	2 11	2 11	....	1 do 1882	Waiting for new boiler.
36	Do	" 36	do	do	do	11	16	4	do	2 11	2 11	....	20 June, 1882	In good order.
37	Do	" 37	do	do	do	11	16	4	do	2 11	2 11	....	3 July, 1882	In for general overhaul.
38	Do	" 32	do	do	do	11	16	4	do	2 11	2 11	....	25 Aug, 1882	In good order.
39	Do	" 31	do	do	do	11	16	4	do	2 11	2 11	....	22 do 1882	do do
40	Do	" 33	do	do	do	11	16	4	do	2 11	2 11	....	25 do 1882	Requires temporary repairs
41	Do	" 34	do	do	do	11	16	4	do	2 11	2 11	....	24 do 1882	In good order; just had new boiler and general overhaul.
42	Kitson & Co.	— 59	do	do	do	11½	18	4	do	2 6	2 6	....	2 Oct, 1882	In shop for repairs.
43	Do	— 60	do	Motor, 4 wheels	do	11½	18	4	do	2 6	2 6	....	21 do 1882	In good order.
44	Baldwin & Co.	4 14 C 37	do	do	do	10	14	4	do	2 11	2 11	....	14 Dec, 1882	do
45	Do	" 36	do	do	do	10	14	4	do	2 11	2 11	....	16 do 1882	do
46	Do	" 38	do	do	do	10	14	4	do	2 11	2 11	....	1 Mar., 1883	Requires to be stopped for repairs.
47	Do	" 40	do	do	do	10	14	4	do	2 11	2 11	....	3 do 1883	In shop for general overhaul
48	Do	" 39	do	do	do	10	14	4	do	2 11	2 11	....	6 do 1883	In good order.
49	Do	" 41	do	do	do	10	14	4	do	2 11	2 11	....	6 do 1883	do
50	Kitson & Co	.. .	do	Combined motor and car	Inside.	8½	12	4	do	2 4½	2 4½	....	11 Nov., 1882	Not available for traffic. Engine used for shop purposes.
51	Baldwin & Co.	4 14 C 47	do	Motor, 4 wheels	Outside	10	14	4	do	2 11	2 11	....	28 April, 1883	In very fair order.
52	Do	" 45	do	do	do	10	14	4	do	2 11	2 11	....	28 do 1883	In shop for general overhaul.
53	Do	" 44	do	do	do	10	14	4	do	2 11	2 11	....	1 May, 1883	In fair order.
54	Do	" 46	do	do	do	10	14	4	do	2 11	2 11	....	1 do 1883	do
55	Merryweather	— 41	Goods	do	Inside	7½	12	4	do	2 3¼	2 3¼	....	6 June, 1883	Stopped for repairs.
56	Baldwin & Co.	4 14 C 42	Passenger	do	Outside	10	14	4	do	2 11	2 11	....	16 do 1883	In good order.
57	Do	" 43	do	do	do	10	14	4	do	2 11	2 11	....	18 do 1883	In for thorough overhaul.
58	Do	4 16 C 41	do	do	do	11	16	4	do	2 11	2 11	....	19 Jan., 1884	In good order. Just had general overhaul.
59	Do	" 42	do	do	do	11	16	4	do	2 11	2 11	....	19 do 1884	do
60	Do	" 43	do	do	do	11	16	4	do	2 11	2 11	....	21 do 1884	do
61	Do	" 44	do	do	do	11	16	4	do	2 11	2 11	....	21 do 1884	In good order.
62	Do	" 45	do	do	do	11	16	4	do	2 11	2 11	....	25 June, 1884	do
63	Do	" 46	do	do	do	11	16	4	do	2 11	2 11	....	25 June, 1884	In fair order.
64	Do	" 47	do	do	do	11	16	4	do	2 11	2 11	....	21 do 1884	Requires temporary repairs.
65	Do	" 48	do	do	do	11	16	4	do	2 11	2 11	....	24 do 1884	In fair condition. Will soon require new tyres.

No. 3—continued.

List of Tramway Motors on hand on 31st December, 1886—continued.

Stock No	Maker's Name.	Maker's No.	Class.	Description.	Cylinders.			No. of Wheels on Motor.	Coupled or Single Wheels.	Diameter of Wheels.			Commenced to run.	Condition.
					Position.	Diameter.	Length of stroke.			Leading.	Driving.	Trailing.		
66	Baldwin & Co.	4 16 C 49	Passenger	Motor, 4 wheels	Outside	inches. 11	inches. 16	4	Coupled ..	ft. in. 2 11	ft. in. 2 11	ft. in.	12 April, 1884	Requires general overhaul
67	Do	" 50	do	do	do	11	16	4	do	2 11	2 11	....	12 do 1884	do
68	Do	" 51	do	do	do	11	16	4	do	2 11	2 11	....	12 do 1884	In good order.
69	Do	" 52	do	do	do	11	16	4	do	2 11	2 11	....	7 July, 1884	do
70	Do	4 14 1/2 C 1	do	do	Inside	(vertical) 9 & 12	12	4	do	2 6	2 6	....	2 May, 1884	Stopped for thorough overhaul.
71	Do	" 2	do	do	do	9 & 12	12	4	do	2 6	2 6	....	12 do 1884	Requires jobbing repairs.
72	Do	" 3	do	do	do	9 & 12	12	4	do	2 6	2 6	....	8 do 1884	do
73	Do	" 4	do	do	do	9 & 12	12	4	do	2 6	2 6	....	19 June, 1884	Requires general overhaul.
74	Do	" 5	do	do	do	9 & 12	12	4	do	2 6	2 6	....	6 Oct., 1884	do do
75	Do	" 6	do	do	do	9 & 12	12	4	do	2 6	2 6	....	17 July, 1884	Requires jobbing repairs.
76	Thomas Wearne.....	.....	do	do	Outside	10	16	4	do	2 6	2 6	....	26 Jan., 1884	Requires general overhaul.
77	Baldwin & Co.....	4 16 C 55	do	do	do	11	16	4	do	2 11	2 11	....	29 Aug., 1885	In good order, just had general overhaul.
78	Do	" 56	do	do	do	11	16	4	do	2 11	2 11	....	20 do 1885	do do
79	Do	" 57	do	do	do	11	16	4	do	2 11	2 11	....	22 do 1885	In fair order.
80	Do	" 58	do	do	do	11	16	4	do	2 11	2 11	....	20 do 1885	Requires general overhaul
81	Do	" 59	do	do	do	11	16	4	do	2 11	2 11	....	22 do 1885	In fair running order.
82	Do	" 72	do	do	do	11	16	4	do	2 11	2 11	....	24 May, 1885	In good order.
83	Do	" 73	do	do	do	11	16	4	do	2 11	2 11	....	24 do 1885	Requires general overhaul
84	Do	" 74	do	do	do	11	16	4	do	2 11	2 11	....	24 do 1885	Requires jobbing repairs.
85	Do	" 60	do	do	do	11	16	4	do	2 11	2 11	....	6 April, 1885	In fair running order.
86	Do	" 61	do	do	do	11	16	4	do	2 11	2 11	....	6 do 1885	do do
87	Do	" 62	do	do	do	11	16	4	do	2 11	2 11	....	6 do 1885	In fair running order, requires jobbing repairs.
88	Do	" 63	do	do	do	11	16	4	do	2 11	2 11	....	6 do 1885	do do
89	Do	" 64	do	do	do	11	16	4	do	2 11	2 11	....	6 do 1885	do do
90	Do	" 65	do	do	do	11	16	4	do	2 11	2 11	....	29 Aug., 1885	In good order, just had general overhaul.
91	Do	" 66	do	do	do	11	16	4	do	2 11	2 11	....	15 do 1885	In good order.
92	Do	" 67	do	do	do	11	16	4	do	2 11	2 11	....	15 do 1885	do
93	Do	" 68	do	do	do	11	16	4	do	2 11	2 11	....	22 do 1885	In good order, just had general overhaul.
94	Do	" 69	do	do	do	11	16	4	do	2 11	2 11	....	22 do 1885	In good order.
95	Do	" 70	do	do	do	11	16	4	do	2 11	2 11	....	24 May, 1885	In fair running order.
96	Do	" 71	do	do	do	11	16	4	do	2 11	2 11	....	24 do 1885	Requires general overhaul.
97	Thomas Wearne.....	.....	do	do	do	10	16	4	do	2 6	2 6	....	10 Feb., 1886	do do

No. 3—continued.

LIST OF CARS ON HAND ON 31ST DECEMBER, 1886.

Class.	Numbers.	Description.	Number of wheels.	To carry.	Remarks.
A	{ 3, 4, 5, 6, 7, 8	Double-deck	Two 4-wheel bogies...	90 passengers ..	In fair running order; top decks showing signs of decay.
A1	{ 1	"	" " ..	90 " ..	In safe running order; used by workmen only.
	{ 2, 42, 43, 44, 45, 46. }	Single-deck	" " ..	70 " ..	In good order, altered from double-deck 90 passenger to single-deck 70 passengers.
A2	{ 21, 24, 25, 26, 27, 28, 29, 30, 31, 33, 34, 35, 36, 37, 38, 39, 40, 41, 47..... }	Double-deck	" " ..	90 " ..	In good working order; to be altered to 70 passenger cars, as they are taken in for repairs.
	{ 22..... }	Single-deck	" " ..	70 " ..	In good order.
	{ 32, 107..... }	Double-deck	" " ..	90 " ..	In shop, being altered to 70 passenger cars.
A3	{ 48, 49, 50. }	"	" " ..	60 " ..	In good order.
A4	{ 51, 52, 53, 55, 56, 57, 58, 59, 60, 62, 63, 69, 70, 71, 72, 73, 74, 76, 77, 78, 79... }	"	" " ..	60 " ..	In good running order.
	{ 54, 61, 64, 65, 66, 67, 68, 75, 80... }	"	" " ..	60 " ..	Require a thorough overhaul, painting; and platforms require strengthening, which is being done as they come in for repairs.
A5	{ 81, 85, 86, 88, 89, 90, 92, 93, 94... }	"	" " ..	60 " ..	In safe working order.
	{ 82, 83, 84, 87, 91. }	"	" " ..	60 " ..	Require a thorough overhaul; platforms, &c., require strengthening.
A6	{ 95, 96, 98... }	"	" " ..	60 " ..	In fair working order.
	{ 97..... }	"	" " ..	60 " ..	Requires a thorough overhaul, painting; and platforms, &c., require strengthening.
B	{ 9	Single-deck	" " ..	48 " ..	In good working order and condition.
Br	{ 11..... }	"	" " ..	48 " ..	do. do. do.
Br	{ 12, 16	"	" " ..	56 " ..	Sold to Mr. Jeanneret, at Parramatta.
	{ 13, 14, 15... }	"	" " ..	56 " ..	Unserviceable; returned from Camden Tramway.
	{ 23..... }	"	" " ..	48 " ..	In good working order and condition.
C	{ 10, 99	"	" " ..	80 " ..	In safe running order.
	{ 17, 19, 20... }	"	" " ..	70 " ..	Safe to work; but will soon require renewing.
	{ 18..... }	"	" " ..	70 " ..	Unserviceable; broken in collision at Railway Station.
Cr	{ 108 to 128 inclusive. }	"	" " ..	60 " ..	In good order and condition.
D	{ 50..... }	Combined car, Kitson type.	4 wheels	50 " ..	Unserviceable.
Dr	{ 100 to 106 inclusive. }	Combined car	"	80 " ..	In good running order.

No. 3—*continued.*

LIST OF GOODS-TRUCKS AND WATER-TANKS ON HAND ON 31ST DECEMBER, 1886.

Description.	No.	Name of Maker.	Carrying Capacity.	Weight.	Diameter of Wheels.	No. of Wheels.	Condition.
Truck	1, 2, 3, 4 ...	Permanent-way Railways...	10 tons	T. c. q. 4 0 0	Feet. 2	8	Serviceable for yard use.
Do	5, 6, 7, 8,	} Tram Works, Randwick...	10 ,,	4 0 0	2	8	} In good working order.
Do	9, 10, 11,						
Do	12, 13, 14,						
Do	15, 16						
Water-tank ...	1	Thomas Wearne	1,000 gals.	7 6 0	2	8	In safe working order.
Do ...	2	do	2,625 ,,	16 3 2	2	8	Requires thorough over-haul.

LIST OF MACHINERY ON HAND AT WORKSHOPS, RANDWICK, ON 31ST DECEMBER, 1886.

- No. 1. 1 10-h.p. vertical boiler with horizontal cross tubes and all fittings complete.
 ,, 2. 1 8-h.p. horizontal engine, with force pump complete.
 ,, 3. 1 Wheel lathe, 4' 6" centres.
 ,, 4. 1 Screw-cutting lathe, 10 $\frac{1}{2}$ " centres, 16 feet bed, with gap and change wheels complete.
 ,, 5. 1 do 9 $\frac{1}{2}$ " 16 do do
 ,, 6. 1 do 9 $\frac{1}{4}$ " 15 do do
 ,, 7. 1 do 8 $\frac{1}{4}$ " 15 do do
 ,, 8. 1 do 8" 16 do do
 ,, 9. 1 do 8" 14 do do
 ,, 10. 1 Brass-finisher's lathe, 6" centres and 5 feet bed.
 ,, 11. 1 do 6" do 6 do
 ,, 12. 1 Planing machine, 6' x 2'.
 ,, 13. 1 Slotting machine, 8" stroke.
 ,, 14. 1 Double-table shaping machine, 14" stroke.
 ,, 15. 1 do do
 ,, 16. 1 Vertical drilling machine, 18" space, with round movable table.
 ,, 17. 1 do 15" do
 ,, 18. 1 Small vertical drilling machine, with hand-power attached.
 ,, 19. 1 Screwing machine.
 ,, 20. 1 Wood-turner's lathe (headstock only), fixed on bed No. 9.
 ,, 21. 1 Small screwing machine, with hand-power.
 ,, 22. 1 Grindstone, 5 feet diameter, on wooden frame.
 ,, 23. 1 2 $\frac{1}{2}$ -cwt. steam hammer.
 ,, 24. 1 No. 2 patent silent fan.
 ,, 26. 1 Screw-cutting lathe, 7 $\frac{1}{2}$ " centres, with gap and change wheels complete.
 ,, 32. 1 Punching and shearing machine.
 ,, 34. 1 Whitworth screw-cutting lathe, 10" centres, with change wheels complete.
 ,, 35. 1 do do 10" do do
 ,, 36. 1 Double-table shaping machine, 12" stroke (Whitworth's).
 ,, 37. 1 Hydraulic press.
 ,, 38. 1 Set bending rolls, 4' 4" in diameter, fitted for hand or power.

MACHINERY IN PITT-STREET WORKSHOPS.

- No. 25. 1 6-h.p. vertical boiler, with engine attached.
 ,, 27. 1 Screw-cutting lathe, 7 $\frac{1}{2}$ " centres, 8 feet bed, with gap and change wheels complete.
 ,, 28. 1 do 6" do 6 do do do
 ,, 29. 1 Shaping machine, 6" stroke.
 ,, 30. 1 vertical drilling machine, 15" space, with round movable table.
 ,, 31. 1 Grindstone on wooden frame.
 ,, 33. 1 Screw-cutting lathe, 8" centres, 10 feet bed, with gap and change wheels complete.

No. 3—*continued.*

LIST OF MACHINERY AT RANDWICK, NOT ERECTED ON 31ST DECEMBER, 1886.

2 Smith & Coventry's brass lathes, 6" centres and 3 feet bed.	1 Smith's forge, with tue iron complete (double).
1 Planing Machine, 6' x 2' 6".	3 Bolt and nut screwing machines.
1 Wheel lathe.	3 Screw-cutting lathes, 10" centres, 12 feet bed.
1 Radial Drilling Machine (large).	2 do do 8" do 9 do
4 do do (small.)	1 do do 6" do 16 do
1 Wall radial drilling machine.	2 do do 12" do 16 do
1 Slide bar grinding machine.	1 Small punching and shearing machine, on wheels.
1 Plate-bending machine.	2 Large size shaping machines.
1 Slotting machine.	1 Flexible shaft, and tools for boring and tapping.
1 Hydraulic wheel press, with pumps complete.	1 14-h.p. vertical boiler and engine complete.
17 Smith's forges, with tue iron complete (single).	1 20-h.p. semi-portable engine complete.

Woodworking Machinery at Randwick not yet erected.

1 Surface plane.	1 Standard saw bench.	1 Set of knives, extra.
1 Band saw, setting and filing machine.	16 Emery wheels.	1 Side Moulder.
5 Band saw blades, extra.	1 Morticing and boring machine.	1 Emery grinder.
1 Automatic knife-grinder.	1 Moulder and shaper.	1 Planing machine.
	4 Chisels and bits, extra.	1 Band saw machine.

LIST OF PUMPS, CRANES, &C., ON TRAMWAY LINES 31ST DECEMBER, 1886.

Bridge-street ...	1 Stand-pipe, 1 crane.	Newtown Road ...	1 Tank and connections.
Botany ...	1 Pump and boiler and tank.	Railway ...	3 Stand-pipes.
Crown-street ...	1 Hydrant.	Randwick Park ...	1 Tank and connections.
Coogee ...	1 Tank and connections.	Racecourse ...	1 do do
Enmore ...	1 Hydrant.	Waterloo ...	1 Crane.
Forest Lodge ...	1 Stand-pipe.	Trafalgar-street ...	1 Hydrant.
Glebe Point ...	1 Crane.	Waverley Line ...	1 Tank and connections, 1 stand-pipe.
Leichhardt ...	1 Crane, tank, and connections.	Woollahra ...	1 Crane.
Moore Park ...	1 Stand-pipe.	Bondi Junction ...	1 Stand-pipe.
Cricket Ground ...	3 Stand-pipes.		

All in good order.

NORTH SHORE CABLE TRAMWAY.

RETURN OF ROLLING STOCK AND MACHINERY ON HAND ON 31ST DECEMBER, 1886:—

- 8 4-wheeled cars, to seat 16 passengers each.
- 8 „ dummies, to seat 22 passengers each.
- 1 pair H.P. horizontal engines, with boilers, driving gear, and shafting, &c., complete.
- 1 steel wire rope (in use), by Bullivant & Co.
- 1 „ „ (in reserve), by Whitecross Co.
- 1 pair 3-inch force pumps for pumping water to engines.

Cars numbered 1, 2, 3, and 4 were imported from America by the contractors for the line, and those numbered 5, 6, 7, and 8 were built at Sydney by Mr. T. Wearne.

TRAIN MILEAGE TO 31ST DECEMBER, 1886:—

Dummy No.	1	2	3	4	5	6	7	8	Total	Miles.	Chains.
	6,315	72
	6,077	56
	6,226	16
	6,405	68
	990	72
	3,705	68
	5,383	64
	6,752	24
	41,858	40

No. 4.

DATES of OPENING, and the length in miles of the different sections of Railway Lines, from the commencement to 31 December, 1886.

Date of opening.	To where opened.	Southern Line.	Western Line.	Northern Line.	All Lines.
26 Sept., 1855	Parramatta	14	.....	.....	14
26 Sept., 1856	Liverpool	9	.....	.....	9
	Total, 1856.....	23	.....	.....	23
5 April, 1857	East Maitland .....	.....	.....	17	17
	Total, 1857.....	23	.....	17	40
19 Mar., 1858	Newcastle.....	.....	.....	1	1
17 May, 1858	Campbelltown.....	12	.....	.....	12
27 July, 1858	West Maitland.....	.....	.....	2	2
	Total, 1858, 1859	35	.....	20	55
2 July, 1860	Lochinvar.....	.....	.....	7	7
4 July, 1860	Blacktown.....	.....	8	.....	8
	Total, 1860.....	35	8	27	70
12 Dec., 1861	Rooty Hill .....	.....	3	.....	3
	Total, 1861	35	11	27	73
24 Mar., 1862	Branxton .....	.....	.....	8	8
1 May, 1862	South Creek .....	.....	5	.....	5
7 July, 1862	Penrith.....	.....	5	.....	5
1 Sept., 1862	Menangle	6	.....	.....	6
	Total, 1862	41	21	35	97
7 May, 1863	Singleton .....	.....	.....	14	14
1 July, 1863	Picton	13	.....	.....	13
	Total, 1863.....	54	21	49	124
2 May, 1864	Morpeth .....	.....	.....	3	3
1 Dec., 1864	Richmond.....	.....	16	.....	16
	Total, 1864, 1865, 1866...	54	37	52	143
1 Mar., 1867	Mittagong.....	24	.....	.....	24
11 July, 1867	Weatherboard.....	.....	28	.....	28
2 Dec., 1867	Sutton Forest	9	.....	.....	9
	Total, 1867	87	65	52	204
1 May, 1868	Mount Victoria .....	.....	15	.....	15
6 Aug., 1868	Marulan	28	.....	.....	28
	Total, 1868	115	80	52	247
19 May, 1869	Muswellbrook .....	.....	.....	31	31
27 May, 1869	Goulburn	20	.....	.....	20
18 Oct., 1869	Bowenfels .....	.....	20	.....	20
	Total, 1869	135	100	83	318
1 Mar., 1870	Wallerawang .....	.....	8	.....	8
1 July, 1870	Rydal.....	.....	6	.....	6
20 Oct., 1870	Aberdeen .....	.....	.....	7	7
	Total, 1870	135	114	90	339
17 April, 1871	Scone.....	.....	.....	9	9
1 Aug., 1871	Wingen.....	.....	.....	10	10
	Total, 1871	135	114	109	358
1 Jan., 1872	Sidings, Collingwood, &c.	1	.....	1	2
5 April, 1872	Murrurundi .....	.....	.....	14	14
22 April, 1872	Locke's Platform.....	.....	19	.....	19
1 July, 1872	Macquarie Plains.....	.....	5	.....	5
	Total, 1872	136	138	124	398
4 Mar., 1873	Raglan .....	.....	5	.....	5
	Total, 1873, 1874	136	143	124	403
4 Feb., 1875	Kelso.....	.....	3	.....	3
9 Nov., 1875	Gunning	31	31
	Total, 1875	167	146	124	437

APPENDIX TO REPORT ON RAILWAYS—1886.

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No. 4—continued.

Date of opening:	To where opened.	Southern Line.	Western Line.	Northern Line.	All Lines.
	Total, 1875	167	146	124	437
4 April, 1876	Bathurst		2		2
3 July, 1876	Bowning	29			29
1 Nov., 1876	Binalong	14			14
1 Nov., 1876	Blayney		27		27
	Total, 1876	210	175	124	509
12 Mar., 1877	Murrumburrah	20			20
19 April, 1877	Orange		20		20
13 Aug., 1877	Quirindi			24	24
1 Nov., 1877	Cootamundra	25			25
	Total, 1877	255	195	148	598
2 April, 1878	Bullock Island Branch			1½	1½
15 April, 1878	Bethungra	15			15
6 July, 1878	Junee	18			18
3 Sept., 1878	North Wagga Wagga	18			18
14 Oct., 1878	Tamworth			38	38
	Total, 1878	306	195	187½	688½
25 Mar., 1879	Breeza			15	15
1 Sept., 1879	South Wagga Wagga	5			5
11 Sept., 1879	Gunnedah			26	26
	Total, 1879	311	195	228½	734½
1 June, 1880	Wellington		56		56
1 Sept., 1880	Gerogery	59			59
	Total, 1880	370	251	228½	849½
1 Feb., 1881	Dubbo		30		30
3 Feb., 1881	Albury	18			18
28 Feb., 1881	Narrandera	60			60
1 Sept., 1881	Darlington	38			38
	Total, 1881	486	281	228½	995½
9 Jan., 1882	Moonbi			12	12
1 Mar., 1882	Carathool	34			34
15 May, 1882	Capertee		23		23
4 July, 1882	Hay	34			34
11 July, 1882	Boggabri			24	24
2 Aug., 1882	Uralla			51	51
1 Oct., 1882	Narrabri			32	32
20 Oct., 1882	Nervetire		63		63
	Total, 1882	554	367	347½	1,268½
3 Feb., 1883	Armidale			15	15
9 June, 1883	Nyngan		36		36
14 June, 1883	River Murray	1			1
	Total, 1883	555	403	362½	1,320½
3 Jan., 1884	Tarago	20			20
9 June, 1884	Rylstone		31		31
19 Aug., 1884	Glen Innes			63	63
2 Sept., 1884	Byrock		78		78
10 Sept., 1884	Mudgee		32		32
16 Sept., 1884	Jerilderie	65			65
15 Oct., 1884	Hurstville	9			9
	Total, 1884	649	544	425½	1,618½
4 Mar., 1885	Bungendore	20			20
26 Mar., 1885	Young	18			18
3 Sept., 1885	Bourke		48		48
21 Dec., 1885	Molong		22		22
26 Dec., 1885	Sutherland	6			6
	Total, 1885	693	614	425½	1,732½
9 Mar., 1886	Waterfall	9			9
1 June, 1886	Gundagai	34			34
1 Sept., 1886	Tenterfield			57	57
17 Sept., 1886	Hornsby			14	14
1 Nov., 1886	Cowra	43			43
	Total, 1886	779	614	496½	1,889½

No. 5.—TABLE A.

ABSTRACT of the total Quantity and Cost of Land taken for Railway Purposes to the 31st December, 1886, under the Government Railways Act of 1858.

Railway Lines.	Length.	Quantity taken.				Total.	Amount claimed.	Amount paid.					Probable Amounts to be paid.	Total Cost.	Rate.																									
		Private.		Crown.				For Land and Buildings.	Severance.	As costs of Arbitration.	Claimants' Costs on Conveyances.	Per Mile of Line.			Per Acre.																									
		a.	r.	p.	a.											r.	p.	£	s.	d.	£	s.	d.	£	s.	d.														
GREAT WESTERN LINE.																																								
Granville to Bathurst.....	131 30	1,346	2	13	1,600	2	25½	2,947	0	38½	88,463	19	1	41,931	9	0	5,788	8	5	203	4	6	1,679	18	5	1,047	4	2	50,650	4	6	385	10	9½	37	12	3½			
Bathurst to Orange.....	47 75	611	3	17	141	2	21	753	1	38	37,919	11	0	13,322	15	9	2,804	7	3	987	11	5	634	12	0	631	12	7	18,380	19	0	383	8	8½	30	0	10			
Orange to Dubbo.....	85 25½	337	0	32½	900	3	3	1,237	3	35½	34,361	6	6	13,320	18	6	1,324	19	5	170	7	0	669	16	0	1,375	8	3	16,861	9	2	197	12	7	50	0	1			
Dubbo to Nyngan.....	99 49¼	38	2	31	2,325	3	4	2,364	1	35	2,987	10	0	1,521	13	9	93	7	6	.....	.....	.....	52	7	0	132	14	2	1,800	2	5	18	1	5	46	10	5½
Nyngan to Bourke.....	125 49	6	0	0	3,180	2	30	3,186	2	30	55	0	0	38	4	0	.....	.....	.....	.....	.....	.....	4	16	0	.....	.....	.....	43	0	0	0	6	10½	7	3	4
Wallerawang to Mudgee.....	84 54	733	1	38½	1,166	1	29	1,899	3	27½	25,399	7	5	13,304	11	2	732	6	7	153	7	6	942	11	10	869	3	3	16,002	0	4	188	19	7½	21	16	4			
Richmond Branch.....	16 11½	127	1	9¼	17	1	29½	144	2	38½	8,057	16	8	3,540	3	9	.....	.....	.....	.....	.....	.....	329	16	10	329	16	10	5,918	9	3	366	12	2½	46	8	3½
Orange to Molong.....	22 61½	415	3	38½	80	3	39	496	3	37½	20,806	6	1	10,015	6	2	1,251	12	6	12	14	6	140	16	5	2,837	6	9	14,257	16	4	626	4	0¼	34	5	5½			
TOTAL, GREAT WESTERN...	613 35½	3,617	0	19½	9,414	1	21¼	13,031	2	1	218,050	16	9	96,995	2	1	13,739	14	9	1,527	4	11	4,428	13	3	7,223	6	0	123,914	1	0	201	19	11¼	34	5	1½			
GREAT NORTHERN LINE.																																								
Newcastle to Murrurundi.....	119 44	1,480	0	26	374	2	15½	1,854	3	1¾	170,676	0	0	59,107	8	1	9,296	11	11	647	14	9	1,942	16	3	1,526	10	1	72,521	1	1	606	12	4	48	19	11			
Murrurundi to Tamworth.....	62 36	503	1	16	380	2	38	884	0	14	14,134	6	7	5,132	15	2	1,740	11	8	15	15	0	271	19	6	109	2	3	7,270	3	7	116	8	3½	14	8	10½			
Tamworth to Uralla.....	63 44	435	0	34	253	2	32½	688	3	26½	47,500	9	0	19,856	1	5	2,793	9	4	1,792	7	8	746	5	3	3,313	8	3	28,501	11	11	448	9	9½	65	9	9½			
Uralla to Glen Innes.....	78 36	682	2	30	1,144	2	36	1,827	1	16	41,460	19	0	12,545	12	10	2,790	12	6	1,022	11	8	442	0	1	217	3	7	17,018	0	8	216	18	6½	24	18	6½			
Glen Innes to Tenterfield.....	57 45¼	309	2	0	743	0	9	1,052	2	9	27,764	15	8	3,863	8	9	663	16	10	.....	.....	.....	5	5	0	966	1	8	5,648	14	5	98	2	6½	15	5	0½
Tenterfield to Queensland Border.....	10 76¾	51	1	19	159	3	1	211	0	20	2,307	17	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,080	6	3	1,080	6	3	98	11	5½	21	5	0½
Morpeth Branch.....	3 35½	34	3	22½	1	2	28½	36	2	11	32,367	4	10	18,088	0	9	1,506	16	3	605	16	2	368	7	11	62	17	11	20,631	19	0	5,991	2	7	591	7	2			
Bullock Island Branch.....	1 25½	19	2	18½	6	2	32½	26	1	11½	14,710	2	0	9,465	16	3	156	0	6	161	14	5	8	16	0	9,792	7	2	7,425	9	8½	499	3	2¼
TOTAL, GREAT NORTHERN...	397 23	3,516	3	6½	3,064	3	23½	6,581	2	29½	350,921	14	2	128,059	3	3	18,791	18	6	4,245	10	9	4,083	5	7	7,284	6	0	162,464	4	1	408	18	8	46	3	11¼			
GREAT SOUTHERN LINE.																																								
Sydney to Granville.....	13 50	323	1	30	40	3	3	364	0	33	211,375	12	5	171,281	6	11	1,281	9	1	1,352	14	7	870	1	2	2,262	2	9	177,074	14	6	12,994	6	7	547	7	10½			
Granville to Goulburn.....	120 51	1,317	2	15	698	1	0	2,016	3	15	80,802	3	0	32,078	3	9	7,295	2	10	717	0	3	1,537	6	10	3,338	12	6	44,966	6	2	372	14	9½	34	2	6½			
Goulburn to Yass.....	54 21	549	1	12½	226	2	35	776	0	7½	42,389	3	9	16,314	17	2	2,482	10	3	317	13	6	596	17	5	1,103	0	0	20,814	18	4	383	11	11¼	37	17	10			
Yass to Cootamundra.....	64 55	469	3	15½	511	3	14	981	2	29½	16,451	9	3	5,514	17	5	561	19	1	175	10	6	184	13	0	1,075	11	7	7,512	11	7	116	2	8½	15	19	9½			
Cootamundra to Wagga Wagga.....	55 35	210	3	21	566	3	37	777	3	18	12,266	9	6	7,501	1	0	798	0	10	.....	.....	.....	235	11	11	194	12	10	8,729	6	7	157	9	3	41	7	10½
Wagga Wagga to Albury.....	77 49	591	2	8	637	0	12	1,228	2	20	60,847	4	0	22,289	13	10	6,428	6	4	25	0	0	389	5	2	264	9	6	29,396	14	10	378	15	3	49	13	10½			
Albury to the River Murray.....	1 31¼	47	2	2	.....	.....	.....	47	2	2	33,576	10	0	11,326	14	10	1,522	1	3	.....	.....	.....	123	3	6	120	15	0	13,092	14	7	9,414	19	11	275	11	3½
Murrumburrah to Young.....	17 66	230	3	12	133	1	29	364	1	1	51,193	15	5	14,706	2	8	1,314	6	7	57	11	8	344	17	6	443	12	1	16,866	10	6	946	4	6½	73	1	5			
Young to Blayney.....	91 66	1,066	0	36	675	1	37	1,741	2	33	43,979	6	3	9,311	14	3	2,810	0	10	12	14	6	511	7	8	7,509	7	0	20,215	4	3	220	2	11½	18	19	2¼			
Goulburn to Bungendore.....	39 32¼	642	0	38	76	2	23	718	3	21	40,153	6	2	10,712	11	5	2,165	11	8	697	15	2	362	0	2	1,443	19	1	15,381	17	6	390	6	2½	23	19	0			
Bungendore to Michelago.....	47 55	540	3	0	281	1	2	821	0	2	22,576	19	11	5,289	0	11	1,465	0	0	10	10	0	308	12	2	2,117	7	3	9,190	10	4	192	14	5½	16	19	11			
Michelago to Cooma.....	38 70½	515	0	35	145	2	38	660	3	33	30,248	18	9	250	16	6	125	0	0	.....	.....	.....	.....	.....	.....	7,644	2	8	8,019	19	2	206	5	4½	15	11	3½
Cootamundra to Gundagai.....	33 17¼	517	3	0	153	1	32	671	0	32	37,841	16	8	4,335	0	2	731	19	5	15	15	0	251	6	1	5,133	5	0	10,467	5	8	315	2	7½	20	4	4			
TOTAL, GREAT SOUTHERN...	656 39¾	7,023	0	25	4,147	2	22	11,170	3	7	683,702	15	1	310,912	0	10	28,981	8	2	3,382	5	2	5,715	2	7	32,710	17	3	381,701	14	0	581	8	5¼	54	6	11½			

No. 5—TABLE A—continued.

ABSTRACT of the total Quantity and Cost of Land taken for Railway purposes—continued.

Railway Lines.	Length.	Quantity taken.		Total.	Amount claimed.	Amount paid.				Probable Amounts to be paid.	Total Cost.	Rate.	
		Private.	Crown.			For Land and Buildings.	Severance.	As costs of Arbitration.	Claimants' Costs on Conveyances.			Per Mile of Line.	Per Acre.
	Miles chns.	a. r. p.	a. r. p.	a. r. p.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
DARLING HARBOUR BRANCH. Sydney to Darling Harbour ...	1 11½	17 1 14	.....	17 1 14	58,102 0 0	45,938 15 0	.....	348 15 0	319 18 10	2,081 15 0	48,689 3 10	42,569 15 8½	2,808 6 4
NORTH-WESTERN LINE. Werris Creek to Gunnedah ...	41 22	402 3 28	378 3 3	781 2 31	10,242 11 7	6,582 3 5	382 8 6	712 0 0	170 9 0	321 8 5	8,168 9 4	197 18 0¾	20 5 5½
Gunnedah to Narrabri	55 43	234 3 14	1,407 3 4	1,642 2 18	5,280 1 10	2,593 17 11	581 0 0	133 3 6	88 3 4	.....	3,396 4 9	61 3 0½	14 9 3
TOTAL, NORTH-WESTERN ..	96 65	637 3 2	1,786 2 7	2,424 1 9	15,522 13 5	9,176 1 4	963 8 6	845 3 6	258 12 4	321 8 5	11,564 14 1	119 9 1	18 2 8
SOUTH COAST RAILWAY. Sydney to Bottle Forest	24 18½	268 1 10	119 0 0	387 1 10	281,321 16 9	145,195 3 5	12,672 15 3	3,400 10 6	2,797 8 8	3,229 6 2	167,295 4 0	6,905 0 0	623 10 2
Bottle Forest to Coal Cliff ...	9 3¼	95 1 27	105 2 10	200 3 37	104,479 18 0	2,465 2 3	20 0 0	160 0 0	30 3 6	8,982 4 5	11,657 10 2	1,241 7 11¾	122 3 5¼
Coal Cliff to Macquarie River	26 20	486 0 22	13 1 25	499 2 7	334,034 0 6	53,440 6 1	7,629 4 10	1,297 13 6	1,348 2 5	10,020 14 1	73,736 0 11	2,808 19 10¼	151 13 6½
Macquarie River to Kiama ...	10 30	200 3 21	10 3 38	211 3 19	30,730 12 9	.....	.....	.....	.....	6,591 6 3	6,591 6 3	635 6 1¾	32 16 3
TOTAL, SOUTH COAST	70 19½	1,050 3 0	248 3 33	1,299 2 33	750,566 8 0	201,100 11 9	20,322 0 1	4,858 4 0	4,175 14 7	28,823 10 11	259,280 1 4	3,691 2 11½	246 15, 1¾
SOUTH-WESTERN LINE. Junee to Narrandera	61 32¾	110 3 32	1,314 2 24	1,425 2 16	5,852 12 11	2,739 16 3	364 5 0	.....	49 6 2	.....	3,153 7 5	51 7 0	28 8 5¼
Narrandera to Hay	106 57¾	495 3 13	635 3 34	1,131 3 7	16,990 2 0	4,891 2 8	4,662 5 0	5 5 0	31 3 6	542 15 0	10,132 11 2	94 18 10½	20 8 8½
Narrandera to Jerilderie	64 71¼	830 0 22	721 1 31	1,551 2 13	24,035 9 7	5,888 3 4	1,527 15 0	5 5 0	83 5 5	1,952 16 8	9,457 5 5	145 14 10	11 7 10¼
TOTAL, SOUTH-WESTERN ...	233 1¼	1,436 3 27	2,672 0 9	4,108 3 36	46,878 4 6	13,519 2 3	6,554 5 0	10 10 0	163 15 1	2,495 11 8	22,743 4 0	97 12 0¼	15 16 6¾
SOUTHERN AND NORTHERN JUNCTION RAILWAY. Homebush to Hawkesbury River ...	28 55¾	332 2 31	265 3 24	598 2 15	98,315 11 5	34,841 1 7	8,952 16 5	208 10 0	593 18 4	12,752 0 11	56,448 7 3	1,967 1 1¾	169 13 5
Hawkesbury River to Hamilton Platform.	63 78½	739 0 6	522 1 15	1,261 1 21	211,589 4 5	15,120 10 9	2,619 13 3	1,528 10 0	468 2 4	21,647 8 9	41,384 5 1	646 16 4½	55 19 11½
TOTAL, SOUTHERN AND NORTHERN JUNCTION RAILWAY	92 54¼	1,071 2 37	788 0 39	1,859 3 36	309,904 15 10	49,961 12 4	10,672 9 8	1,737 0 0	1,062 0 8	34,399 9 8	97,832 12 4	1,055 12 4	91 5 8½
TOTAL ON ALL LINES TO 31ST DECEMBER, 1886	2,161 10½	18,371 2 10½	22,122 2 35	40,494 1 5½	2,433,649 7 9	855,662 8 10	100,025 4 8	16,954 13 4	20,207 2 11	115,340 4 11	1,108,189 14 8	512 15 7¾	60 6 5¼

TABLE B.

ABSTRACT of the total Quantity and Cost of Land taken for Railway purposes to the 31st December, 1886, under the Public Railways Land Resumption Act of 1874.

Railway Lines.	Length.	Quantity taken.	Amounts paid.			For Appraisement.	Probable Amounts to be paid.	Total Cost.	Rate.	
			For Land.	For Improvements.	Claimants' Costs on Conveyances.				Per Mile of Line.	Per Acre.
	Miles chns.	a. r. p.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
GREAT WESTERN LINE.										
Orange to Dubbo	85 25½	6 1 35	3 4 7	90 0 0	.....	.....	.....	93 4 7	1 1 10½	14 8 3
Dubbo to Nyngan	99 49½	60 2 26	126 18 5	17 2 6	4 4 2	.....	.....	148 5 1	1 9 9½	2 8 10½
Wallerawang to Mudgee	84 54	117 0 2	129 0 0	847 17 6	63 17 6	.....	.....	1,045 6 3	12 6 10½	8 18 8
Orange to Molong	22 61½	16 2 34	4 3 1	79 5 0	.....	.....	.....	93 5 11	4 1 11½	5 11 7½
Total, Great Western	292 30½	200 3 17	263 6 1	1,034 5 0	68 1 8	.....	.....	1,380 1 10	4 14 4½	6 17 5
GREAT NORTHERN LINE.										
Tamworth to Uralla	63 44	219 3 10	103 15 1	228 4 3	80 15 4	5 5 0	.....	181 13 3	9 8 8½	2 14 6½
Uralla to Glen Innes	78 36	93 3 21	50 1 0	24 10 0	0 5 0	.....	.....	111 6 1	1 8 4½	1 3 8½
Glen Innes to Tenterfield	57 45½	34 1 7	5 12 0	.....	.....	.....	.....	54 6 2	1 0 9½	1 14 11½
Tenterfield to Queensland Border	10 76½	15 2 20	.....	.....	.....	.....	.....	31 5 0	2 17 0½	2 0 0
Total, Great Northern	210 42	363 2 18	159 8 1	252 14 3	81 0 4	5 5 0	.....	303 14 6	3 16 2½	2 4 1½
GREAT SOUTHERN LINE.										
Goulburn to Bungendore	39 32½	68 1 14	17 6 1	34 10 0	.....	.....	.....	72 5 2	3 2 11½	1 16 3½
Bungendore to Michelago	47 55	96 1 38	40 6 0	189 10 0	14 17 10	.....	.....	19 4 3	5 10 8½	2 14 8½
Michelago to Cooma	38 70½	71 1 9	6 3 0	2 0 0	.....	.....	.....	85 6 0	2 8 0½	1 6 2½
Young to Blayney	91 66	9 3 11	1 10 7	.....	.....	.....	.....	93 9 0	0 1 0½	0 9 11½
Cootamundra to Gundagai	33 17½	19 1 33	.....	.....	.....	.....	.....	3 7 6	4 18 1	0 9 11½
Total, Great Southern	251 1½	265 1 25	65 5 8	226 0 0	14 17 10	.....	.....	219 1 2	2 1 10½	1 19 7
SOUTH-WESTERN LINE.										
Junee to Narrandera	61 32½	238 0 16½	320 2 11	557 0 0	55 0 0	.....	.....	145 15 9	17 11 1	4 10 6½
Narrandera to Hay	106 57½	1,248 2 0	1,750 4 1	1,279 7 6	37 12 1	.....	.....	1,186 0 1	39 17 0½	3 8 1½
Narrandera to Jerilderie	64 71½	114 3 4	99 12 3	.....	20 4 2	.....	.....	103 9 0	3 8 9½	1 18 10½
Total, South-western	233 1½	1,601 1 20½	2,169 19 3	1,836 7 6	112 16 3	.....	.....	1,435 4 10	15,554 7 10	23 16 8½
SOUTH COAST RAILWAY.										
Sydney to Bottle Forest	24 18½	29 3 14	.....	.....	.....	.....	.....	59 8 3	59 8 3	2 9 0½
SOUTHERN AND NORTHERN JUNCTION RAILWAY.										
Homebush to Hawkesbury River	28 55½	24 0 21	47 11 0	458 17 0	21 10 11	.....	.....	1 0 0	528 18 11	18 8 7½
Hawkesbury River to Hamilton Platform	63 78½	52 3 16	50 1 2	.....	7 13 10	.....	.....	19 17 11	77 12 11	1 4 3½
Total, Southern and Northern Junction Railway	92 54½	76 3 37	97 12 2	458 17 0	29 4 9	.....	.....	20 17 11	606 11 10	6 10 10½
NORTH-WESTERN LINE.										
Gunnedah to Narrabri	55 43	105 0 30	153 8 10	23 9 0	7 6 0	.....	.....	94 12 11	278 16 9	5 0 5
TOTAL ON ALL LINES TO THE 31ST DECEMBER, 1886	1,159 31	2,643 1 1½	2,909 0 1	3,831 12 9	313 6 10	5 5 0	.....	2,147 8 8	9,206 13 4	7 18 10

The claims outstanding on the 31st December, 1885, were 549 to which 105 were added during 1886, making a total of 654 claims; of these 271 were settled in 1886, leaving at the close of the year 383 in various stages of adjustment, a large number of which have been settled during the present year.

Table with columns: Date of Invoice, Name of Ship, Rails (No, Tonnage), Fishplates (No, Tonnage), Bolts and Nuts (No, Tonnage), Spikes (No, Tonnage), Screws (No, Tonnage), Name of Contractor, Rate per ton, Invoice Cost, Freight, English Charges, Colonial Charges, Total Cost, Cost per ton, Date of Arrival. The table lists various railway construction details from 1885 to 1886.

Date of Invoice.	Name of Ship.	Rails.		Fishplates.		Bolts and Nuts.		Chairs.		Screws.		Name of Contractor.	Rate per ton.	Invoice Cost.	Freight.	English Charges.	Colonial Charges.	Total Cost.	Cost per ton.	Date of Arrival.
		No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.									
Indent for Permanent Way Materials for Renewals (Double-headed Rails), Great Southern, Western, and Richmond Railways, 9th December, 1884.																				
1885. 24 Sep.	Crummock Water		T. c. q. lb.		T. c. q. lb.		T. c. q. lb.	53769	T. c. q. lb.		T. c. q. lb.	Anderston Foundry Co.	£ s. d. 2 18 6	£ s. d. 1825 10 1	£ s. d. 608 12 4	£ s. d. 18 10 1	£ s. d. 98 4 9	£ s. d. 2550 17 3	£ s. d. 4 1 8½	1886. 10 Jan.
Indent for Permanent Way Materials for Renewals (Double-headed Rails), Great Southern and Western Railways, 21st November, 1885.																				
1886. 24 April.	Yallaroi	739	194 6 0 20									Guest & Co.	5 1 6	986 2 5	75 5 11	8 4 11	27 0 6	1096 13 9	5 12 10½	1886. 17 Aug.
19 "	Smyrna	626	152 11 2 4									"	5 1 6	774 6 6	59 2 6	6 10 1	21 4 6	861 3 7	5 12 10½	23 Sept.
6 May	Shannon	592	150 0 2 16									"	5 1 6	761 8 3	61 0 11	8 5 6	17 17 6	848 2 2	5 13 0½	24 June
12 "	Yallaroi	393	100 0 1 20									"	5 1 6	507 12 2	38 15 2	4 6 4	13 18 6	564 12 2	5 12 10½	17 Aug.
13 "	Lusitania	404	100 3 3 8									"	5 1 6	508 9 4	40 15 4	5 11 5	12 3 11	567 0 0	5 13 2	1 July.
19 April.	Ben Voirlich	208	52 13 0 16									"	5 1 6	267 4 8	20 8 1	2 6 10	7 6 11	297 6 6	5 12 11	7 Sept.
17 May	Port Victor	799	200 2 3 16									"	5 1 6	1015 14 8	81 8 8	10 19 9	26 14 4	1134 17 5	5 13 4½	8 July.
19 "	John Elder	832	199 18 3 8									"	5 1 6	1014 14 0	81 7 0	10 19 7	24 6 7	1131 7 2	5 13 2½	16 "
19 "	Gladstone	208	44 13 2 20									"	5 1 6	226 15 5	17 6 4	2 0 2	6 4 1	252 6 0	5 12 11	28 Sept.
		4801	1194 11 0 16											6062 7 5	475 9 11	59 4 7	156 6 10	6753 8 9		
Indent for 100 sets Cast-steel Crossings and Switches for proposed Railway Extensions, 17th September, 1885.																				
1886. 17 Feb.	Cimba		C.S. Crossings.		Switches.							Anderson Foundry Co.	Each. 16 12 6	997 10 0	42 15 3	10 2 6	16 19 4	1067 7 1	17 15 9½	1886. 3 July.
24 "	Kent			60	83 8 3 10							"	16 12 6	665 0 0	30 2 2	7 10 0	9 15 11	712 8 1	17 16 2½	1 June.
27 "	Orontes	25	16 9 1 11									Vickers, Sons, & Co.	14 5 6	356 17 6	8 8 10	3 14 4	4 16 10	373 17 6	14 19 1	7 July.
29 Mar.	Kistna	35	23 0 3 24									"	14 5 6	499 12 6	11 16 3	5 2 11	6 15 5	523 7 1	14 19 0½	6 Aug.
19 April.	Yallaroi	40	26 10 0 23									"	14 5 6	571 0 0	13 11 9	5 13 0	7 16 0	598 5 9	14 19 1½	17 "
		100	66 0 2 2	100	139 7 3 15									3090 0 0	106 14 3	32 7 9	46 3 6	3275 5 6		
Indent for Permanent Way Materials for Duplication of Lines, Goulburn to Joppa Junction, and Molong Junction to Orange Station, 18th December, 1885.																				
1886. 2 June.	Rome	845	Rails.		Fishplates.							Guest & Co.	Rate. 5 0 0	1007 7 8	81 19 6	11 1 2	23 3 7	1123 11 11	5 11 6½	22 July.
7 May	Cairnbulg							12186	4 18 3 6			Patent Nut & Bolt Co.	12 10 0	61 15 0	2 15 11	0 12 10	1 1 8	66 5 5	13 8 3½	31 "
7 "	"											"	18 0 0	160 0 8	5 0 10	1 14 0	2 8 8	169 4 2	19 0 7½	31 "
7 "	"											"	14 10 0	66 3 3	2 11 7	0 13 9	1 2 0	70 10 7	15 9 1½	31 "
22 "	John Duthie			3924	17 19 0 13	7848	4 11 1 1					Darlington Steel and Iron Co.	6 4 0	111 6 6	9 4 1	0 17 11	2 14 0	124 2 6	6 18 4 3	27 Sept.
10 June.	"	433	100 3 3 18									Guest & Co.	5 0 0	500 19 7	38 16 6	4 6 5	13 17 6	558 0 0	5 11 4½	27 "
10 "	Gladstone	200	43 10 3 2									"	5 0 0	217 13 10	16 17 5	1 19 3	6 0 8	242 11 2	5 11 5½	28 "
10 "	Australasian	482	105 18 3 9									"	5 0 0	529 14 2	43 2 2	5 17 7	12 17 0	591 10 11	5 11 8½	14 Aug.
		1960	451 3 0 5	3924	17 19 0 13	7848	4 11 1 1	12186	4 18 3 6	20034	8 17 3 7			2655 0 8	200 8 0	27 2 11	63 5 1	2945 16 8		
Indent for Permanent Way Materials for Renewals (T Rails), Great Southern, Western, and Richmond Railways, 12th September, 1884.																				
1885. 22 Sept.	Cathcart	70	43 17 3 6									Vickers, Sons, & Co.	13 6 0	931 0 0	22 9 10	9 9 2	12 14 5	975 13 5	13 18 9	1886. 8 Feb.
12 Dec.	John Elder	60	37 6 3 27									"	13 5 3½	795 17 6	20 2 0	8 11 6	8 2 8	832 13 8	13 17 6½	12 "
1886. 13 Jan.	Aigburth	85	53 1 3 19									"	13 6 1½	1131 0 0	27 4 3	11 9 2	15 8 10	1,185 2 3	13 18 10	12 May.
13 Feb.	Cimba	65	42 14 1 24									"	14 2 9½	919 2 6	21 17 11	9 6 9	12 10 4	962 17 6	14 16 3½	3 July.
		280	177 1 0 20											3,777 0 0	91 14 0	38 16 7	48 16 3	3,956 6 10		
Indent for Permanent Way Materials for Renewals (Double-headed Rails), Great Southern, Western, and Richmond Railways, 12th September, 1884.																				
1885. 22 Sept.	Strathearn	60	55 17 0 0									Vickers, Sons, & Co.	16 10 8	992 0 0	28 12 6	10 1 5	14 8 0	1,045 1 11	17 8 4½	1886. 1 Feb.
12 Dec.	Libussa	50	46 12 3 22									"	16 11 10	829 15 0	23 18 2	8 8 11	12 0 8	874 2 9	17 9 7½	23 April.
1886. 14 Jan.	Aigburth	45	41 16 2 24									"	16 10 0	742 10 0	21 8 10	7 11 6	10 15 5	782 5 9	17 7 8	12 May.
30 "	Gulf of St. Vincent	35	38 19 2 13									"	18 18 5	644 15 0	20 19 7	7 1 8	8 17 7	681 13 10	19 9 6½	18 April.
		190	183 6 1 3											3,209 0 0	94 19 1	33 3 6	46 1 8	3,883 4 3		

Date of Invoice.	Name of Ship.	Rails.		Fishplates.		Stud Bolts.		Screws.		C. I. Blocks.		Fishbolts.		Ferrules.		Name of Contractor.	Rate per ton.	Invoice Cost.	Freight.	English charges.	Colonial charges.	Total Cost.	Cost per ton.	Date of Arrival.				
		No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.													
Indent for Tramway Material, dated 30th October, 1885.																												
1885.			T. c. q. lb.		T. c. q. lb.		T. c. q. lb.		T. c. q. lb.		T. c. q. lb.		T. c. q. lb.		T. c. q. lb.													
14 Nov...	Garonne...	1277	176 12 3 12	..	..	..	..	..	..	..	..	..	..	..	..	Darlington Steel & Iron Co.	£ 5 18 0	s. d. 4042 2 10	£ 71 17 5	s. d. 9 14 4	£ 422 6 11	s. d. 1146 2 6	£ 6 6 9 9	1886.
14 "	do	..	..	2560	6 14 0 7	..	..	..	..	..	..	..	..	..	..	do	6 17 0	45 18 4	3 11 11	0 7 3	0 18 2	50 15 8	7 12 6	14 "
24 "	Parthia	..	..	..	..	16800	4 4 0 0	..	..	..	..	..	..	..	..	Patent Nut & Bolt Co.	16 15 0	70 7 0	2 9 11	0 16 7	1 0 4	74 13 10	17 15 8	18 "
24 "	do	..	..	..	..	..	..	8316	1 13 0 0	..	..	..	..	..	..	do	19 5 0	31 15 3	0 19 7	0 7 6	0 8 8	33 11 0	20 6 8	13 "
24 "	do	..	..	..	..	..	..	..	..	9200	6 11 1 0	..	..	..	..	do	8 18 6	58 11 5	3 18 3	0 13 9	1 2 11	64 6 4	9 16 0	13 "
24 "	do	..	..	..	..	..	..	..	..	..	..	3717	1 1 0 0	..	..	do	16 10 0	17 6 6	0 12 5	0 4 1	0 5 0	18 8 0	17 10 6	13 "
14 "	Bombay	726	101 0 0 0	..	..	..	..	..	..	..	..	..	..	8800	0 12 0 0	Darlington Steel & Iron Co.	24 15 0	14 17 0	0 6 3	0 3 6	0 3 8	15 10 5	25 17 4	13 "
14 "	do	..	..	1460	3 16 1 23	..	..	..	..	..	..	..	..	..	..	do	5 18 0	595 18 0	41 1 11	5 12	5 12 15 8	655 8 0	6 9 9	5 Feb.
12 Dec..	Delcomyn	..	..	..	..	..	..	..	..	29244	20 17 0 22	..	..	..	..	do	6 17 0	26 3 9	2 1 2	0 4 1	4 10 0	28 19 0	7 11 5	5 "
12 "	do	..	..	..	..	29100	7 5 2 0	..	..	..	..	..	..	..	..	Patent Nut & Bolt Co.	8 18 6	186 3 5	12 6 9	2 4 6	3 12 8	204 7 4	9 15 11	12 Mar.
12 "	do	..	..	..	..	..	..	..	..	..	..	8504	2 8 0 6	..	..	do	16 15 0	121 17 2	4 6 8	1 6 11	1 16 1	129 6 10	17 15 6	12 "
12 "	do	..	..	..	..	..	..	..	..	..	..	..	..	..	..	do	16 10 0	39 12 10	1 8 6	0 8 7	0 11 1	42 1 0	17 10 9	12 "
12 "	do	..	..	..	..	..	..	35468	7 0 3 0	..	..	..	..	7600	0 10 1 13	do	24 15 0	12 16 7	0 5 6	0 2 9	0 2 11	13 7 9	25 16 7	12 "
25 Nov..	Australasian	2059	277 8 2 8	..	..	..	..	..	..	..	..	..	..	..	..	Darlington Steel & Iron Co.	19 5 0	135 9 5	4 3 5	1 19 10	1 16 4	142 19 0	20 6 3	12 "
25 "	do	..	..	4390	11 9 3 18	..	..	..	..	..	..	..	..	..	..	do	5 18 0	1636 16 7	112 17	6 15 3	5 35 2	1 1799 19 7	6 9 9	13 Feb.
24 "	do	..	..	..	..	12600	3 3 0 0	..	..	..	..	..	..	..	..	do	6 17 0	78 14 10	6 3 9	0 12 7	1 10 6	87 1 8	7 11 6	13 "
24 "	do	..	..	..	..	..	..	27216	5 8 0 0	..	..	..	..	..	..	Patent Nut & Bolt Co.	16 15 0	52 15 3	1 17 4	0 12 3	0 12 7	55 17 5	17 14 8	13 "
24 "	do	..	..	..	..	..	..	..	..	20056	14 16 0 14	..	..	..	..	do	19 5 0	103 19 0	3 4 4	1 3 2	1 3 2	100 9 8	20 5 6	18 "
24 "	do	..	..	..	..	..	..	..	..	..	..	4779	1 7 0 0	..	..	do	8 18 6	127 13 8	8 8 7	1 10 7	2 3 10	139 16 8	9 8 10	13 "
24 "	do	..	..	..	..	..	..	..	..	..	..	..	..	..	..	do	16 10 0	22 5 6	0 16 1	0 5 0	0 5 3	23 11 10	17 9 6	13 "
																	4421 5 4	282 17	3 48 3	1 88 7 10	4835 13 6							

Indent for Material for North Shore Tramway, dated 8th June, 1885.																								
Date of Invoice.	Ship.	Rails.		Fishplates.		Stud Bolts.		Screws.		C. I. Blocks.		Fishbolts.		Ferrules.		Name of Contractor.	Rate per ton.	Invoice Cost.	Freight.	English charges.	Colonial charges.	Total Cost.	Cost per ton.	Date of Arrival.
1885.																								
29 Sept..	Crummock Water.	1440	187 9 3 3	..	..	..	..	..	..	..	..	..	..	..	..	Darlington Steel & Iron Co.	5 15 6	1082 15 0	182 16 1	8 0	1 39 16 4	1313 7 6	7 0 1	1886.
29 "	do	..	..	1430	3 14 3 17	..	..	..	..	..	..	..	..	..	do	6 14 6	25 3 8	3 13 5	0 3 3	0 17 9	29 18 1	7 19 8	10 "	
		1440	187 9 3 3	1430	3 14 3 17	..	..	..	..	..	..	..	..	..	..			1107 18 8	186 9 6	8 3	4 40 14 1	1343 5 7		

Date of Invoice.	Ship.	From whom purchased.	Description.	Tonnage.	Cost per Ton.	Cost each.	Invoice Cost.	Freight.	English Charges.	Colonial Charges.	Total Cost.	Cost per Ton.	Cost each.	Date of Arrival.
Indent for the Wrought Ironwork and Cast Iron Bed Plates required for 7 Bridges to be constructed on the Railway from Homebush to Waratah, dated 6th February, 1884.														
1885.				T. c. q. lb.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	1886.
27 Nov...	Coobeen.....	The Butterley Co.	Wrot. ironwork, rivets, &c.	221	0 2 25	12 13 6	2,801 12 8	386 18 8	56 3 2	26 4 1	3,270 18 7	14 15 11	.....	4 April.
27 "	"	"	C.-i. bedplates	3	3 3 26	9 7 8	30 0 6	5 12 1	0 12 6	0 5 7	36 10 8	11 8 4	.....	4 "
1886.														
7 Jan.	Loch Urr	"	Wrot. ironwork, rivets, &c.	71	11 2 6	12 13 6	907 4 11	68 17 10	18 5 10	8 10 0	1,002 18 7	14 0 2	.....	24 "
7 "	Haidee	"	Wrot. ironwork	89	5 2 19	12 13 6	1,131 13 4	217 7 8	22 15 7	10 1 4	1,381 17 11	15 9 6	.....	14 June.
7 "	"	"	C.-i. Bedplates	1	16 3 13	9 7 8	17 6 0	4 9 8	0 7 0	0 3 6	22 6 2	12 2 0	.....	14 "
19 Mar....	Energia	"	Wrot. ironwork, rivets, &c.	221	5 0 18	12 13 6	2,804 8 11	406 1 11	60 3 7	19 13 5	3,290 7 10	14 17 5	.....	19 "
19 "	"	"	C.-i. Bedplates	3	0 27	9 7 8	28 5 4	5 9 8	0 12 6	0 3 11	34 11 5	11 9 6	.....	19 "
				611	4 0 22	.....	7,720 11 8	1,094 17 6	159 0 2	65 1 10	9,039 11 2	.....	.....

Date of Invoice.	Ship.	From whom purchased.	Description.	Tonnage.	Cost per Ton.	Cost each	Invoice Cost	Freight.	English Charges.	Colonial Charges.	Total Cost.	Cost per ton.	Cost each.	Date of Arrival.
Indent for Wrought and Cast Ironwork for Bridge over the Lachlan River at Cowra, dated 31st July, 1885.														
1886.				T. c. q. lb	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	1886.
6 Jan. ...	Essex ...	Stockton Forge Co. ...	Cylinders	97 18 3 0	4 7 6	.....	428 9 6	783 6 6	10 9 1	18 4 7	1240 9 8	12 13 3 1/2	.....	27 Mar.
6 " "	" "	" "	" segments	208 4 2 0	4 7 6	.....	910 19 9	295 3 4	21 14 4	38 15 3	1266 12 8	6 1 7 1/2	.....	27 " "
6 " "	" "	" "	Bolts, washers, &c.	4 15 1 22	16 0 0	.....	76 7 3	6 15 3	1 12 5	1 8 0	86 2 11	18 1 0	.....	27 " "
14 " "	Marsala	" "	Cylinders ...	36 3 0 0	4 7 6	.....	158 3 1	270 2 3	3 14 6	6 14 5	438 14 3	12 2 8	.....	3 May.
14 " "	" "	" "	" segments	153 9 2 0	4 7 6	.....	671 9 1	217 11 0	15 16 10	28 11 5	933 8 4	6 1 7 1/2	.....	3 " "
14 " "	" "	" "	Bolts, washers, &c.	1 19 1 13	16 0 0	.....	31 9 10	2 19 8	0 13 4	0 11 6	35 14 4	18 2 11 1/4	.....	3 " "
30 " "	Gulf of St. Vincent	" "	Cylinders ...	54 17 1 0	4 7 6	.....	240 0 5	368 10 2	5 14 4	10 4 3	624 9 2	11 7 7 1/2	.....	18 April.
30 " "	" "	" "	" segments	110 14 1 0	4 7 6	.....	484 7 5	156 18 0	11 10 7	20 12 2	673 8 2	6 1 7 1/2	.....	18 " "
30 " "	" "	" "	Bolts, washers, &c.	3 15 0 3	16 0 0	.....	60 0 5	5 14 6	1 5 7	1 1 11	68 2 5	18 3 4	.....	18 " "
25 Feb.	Procida ...	" "	Cylinders ...	37 16 3 0	4 7 6	.....	165 10 9	315 2 8	4 11 4	7 1 1	492 5 10	13 0 2 1/2	.....	6 May.
16 " "	Aberdeen ...	" "	" segments	131 18 2 0	4 7 6	.....	577 3 6	187 0 1	13 6 8	23 4 2	800 14 5	6 1 4 1/2	.....	13 April.
16 " "	" "	" "	Bolts, washers, &c.	3 7 2 3	16 0 0	.....	54 0 5	5 2 8	1 2 8	0 17 3	61 3 0	18 2 2 1/2	.....	13 " "
9 Mar. ...	Kent ...	" "	Cylinders ...	16 13 1 0	4 7 6	.....	72 18 0	120 6 3	1 14 10	3 0 1	197 19 2	11 17 7 1/4	.....	1 June.
9 " "	" "	" "	" segments	66 10 1 0	4 7 6	.....	290 19 9	94 5 3	6 18 5	12 0 5	404 3 10	6 1 6 1/2	.....	1 " "
31 " "	Catania	" "	"	25 8 0 0	4 7 6	.....	111 2 6	218 13 3	2 8 7	5 1 0	337 5 4	13 5 6 1/2	.....	30 May.
31 " "	" "	" "	" segments	9 14 3 0	4 7 6	.....	42 12 0	13 16 2	1 8 0	1 18 8	59 14 10	6 2 8 1/2	.....	30 " "
31 " "	" "	" "	Cap segments	20 10 1 0	14 0 0	.....	371 3 6	37 11 7	7 11 6	8 2 1	424 8 8	16 0 2	.....	30 " "
31 " "	" "	" "	W.I. plates for caps	7 6 3 0	16 0 0	.....	117 8 0	10 7 11	2 17 7	2 8 0	133 1 6	18 2 8 1/2	.....	30 " "
7 April. ...	Energia	" "	Cylinders ...	26 3 1 0	4 7 6	.....	114 9 3	223 9 4	3 1 0	4 14 8	345 14 3	13 4 3 1/4	.....	4 June.
7 " "	" "	" "	" segments	6 6 2 0	4 7 6	.....	27 13 5	8 19 3	0 14 8	1 2 10	38 10 2	6 1 9 1/4	.....	4 " "
7 " "	" "	" "	Cap segments	3 6 2 0	14 0 0	.....	46 11 0	4 14 3	1 0 5	0 16 4	53 2 0	15 19 4 1/2	.....	4 " "
7 " "	" "	" "	W.I. plates for caps	0 17 0 0	16 0 0	.....	13 12 0	1 4 3	0 6 0	0 4 5	15 6 8	18 0 9 1/4	.....	4 " "
7 " "	" "	" "	Bolts, washers, &c.	0 7 2 8	16 0 0	.....	6 1 2	0 11 9	0 2 9	0 2 1	6 17 9	18 3 10 1/2	.....	4 " "
				1034 3 3 21	...	.....	5072 12 0	3348 5 4	119 15 5	196 16 7	8737 9 4	...	.....

Return of Miscellaneous Articles imported for the Great Northern Line during the Year 1886.

1885.														1886.
17 Sept. ...	Regent Murray..	Sharp, Stewart & Co	1 8" slotting machine .....	.....	.....	90 0 0	90 0 0	615 2 0	1 19 0	0 17 0	99 11 2	.....	99 11 2	15 Feb.
15 " "	" "	Beyer, Peacock, & Co	1 pr second leading wheels and axles.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
15 " "	" "	" "	1 pr. second driving wheels and axles.	.....	.....	.....	520 0 0	11 17 10	10 11 0	4 17 3	547 6 1	.....	547 6 1	15 " "
15 " "	" "	" "	1 pr. trailing wheels and axles	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
15 " "	" "	" "	2 " bogie " " "	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
15 " "	" "	" "	1 " 18" outside cylinders	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
30 Oct. ...	Warwick ...	Sir Joseph Whitworth & Co.	3 c.-i. surface plates.....	.....	.....	22 10 0	67 10 0	1 10 2	1 10 0	0 14 7	71 4 9	.....	23 14 11	24 March.
6 Nov. ...	" "	James Scott & Sons...	16 Erhardt's portable weighing apparatus.	.....	.....	28 0 7	448 9 2	3 13 1	9 2 4	4 3 7	465 8 2	.....	29 1 9	24 " "
27 " "	Gryfe ..	R. W. Cameron & Co.	3 50' Sellors' engine turntables.	.....	.....	253 0 0	759 0 1	77 5 11	44 2 10	32 4 2	912 13 0	.....	304 4 4	23 Feb.
27 " "	Coobeen ..	Ashbury Railway Carriage and Iron Co.	6 pairs wheels ...	.....	.....	7 15 0	.....	.....	.....	.....	.....	.....	.....	.....
1886.														
22 May ...	" "	Vickers, Sons, & Co ..	12 c.-s. tires for above ...	2 15 0 16	18 0 0	.....	117 7 10	5 9 8	2 2 10	0 8 10	125 9 2	.....	20 18 2 1/4	4 April.
22 " "	" "	" "	6 c.-s. axles for above ...	1 3 2 14	18 0 0	.....	.....	.....	.....	.....	.....	.....	.....	.....

Return of Miscellaneous Articles imported for the Great Northern Line during the year 1886—continued.

Date of Invoice.	Ship.	From whom purchased.	Description.	Tonnage.	Cost per ton.	Cost each.	Invoice Cost.	Freight.	English Charges.	Colonial Charges.	Total Cost.	Cost per ton.	Cost each.	Date of Arrival.
1885. 7 Dec.	Coobeen	Fairbairn, Naylor, M'Pherson & Co.	1 6" screw-cutting lathe ...	T. c. q. lb.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	1886. 4 April.
17 "	"	George Salter & Co.	12 gross window springs...			0 4 10½ per gross.	2 18 6	0 10 6	0 4 2	0 2 2	3 15 4		0 6 3½ per gross.	4 "
22 "	"	North British Rubber Co.	200 vulcanized I.R. door stops..			0 0 1¼	1 10 0	.....	0 0 7	.....	1 10 7		0 0 1¼	4 "
22 "	Loch Uhr	Hulse & Co.	1 36" vertical drilling machine.			94 0 0	94 0 0	4 4 6	2 0 7	0 17 8	101 2 9		101 2 9	24 "
31 "	"	Patent Woollen Cloth Co	287½ sq. yds. journal felt.			0 6 0 per yard.	93 8 3	2 14 7	2 0 4	0 17 8	99 0 10		0 6 10½ per yard.	24 "
1886. 14 Jan.	"	Hyde, Archer & Co.	50 gross black buttons ...			0 0 9½ per gross.	1 18 5	0 2 8	0 1 5	0 0 4	2 2 10		0 0 10½ per gross.	24 "
14 "	"	"	100 " brown "			0 0 6¼ per gross.	2 10 6	0 3 3	0 2 0	0 0 6	2 16 3		0 0 6¼ per gross.	24 "
14 "	"	"	50 gross marone plush buttons.			0 1 4½ per gross.	3 10 2	0 4 7	0 2 9	0 0 8	3 18 2		0 1 6¼ per gross.	24 "
1885. 28 Dec.	"	The Leather Cloth Co.	12 pieces=144 yds. 1st duck			2 1 7½ per piece.	24 19 7	0 6 3	0 11 9	0 5 5	26 3 0		2 3 7 per piece.	24 "
28 "	"	"	12 pieces=144 yds. brown duck			1 9 4 per piece.	17 12 1	0 4 5	0 8 3	0 3 10	18 8 7		1 10 8½ per piece.	24 "
21 "	"	Craven Brothers	1 16-ton rope-power travelling crane.			620 0 0	620 0 0	42 8 11	11 6 2	5 16 3	679 11 4		679 11 4	24 "
19 "	"	"	1 crab winch for lifting locomotives.			275 0 0	275 0 0	32 2 9	5 13 0	2 11 8	315 7 5		315 7 5	24 "
1886. 22 Jan.	Haidee	Samuel Osborn & Co.	60 brake-van bearing springs ...			0 10 6	31 10 0	2 5 3	0 15 7	0 6 1	34 16 11		0 11 7¼	14 June.
23 "	"	John Brown & Co.	50 carriage " " "			0 18 6	46 5 0	3 11 2	1 1 6	0 8 10	51 6 6		1 0 6¼	14 "
1 Feb.	"	Monkbridge Iron Co.	Yorkshire Tee iron	1 17 1 10	15 2 2½	.....	28 4 3	1 6 7	0 11 5	0 5 5	30 7 8	16 5 5½	.....	14 "
1 "	"	"	" chain iron	32 11 2 26	15 2 3	.....	492 9 4	23 4 5	9 19 10	4 11 10	530 5 5	16 5 5½	.....	14 "
3 "	"	Henry Carr	2000 axle-box lubricators.			0 1 1	108 6 8	0 16 4	2 6 4	1 3 1	112 12 5		0 1 1½	14 "
18 Jan.	"	Thos. Turton & Sons.	200 wagon bearing springs			0 7 10½	78 15 0	6 4 5	1 14 6	0 15 0	87 8 11		0 8 8½	14 "
11 Feb.	"	Samuel Osborn & Co.	150 elliptical " " "			1 17 6	281 5 0	17 6 6	5 15 6	2 13 0	307 0 0		2 0 11½	14 "
29 Jan.	"	Dalton, Barton, & Co.	249½ yds. French carpet, 24"			0 1 10½ per yard.	23 13 6	0 6 1	0 10 10	0 5 1	24 15 6		0 1 11½ per yard.	14 "
29 "	"	"	346 " " " 20"			0 1 8 per yard.	28 16 8	0 7 5	0 13 2	0 6 5	30 3 8		0 1 8½ per yard.	14 "
15 Feb.	Autofagasta	Charles Cammell & Co.	120 volute buffer springs...			0 3 8	22 0 0	1 3 11	0 11 9	0 4 0	23 19 8		0 4 0	3 Aug.
15 "	"	"	120 brake van bearing springs..			0 12 6	75 0 0	5 12 3	1 13 0	0 14 2	82 19 5		0 13 9½	3 "
25 Jan.	"	Ashbury Railway Carriage and Iron Co.	40 pairs carriage wheels ...			7 10 0	769 8 11	37 1 2	13 3 11	7 4 2	826 18 2		20 13 5½	3 "
15 Mar.	"	Vickers, Sons, & Co.	80 c.s. tires for above.....	18 6 3 5	18 0 0	.....								3 "
15 "	"	"	40 c.s. axles for above ...	7 14 3 7	18 0 0	.....	25 0 0	2 0 4	0 13 0	0 4 11	27 18 3		0 9 3½	3 "
12 Feb.	"	John Brown & Co.	60 centre-bearing springs			0 8 4								3 "
18 "	"	P. and W. M'Lellan	216 Wheatley's carriage-door locks.			0 5 9	62 2 0	0 10 6	1 7 10	0 13 1	64 13 5		0 5 11½	3 "
23 "	"	Colbeck Bros.	202½ yds. blue carriage cloth			0 7 1¼	72 7 10	0 7 1	1 10 11	0 15 6	75 1 4		0 7 4¼	3 "
23 "	"	"	103½ yds. brown " "			0 6 10	35 6 5	0 3 5	0 15 2	0 7 7	36 12 7		0 7 0¾	3 "
25 "	"	Westinghouse Brake Co., Limited.	16 sets bogie carriage automatic fittings.			22 0 0	352 0 0	2 9 10	7 3 9	3 14 8	365 8 3		22 16 9	3 "

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Return of Miscellaneous Articles imported for the Great Northern Line during the year 1886—continued.														
1886.				T. c. q. lb.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	1886.
23 Feb.	Energia	Turton Brothers & Matthews.	500 Timmin's patents springs			0 11 4	283 6 8	3 19 9	5 19 4	1 19 9	295 5 6		0 11 9½	19 June.
23 "	"	Beyer, Peacock, & Co.	1 planing machine			520 0 0	520 0 0	17 17 6	10 14 3	3 13 5	552 5 2		552 5 2	19 "
26 Mar.	"	Samuel Osborn & Co.	100 horse-box bearing springs			0 13 6	67 10 0	4 3 5	1 13 0	0 9 8	73 16 1		0 14 9½	19 "
5 "	"	Charles Cammell & Co.	750 6" Volute springs			0 1 9	65 12 6	3 19 6	1 12 3	0 9 2	71 13 5		0 1 10½	19 "
24 "	"	Craven Bros. & Co.	100 pairs wheels			6 1 6								
10 April.	"	Vickers, Sons, & Co.	200 c.-s. tires for above	38 16 3 4	18 0 0		1647 6 6	85 3 0	28 19 9	11 11 0	1773 0 3		17 14 7½	19 "
10 "	"	"	100 c.-s. axles for above	18 18 2 8	18 0 0									
13 "	Colwyn	Craven Bros. & Co.	100 pairs wheels			6 1 6								
1 May	"	Vickers, Sons, & Co.	200 c.-s. tires for wheels	38 16 3 4	18 0 0		1647 6 6	81 1 11	27 17 11	15 8 2	1771 14 6		17 14 4	23 Aug.
1 "	"	"	100 c.-s. axles for above	18 18 2 8	18 0 0									
18 "	"	Craven Bros. & Co.	50 pairs wheels			6 1 6								
2 June.	"	Vickers, Sons, & Co.	100 c.-s. tires for above	19 8 1 16	18 0 0		823 13 3	40 11 0	14 0 5	7 14 3	885 18 11		17 14 4½	23 "
2 "	"	"	50 c.-s. axles for above	9 9 1 4	18 0 0									
31 Mar.	"	"	144 c.-s. tires for engines and tenders.	51 9 0 4	24 0 0		1234 16 10	49 10 5	19 6 11	11 11 2	1315 5 4	25 11 3½		23 "
12 April.	"	"	3 c.-s. crank axles			90 0 0	270 0 0	2 12 3	5 11 0	2 11 0	280 14 3		93 11 5	23 "
7 "	"	G. D. Peters & Co.	500 yards broad lace			0 1 1	27 1 8	0 5 0	0 12 9	0 6 4	28 5 9		0 1 1½	23 "
7 "	"	"	1,500 yards seaming lace			0 0 2	12 10 0	0 2 3	0 5 5	0 3 0	13 0 8		0 0 2½	23 "
7 "	"	"	1,000 yards pasting lace			0 0 2	8 6 8	0 1 6	0 3 6	0 1 4	8 13 0		0 0 2½	23 "
7 "	"	"	300 yards silk hat cord			0 0 1½	2 3 9	0 0 4	0 1 0	0 0 4	2 5 5		0 0 1½	23 "
7 "	"	"	100 gross daisy tufts			0 1 7	7 18 4	0 1 5	0 3 8	0 1 3	8 4 8		0 1 7½	23 "
14 May	"	Jas. Millwraith & Co.	100 yards wax cloth			0 2 8	13 6 8	0 10 6	0 8 10	0 3 1	14 9 1		0 2 10½	23 "
7 June	"	George Salter & Co.	600 nests spiral bearing springs			0 16 0	480 0 0	16 12 6	9 16 0	4 9 9	510 18 3		0 17 0½	23 "
20 May	"	Ibbotson Bros. & Co.	250 Turton's buffers			2 13 9	671 17 6	14 5 11	13 12 3	6 5 10	706 1 6		2 16 5½	23 "
15 June.	Decapolis	G. D. Peters & Co.	8,599 sq. ft. buffalo hides			0 0 11½	419 4 0	1 18 11	6 8 9	4 8 7	432 0 3		0 1 0	28 Oct.
24 "	Port Pirie	Ibbotson Bros. & Co.	250 Turton's buffers			2 13 9	671 17 6	18 11 5	10 10 9	5 11 0	706 10 8		2 16 6	17 Sept.
23 "	Decapolis	George Salter & Co.	400 nests spiral bearing springs			0 16 0	320 0 0	11 1 9	4 19 0	2 19 10	339 0 7		0 16 11½	28 Oct.
29 "	"	Craven Bros. & Co.	50 pairs wheels			6 1 6								
17 July	"	Vickers, Sons, & Co.	100 c.-s. tires for above	19 8 1 16	18 0 0		823 13 3	40 11 0	12 10 0	7 14 4	884 8 7		17 13 9½	28 "
17 "	"	"	50 c.-s. axles for above	9 9 1 4	18 0 0									
22 "	Easter Hill	Craven Bros. & Co.	150 pairs wheels			6 1 6								
27 Aug.	"	Vickers, Sons, & Co.	300 c.-s. tires for above	58 5 0 20	18 0 0		2470 19 9	121 13 1	37 4 2	23 2 5	2652 19 5		17 13 8½	22 Dec.
27 "	"	"	150 c.-s. axles for above	28 7 3 12	18 0 0									
30 Sept.	Aberdeen	Harrison & Camm	25 pairs wheels			6 16 6								
2 Oct.	"	Vickers, Sons, & Co.	50 c.-s. tires for above	11 10 0 15	18 0 0		465 10 9	23 19 10	7 9 4	3 16 8	500 16 7		20 0 7½	25 Nov.
2 "	"	"	25 c.-s. axles for above	4 17 2 5	18 0 0									
16 Aug.	Easter Hill	Robt. Dempster & Sons	Gas-making apparatus				815 0 0	119 14 2	12 7 6	7 12 4	954 14 0		954 14 0	22 Dec.
							19533 7 3	957 0 0	376 14 6	201 15 1	21068 16 10			
Return of Miscellaneous Articles imported for the Tramways during the year 1886.														
1885.														1886.
8 Sept.	Coldinghame	R. W. Cameron & Co.	500 pcs. hose 1½ x 22			0 6 2½	155 5 7	1 0 8	10 10 11	0 5 7	167 2 9		0 6 8½	12 Jan.
10 Oct.	Cathcart	Hadfield Steel Foundry Co.	12½ sets c.-s. tram car wheels			9 17 6	123 8 9	2 13 6	2 12 4	1 16 4	130 10 11		10 8 10½	8 Feb.
5 Nov.	Jerusalem	Holden & Brooke	12 No. 4 injectors			5 4 6	62 14 0	0 10 6	1 8 1	0 11 10	65 4 5		5 8 8½	13 "
23 Oct.	Aldergrove	Hadfield Steel Foundry Co.	25 sets c.-s. tram car wheels			9 17 6	246 17 6	5 5 3	5 1 9	3 12 2	260 16 8		10 8 8	8 March.
27 Nov.	Sorata	"	25 "			9 17 6	246 17 6	8 15 8	5 4 9	2 15 7	263 13 6		10 10 11½	28 Jan.

Date of Invoice.	Ship.	From whom purchased.	Description.	Tonnage	Cost per Ton.	Cost each.	Invoice Cost.	Freight.	English Charges.	Colonial Charges.	Total Cost.	Cost per Ton.	Cost each.	Date of Arrival.
Return of Miscellaneous Articles imported for the Tramways during the year 1886—continued.														
1885. 14 Nov.	Gryfe ...	Burnham, Parry, Williams, & Co.	1 steel motor boiler	T. c. q. lb.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	1886. 23 Feb.
14 Dec.	Delcomyn	Hadfield Steel Foundry Co.	37½ sets c.-s. tramcar wheels .....	...	...	9 17 6	370 6 3	13 3 8	7 12 3	5 0 8	396 2 10	...	10 11 3½	12 March.
11 Nov.	"	"	25 " " .....	...	...	9 17 6	246 17 6	8 15 9	5 1 6	3 7 2	264 1 11	...	10 11 3½	12 "
24 Dec.	Essex	"	25 " " .....	...	...	9 17 6	246 17 6	8 15 9	5 1 9	3 7 2	264 2 2	...	10 11 3½	27 "
1886. 15 Jan.	Gulf of St. Vincent	"	25 " " .....	...	...	9 17 6	246 17 6	8 15 9	5 4 9	3 7 2	264 5 2	...	10 11 4½	18 April.
20 Feb.	Procida ...	"	37½ " " .....	...	...	9 17 6	370 6 3	11 16 8	7 14 7	4 16 9	394 14 3	...	10 10 6	6 May.
26 March	Peterborough	John Fowler & Co.	1 20-h.p. engine, complete.	...	...	365 0 0	365 0 0	56 18 6	7 9 0	6 6 3	435 13 9	...	435 13 9	16 July.
1885. 24 Dec.	Fulwood	Sir Joseph Whitworth & Co.	Hand-screwing apparatus...	...	...	242 2 6	242 2 6	1 19 10	4 19 10	2 15 6	251 17 8	...	251 17 8	19 April.
5 Oct.	Harrington	Burnham, Parry, Williams, & Co.	1 pr. 9 x 12 loco. cylinders..	...	...	66 16 0	66 16 0	0 10 5	0 18 7	0 2 6	68 7 6	...	68 7 6	3 July.
5 "	"	"	1 " " " .....	...	...	30 16 8	30 16 8	0 5 1	0 8 7	0 1 4	31 11 8	...	31 11 8	3 "
5 "	"	"	1 " 11 x 16 " .....	...	...	76 1 0	76 1 0	0 12 0	1 1 1	0 2 8	77 16 9	...	77 16 9	3 "
5 "	"	"	2 " valve chambers .....	...	...	28 15 6	57 11 0	0 9 0	0 15 10	0 2 2	58 18 0	...	29 9 0	3 "
5 "	"	"	9 sets guide bars .....	...	...	7 3 10½	64 15 0	0 10 4	0 18 7	0 2 5	66 6 4	...	7 7 4½	3 "
5 "	"	"	18 " lms, with jaws & lifters ..	...	...	20 11 1½	370 0 0	3 1 6	5 3 2	0 13 5	378 18 1	...	21 1 0	3 "
5 "	"	"	24 locomotive whistles .....	...	...	1 6 8½	32 1 4	0 5 1	0 8 10	0 1 4	32 16 7	...	1 7 4½	3 "
5 "	"	"	12 w-i crossheads, complete ..	...	...	10 5 6½	123 6 6	1 0 2	1 16 1	0 4 6	126 7 3	...	10 10 7½	3 "
5 "	"	"	24 c.i. " " .....	...	...	7 16 2½	187 9 3	1 11 7	2 11 11	0 6 11	191 19 8	...	7 19 11½	3 "
1886. 13 April.	Cairnbulg	Fairbairn, Naylor, M'Pherson, & Co.	1 wheel turning lathe .....	...	...	355 0 0	355 0 0	13 17 3	7 5 0	6 2 8	382 4 11	...	382 4 11	31 "
10 "	"	Beyer, Peacock, & Co.	1 slide bar grinding machine ..	...	...	120 0 0	120 0 0	4 9 1	2 11 0	1 16 5	128 16 6	...	128 16 6	31 "
23 "	"	Tangye's Machine Tool Co.	2 15" shaping machines .....	...	...	153 0 0	306 0 0	19 6 9	6 5 5	5 7 9	336 19 11	...	168 9 11½	31 "
23 "	Carthage	McLean Bros. & Riggs.	Cable .....	...	...	714 0 0	...	...	...	...	...	...	...	May.
20 May	Thos. Stephens	Brown, Bayley, Dixon, & Co.	100 steel motor tyres .....	...	...	1 3 8	118 6 8	9 15 6	2 10 4	3 10 7	134 3 1	...	1 6 10	16 Aug.
14 "	John Duthie	Appley Bros.	1 5-ton overhead travelling crane	...	...	199 0 0	199 0 0	5 7 2	4 2 7	3 3 1	211 12 10	...	211 12 10	27 Sept.
28 "	"	Craven Bros. (Ld.)	1 150-ton hyd. wheel press..	...	...	170 0 0	170 0 0	10 11 7	3 11 0	3 5 6	187 8 1	...	187 8 1	27 "
28 "	"	"	1 punching & shearing machine ..	...	...	53 0 0	53 0 0	2 15 7	1 4 2	1 11 11	58 11 8	...	58 11 8	27 "
28 "	"	"	1 plate-bending machine ..	...	...	145 0 0	145 0 0	7 12 0	2 18 0	1 17 11	157 7 11	...	157 7 11	27 "
26 "	"	F. & J. Butterfield & Co.	1 planeing machine .....	...	...	124 2 4	124 2 4	4 14 4	2 12 8	2 5 8	133 15 0	...	133 15 0	27 "
13 April.	Cairnbulg	Fairbairn, Naylor, M'Pherson, & Co.	4 drilling machines .....	...	...	112 0 0	448 0 0	14 0 10	9 2 2	7 10 10	478 13 10	...	119 13 5½	31 July.
26 May	John Duthie	F. & J. Butterfield & Co.	1 slotting machine .....	...	...	100 8 6	100 8 6	4 2 0	2 3 2	1 18 7	108 12 3	...	108 12 3	27 Sept.
25 "	"	Smith, Beacock, & Tannett	2 drilling machines .....	...	...	155 0 0	310 0 0	6 8 9	6 7 0	4 9 4	327 5 1	...	163 12 6½	27 "
30 June	The Tweed	Alldays & Onions (Ld.)	17 No. A80 Smith's hearths ..	...	...	13 15 0	233 15 0	18 10 5	3 15 8	8 9 0	264 10 1	...	15 11 2	8 Oct.
30 "	"	"	1 No. A81 " .....	...	...	23 12 6	23 12 6	1 1 9	0 4 6	0 9 11	25 8 8	...	25 8 8	8 "
26 "	Brilliant	Smith & Coventry	2 6" brass lathes .....	...	...	71 13 3	143 6 6	2 1 4	2 6 0	1 18 5	149 12 3	...	74 16 1½	3 "
8 July	Port Pirie	Vickers, Sons, & Co.	100 c.-s. motor tyres.....	11 5 0 15	32 10 0	...	365 16 10	15 19 1	5 15 9	6 2 8	393 14 4	34 19 6½	...	17 Sept.
23 "	Abergeldie	Bolling & Lowe	Stow flexible shaft, &c. ....	...	...	46 14 1	46 14 1	0 10 6	0 17 0	0 9 10	48 11 5	...	48 11 5	28 Nov.
20 "	"	Smith, Beacock, & Tannett	3 slide and screw-cutting lathes.	...	...	170 0 0	510 0 0	14 17 8	7 16 0	7 18 9	540 12 5	...	180 4 1½	28 "
21 "	"	"	5 " " " .....	...	...	117 0 0	585 0 0	10 4 9	8 18 6	7 18 6	612 1 9	...	122 8 4	28 "
12 Aug.	"	Sir Joseph Whitworth & Co.	3 bolt & nut screwing machines.	...	...	110 0 0	330 0 0	5 3 8	5 1 11	4 7 3	344 12 10	...	114 17 7½	28 "
12 "	"	"	1 set master taps .....	...	...	8 0 0	8 0 0	0 2 5	0 2 5	0 2 1	8 6 11	...	8 6 11	28 "
Total .....				...	...	...	8935 16 7	327 0 8	181 3 10	122 5 8	9566 6 9	...	...

No. 6—continued.

Date of Invoice.	Ship.	From whom purchased.	Description.	Tonnage.	Cost per Ton.	Cost each	Invoice Cost.	Freight	English Charges.	Colonial Charges	Total Cost.	Cost per Ton.	Cost each.	Date of Arrival.
Return of Miscellaneous Articles imported for the Great Southern and Western Lines during the year 1886.														
1885.				T. c. q. lb.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	1886.
26 Aug	Crummock Water	Vickers, Sons, & Co....	445 c-s engine and tender tires	136 7 2 20	23 17 0	..	3252 15 2	138 1 8	48 19 10	83 5 10	3523 2 6	25 16 7 ³ / ₄	..	10 Jan.
11 Sept....	Mooltan ..	Sir Joseph Whitworth & Co	2 master plates 3' 0" x 2' 0"	.....	..	18 15 0	37 10 0	0 13 2	0 15 9	0 8 5	39 7 4	..	19 13 8	9 "
11 "	"	"	6 surface " 3' 6" x 2' 6"	..	..	19 1 8	114 10 0	2 0 0	2 6 6	1 5 3	120 1 9	.....	20 0 3 ¹ / ₄	9 "
11 "	"	"	2 " " 2' 6" x 2' 6"	..	..	14 15 0	29 10 0	0 10 4	0 12 6	0 6 10	30 19 8	..	15 9 10	9 "
11 "	"	"	8 " " 1' 6" x 1' 0"	.....	..	5 1 3	40 10 0	0 14 2	0 17 0	0 12 9	42 13 11	..	5 6 8 ³ / ₄	9 "
17 "	"	"	48 ¹ / ₂ " to 10" screw cutting lathes	.....	..	202 0 0	808 0 0	15 11 2	16 6 2	9 6 9	849 4 1	.....	212 6 0 ¹ / ₄	9 "
17 "	Cumbrian	Vulcan Foundry Co. .	3 stationary boilers	.....	..	471 5 0	1413 15 0	208 7 6	28 9 6	20 12 2	1671 4 2	..	557 1 4 ³ / ₄	15 "
22 "	Crummock Water	Vickers, Sons, & Co. .	200 c-s. tender tires ...	57 17 0 0	23 17 0	.....	1379 14 6	58 11 6	27 15 9	36 18 3	1593 0 0	25 19 7 ¹ / ₄	.....	10 "
22 "	"	"	150 c-s. tires	33 11 0 14	17 17 0	..	598 19 7	33 19 6	12 2 7	16 18 8	662 0 4	19 14 6 ³ / ₄	..	10 "
4 "	Mooltan	Ashbury Railway Carriage and Iron Co.	50 pairs wheels .....	..	..	6 19 0	.....	.....	.....	.....	.....	.....	.....	.....
1 Oct.	"	Vickers, Sons, & Co. .	100 c-s. tires for above ...	19 8 1 16	18 0 0	..	867 8 3	35 16 3	17 9 11	14 7 1	935 1 6	..	18 14 0 ¹ / ₄	9 "
1 "	"	"	50 c-s. axles for above	9 9 1 4	18 0 0	..	.....	.....	.....	.....	.....	.....	.....	.....
17 Sept. .	Argus	Ashbury Railway Carriage and Iron Co.	25 pairs wheels .....	.....	..	6 19 0	.....	.....	.....	.....	.....	.....	.....	.....
1 Oct.	"	Vickers, Sons, & Co. .	50 c-s. tires for above...	9 14 0 22	18 0 0	..	433 14 2	17 18 1	8 16 6	7 3 2	467 11 11	.....	18 14 0 ³ / ₄	10 "
1 "	"	"	25 c-s. axles for above	4 14 2 16	18 0 0	.....	.....	.....	.....	.....	.....	.....	.....	.....
23 Sept.	"	A Ransome & Co.	Extra tools for machines	.....	..	.....	56 8 10	0 10 6	1 2 7	0 11 2	58 13 1	..	58 13 1	10 "
21 "	"	Vickers, Sons, & Co. .	3 c-s. crank axles .....	.....	..	81 4 7	243 13 9	2 0 2	5 0 6	2 14 1	253 8 6	.....	84 9 6	10 "
22 "	"	Kindon & Co	1,834 ¹ / ₂ yards floor-cloth ..	.....	..	0 2 4 ³ / ₄	217 17 4	4 17 3	4 10 2	3 0 10	230 5 7	.....	0 2 6 ¹ / ₄	10 "
3 Oct. .	Mistley Hall	Vickers, Sons, & Co. .	2 c-s. crank axles .....	.....	..	86 11 3	173 2 6	1 9 4	3 12 3	1 18 2	180 2 3	.....	90 1 1 ¹ / ₂	12 "
30 Sept. .	Eaton Hall	Vulcan Foundry Co....	2 stationary boilers .	.....	..	471 5 0	942 10 0	138 18 4	19 0 6	14 0 8	1114 9 6	.....	557 4 9	29 "
25 "	British Isles	Ashbury Railway Carriage and Iron Co.	75 pairs wheels .....	.....	..	6 19 0	.....	.....	.....	.....	.....	.....	.....	.....
23 Oct. .	"	Vickers, Sons, & Co....	150 c-s. tires for above ...	29 2 2 10	18 0 0	..	1301 2 4	53 14 4	26 3 5	21 10 3	1402 10 4	.....	18 14 0	27 "
23 "	"	"	75 c-s. axles for above	14 3 3 20	18 0 0	..	.....	.....	.....	.....	.....	.....	.....	.....
15 "	Windsor Castle.	Ashbury Railway Carriage and Iron Co.	50 pairs wheels .....	.....	..	6 19 0	.....	.....	.....	.....	.....	.....	.....	.....
31 "	"	Vickers, Sons, & Co.	100 c-s. tires for above ...	19 8 1 16	18 0 0	..	867 8 3	35 16 3	17 9 11	14 7 1	935 1 6	.....	18 14 0	8 Feb.
31 "	"	"	50 c-s. axles for above	9 9 1 4	18 0 0	..	.....	.....	.....	.....	.....	.....	.....	.....
12 "	Cathcart	Woodward, Grovesnor, & Co.	2,400 yds. Brussels carpets	.....	..	0 3 5 ¹ / ₂	414 16 0	4 7 9	8 8 11	4 4 10	431 17 6	.....	0 3 7	8 "
"	Alcinous	Ashbury Railway Carriage and Iron Co.	50 pairs wheels .....	.....	..	6 19 0	.....	.....	.....	.....	.....	.....	.....	.....
7 Nov.	"	Vickers, Sons, & Co..	100 c-s. tires for above ...	19 8 1 16	18 0 0	..	867 8 3	35 16 3	17 9 11	14 7 0	935 1 5	.....	18 14 0	22 "
7 "	"	"	50 c-s. axles for above	9 9 1 4	18 0 0	..	.....	.....	.....	.....	.....	.....	.....	.....
12 "	"	"	50 c-s. tires	11 2 2 17	18 0 0	..	200 7 9	9 12 0	4 3 2	3 10 10	217 13 9	19 11 0 ³ / ₄	.....	22 "
26 "	Jerusalem	Bolling & Lowe	Stow flexible shaft and tools	.....	..	.....	110 14 0	0 10 6	2 7 3	1 2 4	114 14 1	.....	114 14 1	13 "
24 "	Windsor Castle...	G. D. Peters & Co.	6,850 sq. ft. buffalo hides...	.....	..	0 0 11 ¹ / ₄	333 18 9	1 6 9	6 16 7	3 12 10	345 14 11	.....	0 1 0	8 "
2 Oct. ...	Alcinous	Ashbury Railway Carriage and Iron Co.	50 pairs wheels.....	.....	..	6 19 0	.....	.....	.....	.....	.....	.....	.....	.....
14 Nov..	"	Vickers, Sons, & Co..	100 c-s. tyres for above ...	19 8 1 16	18 0 0	.....	867 8 3	35 16 3	17 9 11	14 7 1	935 1 6	.....	18 14 0 ¹ / ₄	22 "
14 "	"	"	50 c-s. axles for above	9 9 1 4	18 0 0	..	.....	.....	.....	.....	.....	.....	.....	.....
13 Oct. ...	Cathcart	Craven Brothers	1 pair direct acting compound engines, limeshafting, pulleys, &c.	2130 0 0	2130 0 0	94 19 2	42 15 0	28 8 9	2296 2 11	2296 2 11	8 "

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Return of Miscellaneous Articles imported for the Great Southern and Western Lines, during the year 1886—continued.														
1885.				T. c. q. lb	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	1886.
18 Nov.	Garonne	Beyer, Peacock, & Co.	4 valve facing machines	...	...	65 0 0	260 0 0	2 5 6	5 10 0	1 13 11	269 9 5	.....	67 7 4½	14 Jan.
5 " ...	Bombay ...	Vickers, Sons, & Co.	150 c.-s. tender tires	43 9 2 22	24 0 0	...	1043 12 9	39 7 5	21 11 3	12 13 10	1117 5 3	25 13 10½	.....	5 Feb.
21 Oct.	Aldergrove	"	175 " "	53 4 0 0	24 0 0	...	1276 16 0	45 17 8	25 13 8	19 18 3	1368 5 7	25 14 4½	.....	8 Mar.
7 Nov. ...	"	Ashbury Railway Carriage and Iron Co.	50 pairs wheels	.....	.....	6 19 0	.....	.....	.....	.....	.....	.....	.....	.....
3 Dec. ...	"	Vickers, Sons, & Co.	100 c.-s. tyres for above	19 8 1 16	18 0 0	.....	867 8 3	35 16 3	17 9 11	14 7 0	935 1 5	.....	18 14 0½	8 "
3 " ...	"	"	50 c.-s. axles for above	9 9 1 4	18 0 0	.....	.....	.....	.....	.....	.....	.....	.....	8 "
20 Nov.	"	Woodward, Grosvenor, & Co.	1,150 yards Brussels carpet	.....	.....	0 3 5½	198 15 2	2 3 11	4 2 6	2 0 11	207 2 6	.....	0 3 7	8 "
11 " ...	Bombay ...	Monk Bridge Iron Co.	Yorkshire bead iron	12 11 0 21	16 10 0	.....	207 4 7	6 15 2	4 9 1	3 2 3	221 11 1	17 12 9½	.....	5 Feb.
3 Dec. ...	Sorata ...	Howell & Co.	18,000 steel ferrules	.....	.....	16 10 0	297 0 0	6 4 10	6 4 9	2 9 9	311 19 4	.....	17 6 7½	28 Jan.
12 Nov.	Kelat ...	Kindon & Co.	1,834½ sq. yds. floor-cloth.	.....	.....	0 2 4½	217 17 4	4 18 7	4 10 1	3 0 3	230 6 3	.....	0 2 6½	12 Mar.
13 " ...	"	Henry Rossell & Co	12,000 invoice fasteners.	.....	.....	18 9 0	221 8 0	1 19 2	4 11 6	2 15 4	230 14 0	.....	19 4 6	12 "
14 " ...	Gryfe ...	Burnham, Parry, Williams, & Co.	2 boilers	.....	.....	94 10 7	1883 1 2	92 15 7	82 6 10	11 9 1	2069 12 8	.....	1034 16 4	23 Feb.
14 " ...	"	"	1 firebox	.....	.....	19 1 8 9	191 8 9	18 9 3	8 5 8	1 4 6	219 8 2	.....	219 8 2	23 "
21 " ...	"	R. W. Cameron & Co	5 50-ft. engine turntables	.....	.....	253 0 0	1265 0 3	128 16 9	70 5 5	9 17 10	1474 0 3	.....	294 16 0	23 "
4 Dec.	Knight of the Garter	Hyde, Archer, & Co...	493 ¾-yd. Brussels carpet.	.....	.....	0 3 5½	70 7 6	0 10 6	1 11 2	0 14 6	73 3 8	.....	0 3 7½	31 Mar.
8 " ...	Delcomyn ...	Monk Bridge Iron Co.	Yorkshire iron plates	13 13 0 16	22 15 0	.....	310 14 0	8 15 7	6 8 1	4 12 1	330 9 9	24 3 11½	.....	12 "
8 " ...	"	"	"	12 0 3 13	24 0 0	.....	289 0 9	7 14 11	5 19 1	4 3 9	306 18 6	25 9 8½	.....	12 "
8 " ...	"	"	"	21 12 0 7	22 0 0	.....	475 5 5	13 18 1	9 16 1	7 3 4	506 2 11	23 8 7	.....	12 "
8 " ...	"	"	"	25 2 1 5	23 5 0	.....	583 18 4	16 3 0	12 0 4	8 11 8	620 13 4	24 14 3	.....	12 "
8 " ...	"	"	"	35 13 1 26	23 15 0	.....	847 5 3	22 19 0	17 8 5	12 6 10	899 19 6	25 4 6½	.....	12 "
8 " ...	"	"	Yorkshire hammered bar iron	6 10 1 14	16 10 0	.....	107 11 2	4 3 9	2 4 11	1 17 3	115 17 1	17 15 5½	.....	12 "
8 " ...	"	"	Yorkshire angle iron rings.	4 4 0 3	27 0 0	.....	113 8 8	3 6 11	2 6 10	1 14 4	120 16 9	28 15 2½	.....	12 "
8 " ...	"	"	"	2 3 3 20	24 0 0	.....	52 14 4	1 13 1	1 1 9	0 16 4	56 5 6	25 12 5	.....	12 "
27 Nov.	Knight of the Garter	Ashbury Railway Carriage and Iron Co.	6 pairs wheels	.....	.....	7 15 0	.....	.....	.....	.....	.....	.....	.....	.....
1886.														
27 May ...	"	Vickers, Sons, & Co	12 c.-s. tires for above	2 15 0 16	18 0 0	.....	117 7 10	4 18 3	2 2 10	1 5 11	125 14 10	.....	20 19 1½	31 "
27 " ...	"	"	6 c.-s. axles for above	1 3 2 14	18 0 0	.....	.....	.....	.....	.....	.....	.....	.....	.....
1885.														
15 Dec.	"	G. D. Peters & Co.	3,870 sq. ft. buffalo hides.	.....	.....	0 0 11 11	188 13 3	0 16 6	3 18 5	2 1 4	195 9 6	.....	0 1 0½	31 "
19 Nov.	"	Ashbury Railway Carriage and Iron Co.	50 pairs wheels	.....	.....	6 19 0	.....	.....	.....	.....	.....	.....	.....	.....
28 Dec. ...	"	Vickers, Sons, & Co...	100 c.-s. tyres for above	19 8 1 16	18 0 0	.....	867 8 3	35 16 3	17 9 11	14 7 1	935 1 6	.....	18 14 0½	31 "
28 " ...	"	"	50 c.-s. axles for above	9 9 1 4	18 0 0	.....	.....	.....	.....	.....	.....	.....	.....	.....
31 " ...	Anamba ...	Glen & Ross	5 3-cwt. steam hammers	.....	.....	95 0 0	475 0 0	.....	9 10 0	2 2 11	486 12 11	.....	97 6 7	6 April.
18 Nov.	Knight of the Garter	Vickers, Sons, & Co...	4 c.-s. crank axle	.....	.....	87 17 9½	351 11 3	3 3 5	7 3 7	3 17 0	365 15 3	.....	91 8 9½	31 Mar.
11 Dec.	Fulwood	Ashbury Railway Carriage and Iron Co.	50 pairs wheels	.....	.....	6 19 0	.....	.....	.....	.....	.....	.....	.....	.....
1886.														
4 Jan. ...	"	Vickers, Sons, & Co...	100 c.-s. tyres for above	19 8 1 16	18 0 0	.....	867 8 3	35 16 3	17 9 11	14 6 9	935 1 2	.....	18 14 0½	19 April.
4 " ...	"	"	50 c.-s. axles for above	9 9 1 4	18 0 0	.....	.....	.....	.....	.....	.....	.....	.....	.....
1885.														
17 Dec.	Achilles	Ashbury Railway Carriage and Iron Co.	50 pairs wheels	.....	.....	6 19 0	.....	.....	.....	.....	.....	.....	.....	.....
1886.														
5 Jan. ...	"	Vickers, Sons, & Co...	100 c.-s. tyres for above	19 8 1 16	18 0 0	.....	867 8 3	35 16 3	17 9 11	14 7 0	935 1 5	.....	18 14 0½	3 May.
5 " ...	"	"	50 c.-s. axles for above	9 9 1 4	18 0 0	.....	.....	.....	.....	.....	.....	.....	.....	.....

No. 6—continued.

Date of Invoice.	Ship.	From whom purchased.	Description.	Tonnage.	Cost per Ton.	Cost each.	Invoice Cost.	Freight.	English Charges.	Colonial Charges.	Total Cost.	Cost per Ton.	Cost each.	Date of Arrival.
Return of Miscellaneous Articles imported for the Great Southern and Western Lines during the Year 1886—continued.														
1885.				T. c. q. lb.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	1886.
17 Dec.	Achilles	Ibbotson Bros. J. & Co	250 Turtons buffers			2 13 9	671 17 6	9 1 8	13 11 9	8 18 11	703 9 10		2 16 3 ¹ / ₄	3 May.
22 "	Fulwood	Alldays & Onions (Ld)	30 smiths' hearths A80			12 17 6	386 5 0	30 0 0	7 16 6	7 11 1	431 12 7		14 7 9	19 April.
22 "	"	"	2 " " A81			21 17 6	43 15 0	3 7 9	0 18 3	0 17 2	48 18 2		24 9 1	19 "
22 "	"	"	24 Tue irons			0 17 6	21 0 0	1 12 5	0 8 8	0 8 3	23 9 4		0 19 6 ¹ / ₂	19 "
2 Nov.	"	Craven Brothers	5-rope power travelling cranes			620 0 0	3100 0 0	132 2 3	55 19 0	35 16 7	3323 17 10		664 15 7	19 "
30 Dec.	"	"	4 crab winches			275 0 0	1100 0 0	117 7 8	22 3 0	21 9 11	1261 0 7		315 5 1 ³ / ₄	19 "
1886.	"	Tangyes (Ltd.)	1 7' loam mill				73 2 6	7 16 5	1 12 3	1 8 4	83 19 6		83 19 6	19 "
2 Jan.	Thessalus	Geo. Salter & Co.	100 nests spiral bearing springs.			0 16 0	80 0 0	2 8 10	1 15 0	1 4 6	85 8 4		0 17 1	18 "
1885.														
30 Dec.	Arthurstone	L. Stearne & Co.	2 No. 3 Emery grinding machines			27 17 8 ¹ / ₂	55 15 5	4 17 8	1 5 3	0 15 0	62 13 4		31 6 8	28 "
5 "	Libussa	Ashbury Railway Carriage and Iron Co.	100 pairs wheels			6 19 0								
1886.	"	Vickers, Sons, & Co.	200 c.-s. tyres for above	38 16 3 4	18 0 0		1734 16 6	71 12 6	34 16 10	28 14 1	1869 19 11		18 14 0	23 "
8 Jan.	"	"	100 c.-s. axles for above	18 18 2 8	18 0 0									
1885.														
23 Dec.	Fulwood	Ashbury Railway Carriage and Iron Co.	50 pairs wheels			6 19 0								
1886.	"	Vickers, Sons, & Co.	100 c.-s. tyres for above	19 8 1 16	18 0 0		867 8 3	35 16 3	17 9 11	14 6 9	935 1 2		18 14 0 ¹ / ₄	19 "
8 Jan.	"	"	50 c.-s. axles for above	9 9 1 4	18 0 0									
9 "	"	Kindon & Co	1,834 ³ / ₄ sq. yds. floor-cloth.			0 2 4 ¹ / ₂	217 17 4	4 17 3	4 10 1	3 0 9	230 5 5		0 2 6 ¹ / ₂	19 "
													per square yd.	
5 "	"	Vickers, Sons, & Co.	2 c.-s. crank axles			87 3 9	174 7 6	1 12 1	3 12 9	1 18 3	181 10 7		90 15 3 ¹ / ₂	19 "
13 "	Aigburth	J. Cowdy & Co.	150 head or tail lamps.			0 19 9	148 2 6	5 8 5	3 2 3	1 15 0	158 8 2		1 1 1 ¹ / ₂	12 May.
11 "	Thessalus	Ashbury Railway Carriage and Iron Co.	50 pairs wheels			6 19 0								
28 "	"	Vickers, Sons, & Co.	100 c.-s. tyres for above	19 8 1 16	18 0 0		867 8 3	35 16 3	17 9 11	14 7 1	935 1 6		18 14 0 ¹ / ₄	18 April.
28 "	"	"	50 c.-s. axles for above	9 9 1 4	18 0 0									
25 "	Aigburth	Samuel Osborn & Co.	100 horse-box bearing springs			0 10 6	52 10 0	3 6 9	1 4 0	1 3 3	58 4 0		0 11 7 ¹ / ₂	12 May.
22 "	"	"	50 brake-van bearing springs			0 10 6	26 5 0	1 13 4	0 13 6	0 11 4	29 3 2		0 11 8	12 "
16 "	"	Ibbotson Bros. & Co.	250 Turtons buffers			2 13 9	671 17 6	9 1 7	13 10 1	8 14 5	703 3 7		2 16 3	12 "
22 "	"	"	300 " "			2 13 9	806 5 0	10 17 10	16 4 2	10 9 3	843 16 3		2 16 3	12 "
26 "	"	Fairburn, Naylor, & Co	2 drilling machines			41 0 0	82 0 0	4 13 4	1 15 9	1 1 11	89 11 0		44 15 6	12 "
18 "	"	Thomas Turton & Sons	500 waggon bearing springs			0 7 10 ¹ / ₂	196 17 6	13 15 2	4 1 8	4 10 10	219 5 2		0 8 9 ¹ / ₄	12 "
1885.														
5 Nov.	Jerusalem	Hyde, Archer, & Co.	301 ¹ / ₂ yds. Brussels carpet.			0 4 10 ¹ / ₂	73 12 8	0 14 6	1 12 5	0 14 11	76 14 6		0 5 1	13 Feb.
1886.														
14 Jan.	Aigburth	Ashbury Railway Carriage and Iron Co.	60 pairs wheels			7 10 0								
5 Feb.	"	Vickers, Sons, & Co.	120 c.-s. tires for above	27 10 0 22	18 0 0		1154 3 5	49 16 2	23 4 8	18 7 9	1245 12 0		20 15 2 ¹ / ₄	12 May.
5 "	"	"	60 c.-s. axles for above	11 12 0 24	18 0 0									
27 Jan.	Liguria	Metallic Engine Packing Co.	400 packing-rings			0 7 6	150 0 0	2 4 2	3 6 0	0 19 11	156 10 1		0 7 9 ¹ / ₂	25 March.
21 "	"	Schleicher & Schüll.	200 rolls Ferro prussiate paper			0 12 11 ¹ / ₁₀	129 5 0	1 3 11		0 18 11	131 7 10		0 13 1 ¹ / ₂	25 "
26 "	Aigburth	G. D. Peters & Co.	1,760 sq. ft. buffalo hides			0 0 11 ¹ / ₁₆	85 16 0	0 7 1	1 15 10	1 6 7	89 5 6		0 1 0 ¹ / ₂	12 May.
													per sq. foot.	
18 "	"	"	2,520 " "			0 0 11 ¹ / ₁₆	122 17 0	0 9 10	2 10 7	0 18 8	126 16 1		0 1 0 ¹ / ₁₆	12 "
													per sq. foot.	

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Return of Miscellaneous Articles imported for the Great Southern and Western Lines during the year 1886—continued.														
1886.				T c. q lb	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
18 Jan.	Aigburth	G D Peters & Co.	260½ yards carpet	.....	.....	0 5 6	71 11 4	1 4 3	1 10 1	0 16 8	75 2 4	.....	0 5 9½	12 May.
27 "	"	"	262½ " " "	.....	.....	0 5 6	72 5 1	1 5 6	1 10 4	0 17 4	75 18 3	.....	0 5 9½	12 "
22 "	"	George Salter & Co.	100 nests spiral bearing springs	.....	.....	0 16 0	80 0 0	2 8 9	1 13 0	1 4 7	85 6 4	.....	0 17 0½	12 "
29 "	"	"	100 " " "	.....	.....	0 16 0	80 0 0	2 8 10	1 13 0	1 4 6	85 6 4	.....	0 17 0½	12 "
3 Feb.	"	"	100 " " "	.....	.....	0 16 0	80 0 0	2 8 10	1 13 0	1 4 7	85 6 5	.....	0 17 0½	12 "
30 Jan	Gulf of St Vincent	Ibbotson Bros. & Co	300 Turton's buffers	.....	.....	2 13 9	806 5 0	11 9 4	16 10 10	9 17 2	844 2 4	.....	2 16 3½	18 April.
28 "	Sutlej	W Pope & Son	100 shadowless gas lamps	.....	.....	2 8 0½	240 4 2	50 15 10	5 3 1	1 19 7	298 2 8	.....	2 19 7½	2 "
5 Feb	Derwent	J. Defries & Son	200 head or tail lamps	.....	.....	0 19 9	197 10 0	9 16 7	4 2 0	7 8 11	218 17 6	.....	1 1 10½	3 June.
6 "	Iberia	Ibbotson Bros. & Co.	300 Turton's buffers	.....	.....	2 13 9	806 5 0	11 9 0	16 10 10	7 19 3	842 4 1	.....	2 16 1½	7 April.
4 "	Ethiopian	Thomas Turton & Sons	500 waggon bearing springs	.....	.....	0 7 10½	196 17 6	13 15 2	4 1 8	4 10 10	219 5 2	.....	0 8 9½	31 May.
2 "	"	Ashbury Railway Carriage and Iron Co.	500 pairs wheels	.....	.....	6 19 0	.....	.....	.....	.....	.....	.....	.....	.....
27 "	"	Vickers, Sons, & Co	100 c-s tires for above	19 8 1 16	18 0 0	.....	867 8 3	35 16 3	17 9 11	14 7 0	935 1 5	.....	18 14 0½	31 "
27 "	"	"	50 c-s axles for above	9 9 1 4	18 0 0	.....	.....	.....	.....	.....	.....	.....	.....	.....
13 "	"	George Salter & Co	100 nests spiral bearing springs	.....	.....	0 16 0	80 0 0	2 9 8	1 15 0	1 4 9	85 9 5	.....	0 17 1	31 "
4 "	"	John Brown & Co.	150 carriage bearing springs	.....	.....	0 18 6	138 15 0	9 9 6	2 18 6	3 3 1	154 6 1	.....	1 0 7	31 "
20 "	Knt of the Thistle	George Salter & Co	100 nests spiral bearing springs	.....	.....	0 16 0	80 0 0	2 9 5	1 15 0	1 4 8	85 9 1	.....	0 17 1	12 June.
27 "	Ben Cruachan	"	100 " " "	.....	.....	0 16 0	80 0 0	2 9 1	1 15 0	1 4 7	85 8 8	.....	0 17 1	14 "
20 "	"	Patent Shaft & Axletree Co	50 pairs wheels	.....	.....	6 5 0	.....	.....	.....	.....	.....	.....	.....	.....
11 Mar	"	Vickers, Sons, & Co	100 c-s tires for above	19 8 1 16	18 0 0	.....	832 8 3	35 6 7	16 15 11	13 18 7	898 9 4	.....	17 19 4½	14 "
11 "	"	"	50 c-s axles for above	9 9 1 4	18 0 0	.....	.....	.....	.....	.....	.....	.....	.....	.....
22 Feb	Cimba	Craven Brothers	50 pairs wheels	.....	.....	5 17 6	.....	.....	.....	.....	.....	.....	.....	.....
6 Mar.	"	Vickers, Sons, & Co	100 c-s tires for above	19 8 1 16	18 0 0	.....	813 13 3	36 6 7	16 8 5	13 18 8	880 6 11	.....	17 12 1½	3 July.
6 "	"	"	50 c-s axles for above	9 9 1 4	18 0 0	.....	.....	.....	.....	.....	.....	.....	.....	.....
2 "	Hawkesbury	John Brown & Co	150 carriage bearing springs	.....	.....	0 18 6	138 15 0	9 10 2	2 18 6	3 3 3	154 6 11	.....	1 0 7	12 "
24 Feb.	Knt of the Thistle	Thomas Turton & Sons	250 waggon bearing springs	.....	.....	0 7 10½	98 8 9	6 17 10	2 2 4	2 5 5	109 14 4	.....	0 8 9½	12 June
23 "	Ben Cruachan	Beyer, Peacock, & Co	1 wheel lathe	.....	.....	380 0 0	380 0 0	24 16 11	7 15 0	6 0 11	418 12 10	.....	418 12 10	14 "
4 Mar.	"	G. D. Peters & Co.	524½ yards carpet	.....	.....	0 5 6	144 6 1	2 11 9	3 0 8	1 14 1	151 12 7	.....	0 5 9½	14 "
23 Feb.	Hawkesbury	Craven Bros. & Co	50 pairs wheels	.....	.....	5 17 6	.....	.....	.....	.....	.....	.....	.....	.....
23 "	"	Vickers, Sons, & Co.	100 c-s tires for above	19 8 1 16	18 0 0	.....	813 13 3	36 6 7	16 8 5	13 18 8	880 6 11	.....	17 12 1½	12 July.
23 "	"	"	50 c-s axles for above	9 9 1 4	18 0 0	.....	.....	.....	.....	.....	.....	.....	.....	.....
19 "	Cimba	Ibbotson Bros & Co	300 Turton's buffers	.....	.....	2 13 9	806 5 0	10 17 7	16 5 6	10 14 8	844 2 9	.....	2 16 3½	3 "
20 "	Ben Cruachan.	Thwaites Brothers	1 No 6 Root's pat blower	.....	.....	293 5 0	293 5 0	32 10 1	6 0 0	3 16 0	335 11 1	.....	335 11 1	14 June
20 "	"	"	1 1-ton foundry ladle	.....	.....	8 7 6	8 7 6	0 18 7	0 3 5	0 4 6	9 14 0	.....	9 14 0	14 "
20 "	"	"	1 2 ton " "	.....	.....	19 7 6	19 7 6	2 2 5	0 7 11	0 9 7	22 7 5	.....	22 7 5	14 "
20 "	"	"	Gannister	2 0 0 0	3 6 0	.....	6 12 0	0 14 3	0 2 8	0 7 2	7 16 1	3 18 0½	.....	14 "
9 "	Sir Walt. Raleigh	Patent Shaft & Axletree Co	100 pairs wheels	.....	.....	6 5 0	.....	.....	.....	.....	.....	.....	.....	.....
19 Mar.	"	Vickers, Sons, & Co..	200 c-s. tires for above	38 16 3 4	18 0 0	.....	1664 16 6	70 13 2	33 8 10	27 17 5	1796 15 11	.....	17 19 4½	7 "
19 "	"	"	100 c-s axles for above	18 18 2 8	18 0 0	.....	.....	.....	.....	.....	.....	.....	.....	.....
5 "	Peterborough	Craven Bros.	50 pairs wheels	.....	.....	5 17 6	.....	.....	.....	.....	.....	.....	.....	.....
20 "	"	Vickers, Sons, & Co.	100 c-s. tires for above	19 8 1 16	18 0 0	.....	813 13 3	36 6 7	16 8 5	13 18 7	880 6 10	.....	17 12 1½	16 July.
20 "	"	"	50 c s axles for above	9 9 1 4	18 0 0	.....	.....	.....	.....	.....	.....	.....	.....	.....
18 Feb.	Hawkesbury	Thos Turton & Sons	250 waggon bearing springs	.....	.....	0 7 10½	98 8 9	6 17 8	2 2 4	2 5 5	109 14 2	.....	0 8 9½	12 "
18 Mar	Peterborough..	John Brown & Co . .	100 carriage bearing springs	.....	.....	0 17 0	85 0 0	6 3 1	1 17 0	2 0 7	95 0 8	.....	0 19 0	16 "
10 "	"	Thos. Turton & Sons	250 waggon bearing springs	.....	.....	0 7 10½	98 8 9	6 18 7	2 2 4	2 5 7	109 15 3	.....	0 8 9½	16 "

Date of Invoice.	Ship.	From whom purchased.	Description.	Tonnage.	Cost per Ton.	Cost each.	Invoice Cost.	Freight.	English Charges.	Colonial Charges.	Total Cost.	Cost per Ton.	Cost each.	Date of Arival.
Return of Miscellaneous Articles imported for the Great Southern and Western Lines during the year 1886—continued.														
1886.				T. c. q. lb.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	1886.
19 Mar...	Peterborough	Craven Bros., & Co...	50 pairs wheels			5 17 6								
27 " "	"	Vickers, Sons, & Co..	100 c.-s. tires for above	19 8 1 16	18 0 0		813 13 3	36 6 7	16 8 5	13 18 8	880 6 11		17 12 1 1/2	16 July.
27 " "	"	"	50 c.-s. axles for above	9 9 1 4	18 0 0									
3 " "	Hawkesbury	C. Cammell & Co....	100 brake van bearing springs			0 12 6	62 10 0	4 2 10	1 8 0	1 7 10	69 8 8		0 13 10 1/2	12 "
23 " "	Peterborough	"	600 6" volute springs			0 1 9	52 10 0	2 13 5	1 2 6	1 0 6	57 6 5		0 1 10 1/2	16 "
18 " "	"	"	600 6" volute springs			0 1 9	52 10 0	2 13 5	1 2 6	1 0 3	57 6 2		0 1 10 1/2	16 "
22 " "	Orient	Ibbotson Bros. & Co	300 Turton's buffers			2 13 9	806 5 0	11 10 2	12 10 10	7 19 7	838 5 7		2 15 10 1/2	17 May.
23 " "	"	Thos. Turton & Sons.	250 waggon bearing springs			0 7 10 1/2	98 8 9	7 5 0	2 5 4	1 18 9	109 17 10		0 8 9 1/2	17 "
1 " "	Hawkesbury	Kindon & Co.	2140 4-9 sq. yds. floorcloth			0 2 4 1/2	254 3 6	5 13 6	5 4 8	3 11 2	268 12 10		0 2 6 1/2	12 July.
						per yd.							per yard.	
8 " "	Orontes	Patent Shaft & Axletree Co	50 pairs wheels			6 5 0								
8 " "	"	Vickers, Sons, & Co..	100 c.-s. tires for above	19 8 1 16	18 0 0		832 8 3	35 6 7	16 15 11	13 18 7	898 9 4		17 19 4 1/2	7 "
8 " "	"	"	50 c.-s. axles for above	9 9 1 4	18 0 0									
9 " "	Patriarch	Patent Shaft & Axletree Co	50 pairs wheels			6 5 0								
9 " "	"	Vickers, Sons, & Co..	100 c.-s. tires for above	19 8 1 16	18 0 0		832 8 3	35 6 7	16 15 11	13 18 7	898 9 4		17 19 4 1/2	31 "
9 " "	"	"	50 c.-s. axles for above	9 9 1 4	18 0 0									
27 Feb...	Orontes	Ibbotson Bros & Co.	300 Turton's buffers			2 13 9	806 5 0	10 19 4	16 5 6	10 15 1	844 4 11		2 16 3 1/2	7 "
31 Mar...	Peterborough	Turton Bros & Matthews	600 Timmins' pat. springs			0 11 4	340 0 0	4 0 8	6 19 0	3 19 9	354 19 5		0 11 9 1/2	16 "
17 " "	Orontes	"	600 " " " "			0 11 4	340 0 0	4 0 8	6 19 0	3 19 9	354 19 5		0 11 9 1/2	7 "
29 Mar..	Peterborough	Ransomes & Rapier..	6 waggon turntables			95 0 0	570 0 0	49 4 5	11 11 0	9 15 5	640 10 10		106 15 1 1/2	16 "
10 " "	Orontes	George Salter & Co	100 nests spiral bearing springs			0 16 0	80 0 0	2 9 2	1 15 0	1 4 8	85 8 10		0 17 1	7 "
18 " "	Peterborough	"	100 " " " "			0 16 0	80 0 0	2 9 0	1 15 0	1 4 8	85 8 8		0 17 1	16 "
29 " "	Cairnbulg	Turton Bros & Matthews.	1200 Timmins' patent springs			0 11 4	680 0 0	8 1 2	13 15 0	7 18 10	709 15 0		0 11 9 1/2	31 "
16 April	Garonno	Tyer & Co.	12 sets train tablet apparatus			64 9 7 1/2	773 15 6	30 17 5	15 15 6	4 15 9	825 4 2		68 15 4 1/2	3 June.
3 " "	Kistna	Thomas Turton & Sons	250 waggon bearing springs			0 7 10 1/2	98 8 9	6 18 8	2 2 4	2 5 7	109 15 4		0 8 9 1/2	6 Aug.
27 Mar...	Peterborough	Vickers, Sons, & Co.	2 c.-s. crank axles			87 3 9	174 7 6	1 12 1	3 12 9	1 18 3	181 10 7		90 15 3 1/2	16 July.
6 April	Kistna	Patent Shaft & Axletree Co	100 pairs wheels			6 5 0								
24 " "	"	"	200 c.-s. tires for above	38 16 3 4	18 0 0		1664 16 6	70 13 1	28 4 11	27 17 2	1791 11 8		17 18 3 1/2	6 Aug.
24 " "	"	"	100 c.-s. axles for above	19 8 2 8	18 0 0									
10 " "	"	Ibbotson Bros. & Co..	350 Turton's buffers			2 13 9	940 12 6	12 14 6	18 19 3	12 18 9	985 5 0		2 16 3 1/2	6 "
3 Mar.	"	Turton Bros & Matthews.	1600 Timmins' patent springs			0 11 4	906 13 4	10 15 0	18 5 8	10 11 7	946 5 7		0 11 9 1/2	6 "
2 April...	Cairnbulg	George Salter & Co	100 nests spiral bearing springs			0 16 0	80 0 0	2 9 1	1 15 0	1 4 8	85 8 9		0 17 1	31 July:
2 " "	"	Charles Cammell & Co	600 6" volute springs			0 1 9	52 10 0	2 13 5	1 4 0	1 0 8	57 8 1		0 1 10 1/2	31 "
20 " "	Kistna	Dalton, Barton, & Co	400 yards blue and black lace			1 1/2 3/4 yd	22 10 0	0 4 2	0 10 0	0 5 3	23 9 5		1/2 3/4 yd.	6 Aug.
20 " "	"	"	500 gross daisy tufts			1/4 1/2 3/4 gross	34 7 6	0 6 4	0 15 9	0 7 6	35 17 1		1/5 3/4 gross	6 "
7 " "	Cairnbulg	Patent Shaft & Axletree Co.	100 pairs wheels			6 5 0								
1 May ...	"	Vickers, Sons, & Co..	200 c.-s. tires for above	38 16 3 4	18 0 0		1664 16 6	70 13 2	28 4 11	27 17 11	1791 12 6		17 18 3 1/2	31 July.
1 " "	"	"	100 c.-s. axles for above	18 18 2 8	18 0 0									
28 April	Sorata	Henry Carr ...	1000 lubricators			0 1 1	54 3 4	2 4 1	1 7 8	0 8 2	58 3 3		0 1 1 1/2	18 June.
31 Mar.	Kistna	John Brown & Co. . . .	400 waggon bearing springs			0 8 0	160 0 0	11 7 8	3 7 0	3 14 8	178 9 4		0 8 11	6 Aug.
13 April	"	Charles Cammell & Co.	1800 6" volute springs			0 1 9	157 10 0	8 0 3	3 6 0	3 0 9	171 17 0		0 1 10 1/2	6 "
10 " "	Thos. Stephens	Craven Bros. & Co....	50 pairs wheels			5 17 6								
6 May	"	Vickers, Sons, & Co....	100 c.-s. tires for above	19 8 1 16	18 0 0		813 13 3	36 6 8	13 16 5	13 15 3	877 11 7		17 11 0 1/2	16 "
6 " "	"	"	50 c.-s. axles for above	9 9 1 4	18 0 0									
21 April..	"	Patent Shaft & Axletree Co.	50 pairs wheels			6 5 0								
7 May .	"	Vickers, Sons, & Co....	100 c.-s. tires for above	19 8 1 16	18 0 0		832 8 3	35 6 7	14 3 11	14 2 2	896 0 11		17 18 5	16 "
7 " "	"	"	50 c.-s. axles for above	9 9 1 4	18 0 0									
13 April	Smyrna	Patent Shaft & Axletree Co.	50 pairs wheels			6 5 0								
6 May ...	"	Vickers, Sons, & Co..	100 c.-s. tires for above	19 8 1 16	18 0 0		832 8 3	35 6 7	14 4 0	13 18 7	895 17 5		17 18 4	23 Sept.
6 " "	"	"	50 c.-s. axles for above	9 9 1 4	18 0 0									

Return of Miscellaneous Articles imported for the Great Southern and Western Lines during the year 1886—continued.

Date of Invoice.	Ship.	From whom purchased.	Description.	Tonnage.	Cost per Ton.	Cost each.	Invoice Cost	Freight.	English Charges.	Colonial Charges.	Total Cost.	Cost per Ton.	Cost each.	Date of Arrival.
1886.				T. c. q. lb.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	1886.
20 April	Yallaro	Craven Bros. & Co.	100 pairs wheels			5 17 6								
7 May	"	Vickers, Sons, & Co.	200 c.-s. tires for above	38 16 3 4	18 0 0	...	1627 6 6	72 13 5	27 9 11	27 17 5	1755 7 3	...	17 11 0 ³ / ₄	17 Aug.
7 "	"	"	100 c.-s. axles for above	18 18 2 8	18 0 0	...								
21 April	Carnbulg	Patent Woollen Cloth Co.	457 ¹ / ₂ sq yards journal felt			4/11 ¹ / ₂ s. yd.	112 8 5	2 19 5	2 7 11	1 6 5	119 2 2	...	5/2 ¹ / ₂ ¹ / ₂ s. yd.	31 July.
24 "	"	Ransomes & Rapier	6 15-ft. turntables			105 0 0	630 0 0	65 13 7	12 15 0	11 5 11	719 14 6	...	119 19 1	31 "
21 "	Yallaro	Ibbotson Bros. & Co.	350 Turton's buffers			2 13 9	940 12 6	12 15 0	18 19 3	12 10 8	984 17 5	...	2 16 3 ¹ / ₄	17 Aug.
6 May	Carnbulg	Craven Bros. & Co.	50 pairs wheels			5 17 6								
15 "	"	Vickers, Sons, & Co.	100 c.-s. tires for above	19 8 1 16	18 0 0	...	813 13 3	36 6 9	13 16 5	13 18 9	877 15 2	...	17 11 1 ¹ / ₄	31 July.
15 "	"	"	50 c.-s. axles for above	9 9 1 4	18 0 0	...								
30 April	Yallaro	Patent Shaft & Axletree Co.	50 pairs wheels			6 5 0								
15 May	"	Vickers, Sons, & Co.	100 c.-s. tires for above	19 8 1 16	18 0 0	...	832 8 3	35 6 7	14 3 11	13 18 7	895 17 4	...	17 18 4	17 Aug.
15 "	"	"	50 c.-s. axles for above	9 9 1 4	18 0 0	...								
10 "	Port Victor	Craven Bros. & Co.	50 pairs wheels			5 17 6								
21 "	"	Vickers, Sons, & Co.	100 c.-s. tires for above	19 8 1 16	18 0 0	...	813 13 3	38 3 1	14 7 9	13 0 10	879 4 11	...	17 11 8 ¹ / ₄	8 July.
21 "	"	"	50 c.-s. axles for above	9 9 1 4	18 0 0	...								
8 "	"	Patent Shaft & Axletree Co.	100 pairs wheels			6 5 0								
21 "	"	Vickers, Sons, & Co.	200 c.-s. tires for above	38 16 3 4	18 0 0	...	1664 16 6	74 3 10	29 6 5	26 0 8	1,794 7 5	...	17 18 10 ¹ / ₂	8 "
21 "	"	"	100 c.-s. axles for above	18 18 2 8	18 0 0	...								
10 "	Thos. Stephens	Thomas Turton & Sons	250 waggon bearing springs			0 7 10 ¹ / ₂	98 8 9	6 18 1	2 2 4	1 5 2	108 14 4	...	0 8 8 ¹ / ₄	16 Aug.
21 "	"	India rubber, Gutta-percha, and Telegraph Works.	500 l. R. springs 8" x 6" x 3"			0 18 2	454 3 4	1 16 2	9 4 8	5 12 2	470 16 4	...	0 18 10	16 "
8 "	"	G. D. Peters & Co.	478 ¹ / ₂ yds. Axminster carpet			0 5 6	131 10 4	2 7 3	2 15 7	1 10 6	138 3 8	...	0 5 9 ¹ / ₄	16 "
7 "	"	Patent Woollen Cloth Co.	592 sq yds. journal felt			0 5 1 ¹ / ₄	151 3 10	4 0 4	3 3 5	1 15 10	160 3 5	...	0 5 4 ¹ / ₂	16 "
21 "	John Elder	Henry Carr	1,000 axle-box lubricators			0 1 1	54 3 4	2 4 1	1 7 8	0 8 1	58 3 2	...	0 1 2	16 July.
21 "	"	J. Defries & Son	20 patent safety lamps			4 10 0	90 0 0	6 0 0	2 0 0	0 11 6	98 11 6	...	4 18 7	16 "
21 "	"	"	3 ¹ / ₂ doz. lamp chimneys			0 6 0	1 2 0	0 1 4	0 1 4	0 0 10	1 5 6	...	0 6 11 ¹ / ₂	16 "
21 "	"	"	3 gross wicks			0 7 0	1 1 0	0 1 3	0 1 4	0 0 9	1 4 4	...	0 8 1 ¹ / ₂	16 "
21 "	"	"	12 ruby circles			0 1 0	0 12 0	0 0 6	0 0 4	0 0 2	0 13 0	...	0 1 1	16 "
21 "	"	"	12 white "			0 1 3	0 15 0	0 1 0	0 0 5	0 0 2	0 16 7	...	0 1 4 ¹ / ₂	16 "
8 "	John Duthie	Vickers, Sons, & Co.	300 c.-s. tires	56 7 1 22	18 0 0	...	1014 14 1	48 12 5	20 8 10	17 18 10	1101 14 2	...	19 10 10 ¹ / ₄	27 Sept.
21 "	"	Patent Woollen Cloth Co.	581 ¹ / ₂ sq. yds journal felt.			5/2 ¹ / ₂ ¹ / ₂ s. yd.	151 3 10	4 1 6	3 3 5	1 15 10	160 4 7	...	5/6 ¹ / ₂ s. yd.	27 "
26 "	"	Craven Bros. & Co.	1 plate-bending machine			150 0 0	150 0 0	8 17 6	3 3 0	2 4 7	164 5 1	...	164 5 1	27 "
5 June	"	Thomas Turton & Sons.	250 waggon bearing springs.			0 7 10 ¹ / ₂	98 8 9	6 18 3	2 2 4	2 5 11	109 15 3	...	0 8 9 ¹ / ₄	27 "
20 May	"	John Brown & Co.	300 "			0 8 0	120 0 0	8 9 6	2 11 0	2 15 9	133 16 3	...	0 8 11	27 "
14 "	"	James McIlwraith & Co	2,000 yds wax cloth			2/8 ¹ / ₂ yd.	266 13 4	3 19 8	5 9 8	3 9 5	279 12 1	...	2/9 ¹ / ₂ ¹ / ₂ yd.	27 "
27 "	"	Charles Cammell & Co.	1,200 volute springs			0 1 9	105 0 0	5 7 10	2 5 0	2 0 11	114 13 9	...	0 1 10 ¹ / ₄	27 "
9 June	Clyde	R. H. Tweddell	2sets hydraulic coupleathers			30 0 0	60 0 0	4 7 5	1 10 0	0 7 3	66 4 8	...	33 2 4	5 Aug.
8 "	Siren	Patent Woollen Cloth Co.	392 sq yds journal felt			0 5 3 ¹ / ₄	103 7 8	2 17 11	2 4 4	1 4 9	109 14 8	...	0 5 7	22 Sept.
9 "	"	Charles Cammell & Co.	600 volute springs			0 1 9	52 10 0	2 14 3	1 4 0	1 0 11	57 9 2	...	0 1 10 ¹ / ₄	22 "
20 May	"	Thomas Turton & Sons	250 waggon bearings springs			0 7 10 ¹ / ₂	98 8 9	6 18 9	2 2 4	2 5 7	109 15 5	...	0 8 9 ¹ / ₄	22 "
21 "	Thos. Stephens	J. Defries & Sons	400 carriage door handles			0 2 0 ¹ / ₂	41 11 3	0 12 4	0 19 7	0 10 8	43 13 10	...	0 2 2 ³ / ₄	16 Aug.
11 June	Loch Broom	Glenborg Union Fire-clay Co.	12,000 square fire-bricks			2 12 6	31 10 0	51 16 7	0 15 1	7 10 6	91 12 2	...	7 12 8	23 Sept.
						per 1000.								
11 "	"	"	5,000 side arch			2 12 6	13 2 6	19 3 11	0 6 2	2 16 1	35 8 8	...	7 1 9	23 "
						per 1000.								
11 "	"	"	3,000 whelp			3d. each.	37 10 0	23 0 8	0 16 1	3 11 3	64 18 0	...	5 ¹ / ₂ d. each.	23 "

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Return of Miscellaneous Articles imported for the Great Southern and Western Lines during the year 1886—continued.														
1886.				T. c. q. lb.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	1886.
11 June	Loch Broom	Glenboig Union Fire-clay Co.	200 covers fire-bricks	.....	..	11d. each.	9 3 4	4 16 0	0 3 11	0 15 2	14 18 5	...	1/5½ each.	23 Sept.
11 "	"	"	4,000 Scone "	.....	...	3 0 0 per 1000.	12 0 0	10 4 7	0 5 3	1 10 10	24 0 8	...	6 0 2 per 1000	23 "
11 "	"	"	3,000 pup "	.....	.....	3 0 0 per 1000.	9 0 0	6 19 1	0 3 11	1 1 1	17 4 1	.....	5 14 8½ per 1000.	23 "
26 May	John Duthie	Craven Brothers & Co	50 pairs wheels	.....	.....	5 17 6	813 13 3	36 6 9	13 14 11	13 18 8	877 13 7	.....	17 11 1	27 "
17 June	"	Vickers, Sons, & Co.	100 c.-s. tires for above	19 8 1 16	18 0 0	18 0 0								
17 "	"	"	50 c.-s. axles for above	9 9 1 4	18 0 0	.....	1647 6 6	72 13 5	27 17 11	28 1 4	1775 19 2	.....	17 15 2¼	27 "
4 "	"	Craven Brothers & Co	100 pairs wheels	.....	.....	6 1 6								
17 "	"	Vickers, Sons, & Co.	200 c.-s. tires for above	38 16 3 4	18 0 0	.....	1664 16 6	70 13 2	28 4 11	27 17 3	1791 11 10	.....	17 18 3½	27 "
17 "	"	"	100 c.-s. axles for above	18 18 2 8	18 0 0	.....							
26 May	"	Patent Shaft and Axle-tree Co.	100 pairs wheels	.....	.....	6 5 0	499 8 11	21 3 11	7 12 10	7 10 6	535 16 2	.....	17 17 2½	28 "
17 June	"	Vickers, Sons, & Co.	200 c.-s. tires for above	38 16 3 4	18 0 0	.....							
17 "	"	"	100 c.-s. axles for above	18 18 2 8	18 0 0	.....	1322 2 5	58 10 3	22 8 1	22 11 9	1425 12 6	.....	20 1 7	27 "
7 "	"	Harrison & Camm	71 pairs wheels	.....	.....	6 16 6								
21 "	"	Vickers, Sons, & Co.	142 c.-s. tires for above	32 13 2 9	18 0 0	.....	13 17 0 3	18 0 0	.....	.....	6 5 0	.....	17 17 2½	28 "
21 "	"	"	71 c.-s. axles for above	13 17 0 3	18 0 0	.....							
12 "	Gladstone	Patent Shaft and Axle-tree Co.	30 pairs wheels	.....	.....	6 5 0	540 0 5	23 18 9	8 4 11	9 4 7	581 8 8	.....	20 0 11¼	3 Oct.
28 "	"	Vickers, Sons, & Co.	60 c.-s. tires for above	11 13 0 4	18 0 0	.....							
28 "	"	"	30 c.-s. axles for above	5 13 2 8	18 0 0	.....	823 13 3	36 6 9	12 10 0	14 0 9	886 10 9	.....	17 14 7¼	3 "
7 "	Brilliant	Harrison & Camm	29 pairs wheels	.....	.....	6 16 6								
1 July	"	Vickers, Sons, & Co	58 c.-s tires for above	13 6 3 26	18 0 0	.....	1020 3 2	48 17 8	15 9 0	18 1 1	1102 10 11	19 9 0¾	.....	3 "
1 "	"	"	29 c.-s axles for above	5 13 0 17	18 0 0	.....							
14 June	"	Craven Brothers, & Co.	50 pairs wheels	.....	.....	6 1 6	80 0 0	5 11 6	1 7 0	1 16 11	88 15 5	.....	0 8 10½	3 "
1 July	"	Vickers, Sons, & Co	100 c.-s. tires for above	19 8 1 16	18 0 0	.....							
1 "	"	"	50 c.-s. axles for above	9 9 1 4	18 0 0	.....	108 6 8	4 8 3	1 18 6	0 16 4	115 9 9	.....	0 1 1½	27 Aug.
10 June	"	"	300 c.-s. tires	56 13 2 1	18 0 0	.....							
12 "	"	John Brown & Co.	200 waggon bearing springs	.....	.....	0 8 0	195 0 0	31 17 5	3 4 9	2 8 11	232 11 1	.....	0 11 7½	12 Sept.
6 July	Iberia	Henry Carr	2,000 axle box lubricators	.....	.....	0 1 1								
29 June	Carlton	W. Pope & Son	400 mild steel heads	.....	.....	0 9 9	40 0 0	2 15 9	0 15 0	0 18 5	44 9 2	.....	0 8 10½	8 Oct.
17 "	The Tweed	John Brown & Co.	100 waggon bearing springs	.....	.....	0 8 0								
30 "	Port Jackson	Craven Brothers	50 pairs wheels	.....	.....	6 1 6	823 13 3	36 6 9	12 10 0	14 0 9	886 10 9	.....	17 14 7¼	28 "
17 July	"	Vickers, Sons, & Co.	100 c.-s tires for above	19 8 1 16	18 0 0	.....							
17 "	"	"	50 c.-s. axles for above	9 9 1 4	18 0 0	.....	1997 15 9	84 15 8	30 2 4	33 1 5	2145 15 2	.....	17 17 7½	8 "
12 June	The Tweed	Patent Shaft and Axle-tree Co.	120 pairs wheels	.....	.....	6 5 0								
17 July	"	Vickers, Sons, & Co.	240 c.-s. tires for above	46 12 0 16	18 0 0	.....	44 4 9	5 4 4	0 16 3	3 1 10	53 7 2	63 19 0	.....	2 Sept.
17 "	"	"	120 c.-s. axles for above	22 14 1 4	18 0 0	.....							
5 "	Thames	Nevill, Druce, & Co.	4 copper fire-hole plates	0 16 2 21½	.....	53 0 4½	35 11 6	3 10 10	0 13 8	2 9 2	42 5 2	74 10 8¼	.....	2 "
5 "	"	"	2 "	0 11 1 10	.....	62 14 11								
6 "	Harland	Harrison & Camm	50 pairs wheels	.....	.....	6 16 6	931 1 5	41 7 2	14 2 3	15 18 8	1002 9 6	.....	20 0 11¼	11 Nov.
21 "	"	Vickers, Sons, & Co.	100 c.-s. tires for above	23 0 1 2	18 0 0								
21 "	"	"	50 c.-s. axles for above	9 15 0 10	18 0 0								

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Return of Miscellaneous Articles imported for the Great Southern and Western Lines during the year 1886—continued.														
1886.				T. c. q lb	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	1886.
21 July ..	Riverside	Dubs & Co.	1 combined steam crane and locomotive engine, and set of spare wheels and pinions	.....	.....	.....	1530 0 0	.....	23 3 0	.....	.....	.....	.....	.....
13 Feb.	"	Vickers, Sons, & Co	4 c-s. tires for above ...	0 17 2 6	24 0 0	.....	21 1 4	.....	0 8 5	.....	.....	.....	.....	7 Nov.
1 "	"	"	2 c-s axles for above ...	0 9 1 4	24 0 0	.....	11 2 10	.....	0 3 4	.....	.....	.....	.....	.....
30 June ..	Abergeldie	Shelton Iron and Steel Co	Channel iron	39 7 1 11	17 10 0	.....	295 5 1	20 3 6	4 10 6	8 11 11	328 11 0	8 6 10 ¹ / ₄	.....	28 "
30 "	"	"	"	3 4 2 14	5 10 0	.....	50 1 8	1 12 10	0 15 7	0 19 10	53 9 11	16 11 2 ¹ / ₄	.....	28 "
30 "	"	"	Angle iron	1 19 0 19	7 10 0	.....	14 13 9	1 0 4	0 4 11	0 9 3	16 8 3	8 7 7 ¹ / ₄	.....	28 "
16 July ...	"	Elholt's Metal Co	Brass boiler tubes	31 0 1 7 ¹ / ₂	53 15 9 ³ / ₄	.....	1668 5 4	22 7 4	25 3 5	20 17 5	1736 13 6	55 19 10 ¹ / ₂	.....	28 "
26 "	Delcomyn	Charles Cammell & Co	300 volute springs	.....	.....	0 4 0	60 0 0	6 4 9	1 4 0	1 3 5	68 12 2	0 4 6 ³ / ₄	.....	7 Oct.
30 "	"	W Pope & Son	Mild steel sheets	20 14 2 8	12 12 0	.....	261 3 7	32 10 6	4 8 1	5 10 9	303 12 11	14 12 10	.....	7 "
30 June	Loch Ranza	Glenboig Union Fire-clay Co.	500 fire-clay retorts	.....	.....	2 15 0	137 10 0	92 1 10	2 4 2	7 12 11	239 8 11	.....	4 15 9 ³ / ₄	8 "
30 "	"	"	20 c-i. mouth pieces	.....	.....	3 10 0	70 0 0	5 15 6	1 1 7	1 4 0	78 1 1	.....	3 18 0 ¹ / ₂	8 "
2 Aug	Potosi	Henry Carr	1,000 axle box lubricators.	.....	.....	0 1 1	54 3 4	2 4 1	1 2 3	0 6 11	57 16 7	.....	0 1 1 ¹ / ₄	20 Sept.
6 "	Sussex	Charles Cammell & Co	300 volute springs	.....	.....	0 4 0	60 0 0	6 4 1	1 4 0	1 3 5	68 11 6	.....	0 4 6 ³ / ₄	25 Oct.
16 July	Abergeldie	Patent Shaft and Axle tree Co.	46 pairs wheels...	.....	.....	6 5 0	.....	.....	.....	.....	.....	.....	.....	.....
31 "	"	Vickers, Sons, & Co	92 c. s. tires for above	17 17 1 8	18 0 0	.....	765 16 4	32 15 6	11 12 10	12 17 6	823 2 2	.....	17 17 10 ¹ / ₂	28 Nov.
31 "	"	"	46 c-s. axles for above	8 14 0 16	18 0 0	.....	.....	.....	.....	.....	.....	.....	.....	.....
19 "	"	The Leather Cloth Co	4,000 yards duck	.....	.....	0 2 3 ¹ / ₄	452 10 1	5 13 8	6 18 4	5 9 7	470 11 8	.....	0 2 4 ¹ / ₂	28 "
19 "	"	"	1,500 gross buttons	.....	.....	0 0 6 ¹ / ₄	40 7 6	0 12 2	0 12 8	0 10 0	42 2 4	.....	0 0 6 ¹ / ₄	28 "
30 "	"	Charles Cammell & Co	600 6" volute springs	.....	.....	0 1 9	52 10 0	2 12 11	0 18 7	1 0 7	57 2 1	.....	0 1 10 ³ / ₄	28 "
18 Aug.	Christiana Thompson	Novill, Druce, & Co.	Copper fire-box plates	0 5 2 13	50 15 0	.....	14 5 1	0 4 2	0 4 5	0 3 8	14 17 4	52 18 10 ¹ / ₄	.....	24 Dec.
18 "	"	"	"	4 19 3 6 ¹ / ₂	53 0 0	.....	264 9 10	3 10 2	4 0 4	3 6 9	275 7 1	55 3 6 ¹ / ₄	.....	24 "
18 "	"	"	"	4 12 2 5	55 10 0	.....	256 16 3	3 5 9	3 18 0	3 4 2	267 4 2	57 14 11	.....	24 "
18 "	"	"	"	2 14 0 9	57 15 0	.....	156 3 1	1 17 9	2 7 2	1 18 5	162 6 5	60 0 7	.....	24 "
18 "	"	"	"	5 17 1 13	62 15 0	.....	368 4 9	4 3 4	5 11 0	4 8 10	382 7 11	65 3 2	.....	24 "
3 "	"	Craven Brothers	50 pairs wheels	.....	.....	6 1 6	.....	.....	.....	.....	.....	.....	.....	.....
2 Sept.	"	Vickers, Sons, & Co	100 c-s. tires for above	19 8 1 16	18 0 0	.....	823 13 3	36 6 9	12 10 0	14 0 9	886 10 9	.....	17 14 7 ¹ / ₂	24 "
2 "	"	"	50 c-s axles for above	9 9 1 4	18 0 0	.....	.....	.....	.....	.....	.....	.....	.....	.....
26 July ...	"	"	200 c-s tires	37 12 1 18	18 0 0	.....	677 3 5	32 9 0	9 6 2	12 1 5	731 0 0	19 8 7 ¹ / ₂	.....	24 "
26 Aug..	Tasmania	Austrian Bentwood Furniture Co.	120 yards cane matting ..	.....	.....	1 7 7 ¹ / ₄	165 13 0	3 15 10	2 15 8	1 0 7	173 5 1	.....	1 8 10 ¹ / ₂	1 Nov.
11 "	Torriford	J. Defries & Son	6 gross carriage door locks	.....	.....	13 13 7 ¹ / ₂	82 1 7	0 10 6	1 7 7	0 18 3	84 17 11	.....	14 2 11 ¹ / ₂	27 "
6 Sept..	Aberdeen	Craven Brothers	50 pairs wheels	.....	.....	6 1 6	.....	.....	.....	.....	.....	.....	.....	.....
24 "	"	Vickers, Sons, & Co	100 c-s. tires for above	19 8 1 16	18 0 0	.....	823 13 3	38 3 1	13 0 7	13 2 7	887 19 6	.....	17 15 2 ¹ / ₄	15 "
24 "	"	"	50 c-s. axles for above	9 9 1 4	18 0 0	.....	.....	.....	.....	.....	.....	.....	.....	.....
11 Aug...	Torriford	J. Defries & Son	400 3" handles for carriage doors.	.....	.....	0 1 7 ¹ / ₂	32 10 0	0 10 6	0 12 9	0 7 6	34 0 9	.....	0 1 8 ¹ / ₄	27 "
31 "	Clyde	Charles Cammell & Co.	18 dozen block files	.....	.....	5 13 4	102 0 0	1 16 6	1 13 7	0 10 11	106 1 0	.....	5 17 10	23 Dec.
19 "	Aberdeen	Thomas Turton & Sons	500 volute springs	.....	.....	0 3 4	83 6 8	7 14 4	1 11 0	1 10 1	94 2 1	.....	0 3 9	13 Nov.
							105041 6	14753 11 7	2063 15 6	1652 3 8	113510 16 10	.....	.....	.....

No. 8.

PUBLIC DEBT FOR RAILWAYS

STATEMENT showing the amounts appropriated for Railway Services to 31st December, 1886, the Amount expended to same date, and the Balances retained or written off in the books of the Treasury

Appropriations	Particulars	Expended	Balances	
			Retained	Written off
£ s d		£ s d	£ s d	£ s d.
217,500 0 0	16 VICTORIA, No 39 Loan to the Sydney Railway Company	217,500 0 0		
400,000 0 0 224,733 18 8	18 VICTORIA, No 40 Construction of Railways Purchase of the properties of the Sydney Railway and of the Hunter River Railway Companies	400,000 0 0 224,733 18 8		
624,733 18 8		624,733 18 8		
62,500 0 0 50,000 0 0	19 VICTORIA, Nos 38 & 40 Railway, Sydney to Liverpool, and Railway, New castle to Maitland Surveys, experiments, and preparations for the exten sion of Railways	62,499 10 0 49,997 19 7	0 10 0 2 0 5	
112,500 0 0		112,497 9 7	2 10 5	
200,000 0 0	20 VICTORIA, No 1 Railway works	200,000 0 0		
300,000 0 0	20 VICTORIA, No 34 Railway works	299,927 9 4	72 10 8	
712,000 0 0 8,000 0 0	22 VICTORIA, No 22 Extension of existing Railways Railway Trial Survey	711,999 18 0 8,000 0 0		0 2 0
720,000 0 0		719,999 18 0		0 2 0
1,300 0 0 9,021 0 0 23,949 0 0 54,100 0 0	23 VICTORIA, No 10 Valuation of Land Works in progress—Authorized Extensions Tr 1 Surveys N Works	1,296 0 0 8,645 2 8 23,941 1 8 51,825 1 11	2,274 18 1	4 0 0 375 17 4 7 18 4
88,370 0 0		85,707 6 3	2,274 18 1	387 15 8
1,300 0 0 7,020 0 0	24 VICTORIA, No 24 Valuation of Land Works in progress—Authorized Extensions	1,300 0 0 6,718 9 5		301 10 7
8,320 0 0		8 018 9 5		301 10 7
675 0 0 9,184 0 0 20,000 0 0 5,000 0 0 40,000 0 0 70,000 0 0 688,000 0 0 16,200 0 0 20,000 0 0 7,000 0 0 30,000 0 0 250,000 0 0 250,000 0 0 60,000 0 0 10,000 0 0	25 VICTORIA, No 19 Valuation of Land Works in progress—Authorized Extensions Northern Line to Terminus to Morpeth Carriage shed and Machine shop, and fixing Engine Turn table, &c, Northern Line Bridge over Hunter River, at Singleton Bridge over the Nepean, at Penrith Great Southern Line to Goulburn Land for Great Southern Railway to Goulburn Engines for Southern Extensions Trial Surveys Great Western Line to the Nepean Great Western Line from Penrith towards Bathurst Great Northern Line towards Armidale Horse Railway Line from Blacktown to Windsor and Richmond Additions and Alterations to Workshops and Stations	671 1 8 8,168 13 2 20,000 0 0 4 578 19 3 40,000 0 0 70,000 0 0 687,999 8 0 16,200 0 0 20 000 0 0 7,000 0 0 30,000 0 0 250,000 0 0 250,000 0 0 250,000 0 0 60,000 0 0 9,998 7 6	421 0 9 0 12 0	3 18 4 1,015 6 10
1,476,059 0 0		1,474,616 9 7	423 5 3	1,019 5 2
3,747,482 18 8	Carried forward	£ 3,743,001 0 10	2,773 4 5	1,708 13 5

APPENDIX TO REPORT ON RAILWAYS—1886.

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No 8—continued.

Appropriations	Particulars	Expended	Balances	
			Retained	Written off
£ s d		£ s d	£ s d.	£ s. d.
3,747,482 18 8	Brought forward	3,743,001 0 10	2,773 4 5	1,708 13 5
	26 VICTORIA, No 14			
700 0 0	Valuation of Land	696 0 0		4 0 0
11,182 0 0	Works in progress—Authorized Extensions	10,523 3 5		658 16 7
1,000 0 0	Bridge over the Railway, near Newcastle	1,000 0 0		
16,000 0 0	Additional Line from Newcastle to Wallsend Junction	14,684 8 6	1,315 11 6	
350 0 0	Additional Telegraph Wire for Railway purposes from Parramatta to Penrith	336 5 6		13 14 6
675 0 0	Additional Telegraph Wire for Railway purposes from Campbelltown to Picton	514 16 8	160 3 4	
29,907 0 0		27,754 14 1	1,475 14 10	676 11 1
	27 VICTORIA, No 14			
215,414 3 1	Extension to Goulburn	215,414 3 1		
3,932 2 8	Workshops, Southern Line	3,932 2 8		
2,480 14 3	Workshops, Northern Line	2,431 7 6	49 6 9	
13,000 0 0	Rolling Stock, Northern Line	13,000 0 0		
23,000 0 0	Locomotive Engines, Western Line	23,000 0 0		
20,000 0 0	Carrriages, Break vans, Western Line	20,000 0 0		
35,000 0 0	Locomotive Engines, Northern Line			
1,000 0 0	Traverses for Coal Sidings, Newcastle			
4,000 0 0	Ballast waggons for Northern, Southern, and Western Lines	37,659 10 9	2,340 9 3	
50,000 0 0	Extension into Goulburn	50,000 0 0		
150,000 0 0	Extension into Bathurst	150,000 0 0		
15,000 0 0	Richmond and Windsor Lines	15,000 0 0		
7,500 0 0	Purchase of Land for Morpeth Railway	7,495 13 4	4 6 8	
5,000 0 0	Siding into Cemetery at Haslem's Creek	4,821 5 6	178 14 6	
900 0 0	Wharf, Carriage Dock, and Siding, Newcastle Station and West Maitland	900 0 0		
970 0 0	New Passenger Station, Platform, and Station at Hexham	970 0 0		
3,500 0 0	Coal Sidings at Newcastle	566 13 9	2,933 6 3	
400 0 0	Passenger Station and Platform at Rooty Hill, Western Line	400 0 0		
900 0 0	Three Gate houses on Western Line	831 10 5	68 9 7	...
110 0 0	Stables at Newcastle	110 0 0		
552,107 0 0		546,532 7 0	5,574 13 0	
	29 VICTORIA, No 9			
650 0 0	Station at Riverstone	650 0 0		
650 0 0	Station at Mulgrave	650 0 0		
9,000 0 0	Additional Ballast and Goods Trucks	9,000 0 0		
10,000 0 0	Windsor and Richmond Line	10,000 0 0		
850 0 0	Land at Newtown for Siding	820 17 8	29 2 4	
10,000 0 0	Additional Rolling Stock	10,000 0 0		
20,000 0 0	Additional Goods accommodation, Sydney Station	19,999 18 0		0 2 0
12,000 0 0	Railway sheds	12,000 0 0		
5,000 0 0	Additional accommodation Stations	5,000 0 0		
6,000 0 0	Claims for Land on the Penrith, Picton, and Singleton Extensions	3,856 2 2	2,143 17 10	.. ....
650 0 0	Station at Douglas Park	640 14 3	9 5 9	
20,000 0 0	Extension of Great Northern Line to Terminus at Morpeth	19,995 2 11	4 17 1	
94,800 0 0		92,612 15 0	2,187 3 0	0 2 0
	29 VICTORIA, No 23			
200,000 0 0	Extension of the Great Western Line	200,000 0 0		
400,000 0 0	Extension of the Great Northern Line	398,677 2 3	1,322 17 9	
20,000 0 0	Relaying the Line from Sydney to Parramatta Junction	20,000 0 0		
4,000 0 0	Enlarging Railway Bridges at East Maitland	2,508 17 2	1,491 2 10	
5,000 0 0	Additional Accommodation to Stations	5,000 0 0		
10,000 0 0	Additional Goods Waggons	10,000 0 0		
639,000 0 0		636,185 19 5	2,814 0 7	
	30 VICTORIA, No 23			
3,000 0 0	Engine shed, Windsor and Richmond Line	1,054 9 6	1,945 10 6	
5,000 0 0	Trial Surveys for the Extension of the Great Southern and Western Railways	5,000 0 0		
25,000 0 0	Compensation for Land taken on the Ultimo Estate	25,000 0 0		
33,000 0 0		31,054 9 6	1,945 10 6	
5,096,296 18 8	Carried forward	£ 5,077,141 5 10	16,770 6 4	2,385 6 6

No. 8—continued.

Appropriations.	Particulars.	Expended.	Balances	
			Retained.	Written off.
£ s. d.		£ s. d.	£ s. d.	£ s. d.
5,096,296 18 8	Brought forward.....	5,077,141 5 10	16,770 6 4	2,385 6 6
31 VICTORIA, No. 11.				
1,000,000 0 0	Railway Works—Extension to Bathurst and Goulburn	999,409 12 10	590 7 2	.....
31 VICTORIA, No. 27.				
3,412 0 0	Half the Cost of the Telegraph Line from Picton to Goulburn, along the line of Railway—chargeable to Railways	3,411 2 0	0 18 0	.....
3,719 0 0	Half the cost of Telegraph Line from Penrith to Bathurst, along the line of Railway—chargeable to Railways	3,511 0 10	207 19 2	.....
7,131 0 0		6,922 2 10	208 17 2	.....
32 VICTORIA, No. 13.				
60,000 0 0	Towards cost of additional Rolling Stock for Railway purposes	60,000 0 0	.....	.....
10,000 0 0	Compensation for Land taken at Honeysuckle Point	9,852 7 2	147 12 10	.....
70,000 0 0		69,852 7 2	147 12 10	.....
34 VICTORIA, No. 2.				
13,000 0 0	New Machine-shop, running shed, erecting shop and stores at Newcastle, including roads connected therewith	12,917 4 5	82 15 7	.....
2,000 0 0	Additional Machinery	1,674 4 2	325 15 10	.....
30,500 0 0	New Station, Workshops for carriage and waggons department, carriage-shed, roofing, steam hammer, furnaces and machinery, Redfern, including roads connected therewith	30,420 19 11	79 0 1	.....
5,000 0 0	Excavating Station yard, Redfern	4,902 14 10	97 5 2	.....
3,500 0 0	Additional Machinery	3,500 0 0	.....	.....
6,000 0 0	New Passenger Station and Platforms, Newcastle, including road approaches	5,965 0 5	34 19 7	.....
60,000 0 0	Construction of Rolling Stock	59,998 3 6	1 16 6	.....
35,000 0 0	Completion of the relaying of the Line from Sydney to Parramatta	30,402 14 5	4,597 5 7	.....
17,000 0 0	Completion of new Goods-shed, Sydney, and Roads and Sidings in connection with same	14,518 9 10	2,481 10 2	.....
5,000 0 0	Extension to Morpeth	4,994 10 0	5 10 0	.....
2,000 0 0	Land for Windsor and Richmond Line	1,340 18 11	659 1 1	.....
179,000 0 0		170,635 0 5	8,364 19 7	.....
35 VICTORIA, No. 5.				
124 0 0	Construction of Railway sheds	122 9 5	.....	1 10 7
230,000 0 0	Completion of Lines already sanctioned	229,942 14 2	.....	57 5 10
70,000 0 0	Construction of Rolling Stock manufactured in the Colony	65 580 13 9	.....	4,419 6 3
300,124 0 0		295,645 17 4	.....	4,478 2 8
36 VICTORIA, No. 2.				
60,000 0 0	Rolling Stock manufactured in the Colony ..	60,000 0 0	.....	.....
2,000 0 0	Station Buildings—West Maitland ..	1,876 10 2	.....	123 9 10
257 0 0	Station-master's House at Newtown	257 0 0	.....	.....
62,257 0 0		62,133 10 2	.....	123 9 10
36 VICTORIA, No. 17				
60,000 0 0	Rolling Stock manufactured in the Colony	60,000 0 0	.....	.....
10,000 0 0	Trial Surveys	9,999 18 11	.....	0 1 1
1,131,000 0 0	Towards the construction of a Line from Goulburn to Wagga Wagga ..	1,131,000 0 0	.....	.....
60,000 0 0	Construction of a Line—Kelso to Bathurst	60,000 0 0	.....	.....
279,000 0 0	Construction of a Line—Bathurst to Orange ..	279,000 0 0	.....	.....
361,500 0 0	Construction of a Line—Murrumbidgee to Tamworth	361,500 0 0	.....	.....
1,901,500 0 0		1,901,499 18 11	.....	0 1 1
8,616,308 18 8	Carried forward	8,583,239 15 6	26,082 3 1	6,987 0 1

APPENDIX TO REPORT ON RAILWAYS—1886

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No 8—continued.

Appropriations	Particulars	Expended	Balances	
			Retained	Written off
£ s. d.		£ s. d.	£ s. d.	£ s. d.
8,616,308 18 8	Brought forward	8,583,237 15 6	26,082 3 1	6,987 0 1
	38 VICTORIA, No 2			
20,000 0 0	Trial Surveys	19,988 3 4		11 16 8
100,000 0 0	Rolling Stock	100,000 0 0		..
25,000 0 0	Towards purchasing Land, laying Sidings, and erecting Sheds, Darling Harbour Wharf	24,998 13 4		1 6 8
10,000 0 0	Engine sheds	9,953 14 1		46 5 11
8,000 0 0	Enlarging Machine shop, Sydney	7,745 3 3		254 16 9
2,000 0 0	Additional Machinery, Sydney	2,000 0 0		..
6,000 0 0	Completion of New Station, Redfern	5,931 13 7		68 6 5
45,000 0 0	To complete Western Line to Kelso, &c	44,980 18 9		19 1 3
1,000 0 0	Unadjusted Land Claims	239 6 10		760 13 2
50,000 0 0	To connect Great Northern Railway with the New Wharfage Accommodation at Bullock Island	44,451 2 9	.. . .	5,548 17 3
50,000 0 0	Purchase of twelve Passenger Locomotive Engines for extensions beyond Murrurundi, Goulburn, and Bathurst	50,000 0 0		..
317,000 0 0		310,288 15 11		6 711 4 1
	39 VICTORIA, No 18.			
20,000 0 0	Trial Surveys	20,000 0 0	..	..
50,000 0 0	Rolling Stock	50,000 0 0		..
5,000 0 0	Additional Machinery	5,000 0 0		..
75,000 0 0		75,000 0 0		..
	40 VICTORIA, No 12			
350,000 0 0	Orange to Wellington	350,000 0 0		..
260,000 0 0	Wellington to Dubbo	260,000 0 0		..
384,000 0 0	Junce to Narrandera	348,468 18 1		35,531 1 11
600,000 0 0	Tamworth to Armadale	600,000 0 0		..
220,000 0 0	Werris Creek to Gunnehal	220,000 0 0		..
25,000 0 0	Trial Surveys	25,000 0 0		..
150,000 0 0	Additional Rolling Stock	150,000 0 0		..
10,000 0 0	For strengthening the Bridge and improving the gradients on the Windsor and Richmond Line	10,000 0 0		..
1,999,000 0 0		1,963,468 18 1		35 531 1 11
	41 VICTORIA, No 4.			
30,000 0 0	To complete line from Goulburn to Wagga Wagga	30,000 0 0		..
20,352 0 0	To complete the extension into Bathurst	8,011 2 4		12,340 17 8
77,000 0 0	To complete the line from Bathurst to Orange	67,847 3 0		9,152 17 0
80,000 0 0	To complete line from Murrurundi to Tamworth	74,108 15 7		5,891 4 5
207,352 0 0		179,967 0 11		27 384 19 1
	41 VICTORIA, No 7.			
680,000 0 0	For the extension of the Great Southern Railway from the end of No. 3 Contract near Wagga Wagga to Albury, including the Viaduct over the Murrumbidgee River	680,000 0 0	.. . .	.. . .
20,000 0 0	Trial Surveys	20,000 0 0		..
20,000 0 0	To double the line from Wallsend Junction to Hexham	20,000 0 0		..
240,000 0 0	Rolling Stock, including Engines	240,000 0 0	.. . .	..
960,000 0 0		960,000 0 0		..
	43 VICTORIA, No. 11.			
1,611,000 0 0	Tamworth to Tenterfield	1,611,000 0 0	.. . .	.. . .
1,450,000 0 0	Dubbo to the vicinity of Bourke	1,263,193 4 1	186,806 15 11	.. . .
370,000 0 0	Gunnedah to a point opposite Narrabri	302,514 2 8	67,485 17 4	..
735,000 0 0	Wallerawang to Mudgee	735,000 0 0		..
735,000 0 0	Narrandera to Hay	575,697 8 8	159,302 11 4	..
100,000 0 0	Goulburn to Wagga Wagga, to complete the line	97,005 16 8	2,994 3 4	..
20,000 0 0	Trial Surveys	20,000 0 0		..
620,000 0 0	Rolling Stock required during four years ending 1882	620,000 0 0		..
5,641,000 0 0		5,224 410 12 1	416,589 7 11	..
	44 VICTORIA, No 12.			
40,000 0 0	Orange to Dubbo	24 821 8 2	15,178 11 10	..
22,000 0 0	Werris Creek to Gunnedah	20,448 12 5	1,551 7 7	..
250,000 0 0	Site and erection of New Workshops, Machinery, and Sidings, in connection therewith	250,000 0 0		..
100,000 0 0	Doubling Line between Parramatta Junction, &c	99,988 13 4	11 6 8	..
412,000 0 0		395,258 13 11	16 741 6 1	..
18,227,660 18 8	Carried forward	17,691,633 16 5	459,412 17 1	76,614 5 2

No. 8—continued.

Appropriations	Particulars	Expended.	Balances.	
			Retained	Written off.
£ s. d.		£ s. d.	£ s. d.	£ s. d.
18,227,660 18 8	Brought forward	17,691,633 16 5	459,412 17 1	76,614 5 2
	44 VICTORIA, No. 28.			
2,000,000 0 0	Southern and Northern Junction Railway—From Homebush to Waratah (double line) 95 miles ..	1,469,204 9 11	530,795 10 1	.....
1,020,000 0 0	Sydney to Wollongong and Kiama, 68 miles . . .	1,020,000 0 0	.....	.....
1,430,000 0 0	Goulburn to Cooma <i>via</i> Tarago, Bungendore, and Queanbeyan, 130 miles	954,891 16 11	475,108 3 1	.....
80,000 0 0	Albury to the river Murray (double line) including moiety of cost of constructing the Bridge $1\frac{1}{4}$ mile	80,000 0 0	.....	.....
518,000 0 0	Narrandera to Jerildene, 63 miles	404,931 12 4	113,068 7 8	.....
218,000 0 0	Cootamundra to Gundagai, 34 miles	218,000 0 0	.....	.....
1,260,000 0 0	Murrumburrah to Blayney, 108 miles	828,402 2 8	431,597 17 4	.....
95,000 0 0	From Wagga Wagga to Albury, to complete the line	95,000 0 0	.....	.....
300,000 0 0	Alterations and additions to Station Buildings, and Siding accommodation to meet increasing traffic, inclusive of payments made in 1880 in anticipation of this vote	300,000 0 0	.....	.....
6,921,000 0 0		5,370,430 1 10	1,550,569 18 2	.....
	45 VICTORIA, No. 22.			
500,000 0 0	Additional Rolling Stock	500,000 0 0	.....	.....
500,000 0 0		500,000 0 0	.....	.....
	46 VICTORIA, No. 23.			
580,000 0 0	For providing additional Rolling Stock and the purchase of Machinery, Tools, &c	580,000 0 0	.....	.....
40,000 0 0	Trial Surveys	40,000 0 0	.....	.....
400,000 0 0	Alterations, additions, and improvements at Stations increased siding accommodation, and other purposes	400,000 0 0	.....	.....
140,000 0 0	Towards construction of a line from North Shore to Junction with Southern and Northern Junction Railway	3,959 17 8	136,040 2 4	.....
85,000 0 0	Doubling line from Parramatta to Penrith	84,897 7 10	102 12 2	.....
1,245,000 0 0		1,108,857 5 6	136,142 14 6	.....
	48 VICTORIA, No. 26.			
356,000 0 0	Erection of new Workshops, and for Machinery and sidings in connection therewith	255,603 6 5	100,396 13 7	.....
25,000 0 0	Trial Surveys, further sum	25,000 0 0	.....	.....
157,000 0 0	Wallerawang to Mudgee, further sum	157,000 0 0	.....	.....
450,000 0 0	City Extension, 1 mile 76 chains	2,125 11 1	447,874 8 11	.....
195,000 0 0	Perth to near Rockley, 17 miles	1,545 7 2	193,454 12 10	.....
578,000 0 0	Inverell to Glen Innes, 45 miles	2,755 0 10	575,244 19 2	.....
2,000,000 0 0	South Grafton to Glen Innes, 103 miles	7,558 14 7	1,992 441 5 5	.....
1,980,000 0 0	Grafton to the Tweed River <i>via</i> Casino, Lismore, and the Brunswick, 165 miles	4,624 4 1	1,975,375 15 11	.....
700,000 0 0	Musclebrook to Cassilis, 70 miles	1,437 0 1	698,562 19 11	.....
310,000 0 0	Tarago to Braidwood, 31 miles	2,124 11 3	307,875 8 9	.....
500,000 0 0	Gundagai to Tumut <i>via</i> Adelong, including Iron Bridge over the River Murrumbidgee, 33 miles	32,115 14 8	467,884 5 4	.....
804,000 0 0	Kiama to Jervis Bay, 41 miles	2,280 12 3	801,719 7 9	.....
606,000 0 0	Bega to Eden, 40 miles	3,905 2 8	602,094 17 4	.....
259,500 0 0	Goulburn to Crookwell, 25 miles	1,745 1 11	257,754 18 1	.....
144,000 0 0	Galong to Burrowa, 18 miles	1,056 18 8	142,943 1 4	.....
710,000 0 0	Wagga to Tumberumba, 68 miles	3,688 12 1	706,311 7 11	.....
173,500 0 0	Tenterfield to the Queensland Border, 12 miles	37,701 18 2	135,798 1 10	.....
705,500 0 0	{ Orange to Molong <i>via</i> Borenore, 21 miles } { Borenore to Forbes <i>via</i> Cudal, 60 miles }	305,569 2 11	399,930 17 1	.....
500,000 0 0	Alterations, additions, and improvements at Stations, increased siding accommodation, & other purposes	500,000 0 0	.....	.....
	Light Lines—			
1,050,000 0 0	Forbes to Wilcannia, 340 miles	1,681 2 7	1,048,318 17 5	.....
263,500 0 0	Nyngan to Cobar, 82 miles	1,142 6 10	262,357 13 2	.....
336,500 0 0	Narrabri to Moree, 61 miles	2,109 13 8	334,390 6 4	.....
210,000 0 0	Culcairn to Corowa, 45 miles	1,860 17 2	208,139 2 10	.....
13,013,500 0 0		1,354,630 19 1	11,658,869 0 11	.....
	50 VICTORIA, No. 28.			
	Towards completion of Lines—			
250,000 0 0	Tamworth to Tenterfield, further sum	180,134 10 4	69,865 9 8	.....
35,000 0 0	Wallerawang to Mudgee	33,997 8 5	1,002 11 7	.....
28,000 0 0	Albury to River Murray	27,334 19 4	665 0 8	.....
70,000 0 0	Doubling line to Penrith	55,202 19 3	14,797 0 9	.....
660,000 0 0	Sydney to Wollongong and Kiama	244,225 18 6	415,774 1 6	.....
40,000 0 0	Cootamundra to Gundagai	4,162 10 11	35,837 9 1	.....
25,000 0 0	Trial Survey	6,110 11 11	18,889 8 1	.....
580,000 0 0	Rolling Stock and Machinery	212,444 3 5	367,555 16 7	.....
1,688,000 0 0		763,613 2 1	924,386 17 11	.....
41,595,160 18 8	TOTAL SERVICES	£26,789,165 4 11	14,729,381 8 7	76,614 5 2

APPENDIX TO REPORT ON RAILWAYS—1886.

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No. 8—continued.

Appropriations.	Particulars.	Expended.	Balances.	
			Retained.	Written off.
£ s. d. 41,595,160 18 8	Brought forward.....	£ s. d. 26,789,165 4 11	£ s. d. 14,729,381 8 7	£ s. d. 76,614 5 2
	ADVANCES FOR STORES.			
	36 VICTORIA, No. 2.			
75,000 0 0	Purchase of Railway stores and materials which cannot properly be charged to the Appropriations of Parliament until actually issued for use—the vote to be recouped as issues take place	75,000 0 0	.....	.....
	43 VICTORIA, No. 11.			
225,000 0 0	Do. do. do.	225,000 0 0	.....	.....
	50 VICTORIA, No. 28.			
300,000 0 0	Do. do. do.	300,000 0 0	.....	.....
600,000 0 0	TOTAL STORES	£ 600,000 0 0	.....	.....
42,195,160 18 8	GRAND TOTAL	£ 27,389,165 4 11	14,729,381 8 7	76,614 5 2

The Treasury, New South Wales,
11 July, 1887.

J. N. OATLEY,
Acting Accountant.

PUBLIC DEBT FOR TRAMWAYS.

STATEMENT showing the amounts appropriated for Tramway Services to 31st December, 1886; the Amount expended to same date; and the Balances retained or written off in the books of the Treasury.

Appropriations.	Particulars.	Expended.	Balances.	
			Retained.	Written off.
£ s. d.	44 VICTORIA No. 12.	£ s. d.	£ s. d.	£ s. d.
600,000 0 0	Construction of the Tramways authorized by the Act 43 Victoria No. 25	599,995 15 4	4 4 8	.....
	46 VICTORIA No. 23.			
400,000 0 0	Construction of Tramways including Motors, Rolling Stock, Machinery, &c.....	354,992 3 6	45,007 16 6	.....
1,000,000 0 0	Total	£ 954,987 18 10	45,012 1 2	.....

The Treasury, New South Wales,
11 July, 1887.

J. N. OATLEY,
Acting Accountant.

No. 9.

No. 9.

STATEMENT showing the Amount authorized to be raised by LOAN for RAILWAY PURPOSES, the Amount of DEBENTURES and INSCRIBED STOCK sold, and the INTEREST to the 31st December, 1886, on LOANS already negotiated.

Act	Amount authorized to be raised	Debentures and Inscribed Stock sold— Amount	Short issued	Over issued and to raise amounts short raised	Interest			Remarks
					Rate	Annual Interest on Authorized Loans	Interest to 31st December 1886 on Loans already negotiated	
16 Victoria, No 39	£ 217,500 0 0	£ 217,500 0 0			5 per cent	10,875 0 0	351,141 4 9*	* 2½d and 3½d per diem were the rates of interest of original Loan, but renewals were at the rate of 5 per cent per annum † Some of these Debentures have been renewed as they fell due ‡ The interest on the original Loan is inserted in this column, not withstanding the following Debentures have been finally paid off, viz — 31 December, 1872 £20,000 31 " 1875 21,000 31 " 1874 22,000 31 " 1875 23,200 31 " 1876 24,300 31 " 1877 28,500 31 " 1878 10,500 31 " 1879 27,900 31 " 1880 30,500 31 " 1881 34,100 31 " 1882 28,800 31 " 1883 35,000 31 " 1884 37,700 31 " 1885 30,000
18 " No 40	£ 6,473 18 8	£ 666,800 0 0		£ 42,066 1 4	"	33,340 0 0	1,040 482 6 5†	
19 " Nos 38 & 40	£ 112,500 0 0	£ 112,500 0 0			"	5,625 0 0	160,312 10 0	
20 " No 1	£ 200,000 0 0	£ 203,000 0 0		£ 3,000 0 0	"	10,150 0 0	299 425 0 0	
20 " No 34	£ 300,000 0 0	£ 299,000 0 0	£ 1,000 0 0		"	14,950 0 0	425 225 0 0	
22 " No 22	£ 720,000 0 0	£ 720,000 0 0			"	36,000 0 0	1,008,000 0 0	
23 " No 10	£ 88 370 0 0	£ 88 300 0 0	£ 70 0 0		"	4,415 0 0	116 997 10 0	
24 " No 24	£ 8,320 0 0	£ 8,300 0 0	£ 20 0 0		"	415 0 0	10 582 10 0	
25 " No 19	£ 1,476,059 0 0	£ 1,476,000 0 0	£ 59 0 0		"	73,800 0 0	1,845,000 0 0	
26 " No 14	£ 29,907 0 0	£ 29,900 0 0	£ 7 0 0		"	1 495 0 0	32,890 0 0	
27 " No 14	£ 552,107 0 0	£ 552,100 0 0	£ 7 0 0		"	27,605 0 0	607,310 0 0	
29 " No. 9	£ 94,800 0 0	£ 94,800 0 0			"	4,740 0 0	92,430 0 0	
29 " No 23	£ 639,000 0 0	£ 639,000 0 0			"	31,950 0 0	658,612 10 0	
30 " No 23	£ 33,000 0 0	£ 33,000 0 0			"	1,650 0 0	33 000 0 0	
31 " No. 11	£ 1,000,000 0 0	£ 1,000,000 0 0			"	50,000 0 0	943 800 0 0 ‡	
31 " No 27	£ 7,131 0 0	£ 7,100 0 0	£ 31 0 0		"	355 0 0	6,567 10 0	
32 " No 13	£ 70,000 0 0	£ 70,000 0 0			"	3,500 0 0	63,000 0 0	
34 " No 2	£ 179,000 0 0	£ 179,000 0 0			"	8,950 0 0	145,437 10 0	
Proportion of Issue under various Loan Acts to make good the amount short raised under the same		£ 228,700 0 0		£ 228,700 0 0	"	11,435 0 0	188,677 10 0	
35 Victoria, No 5	£ 300,124 0 0	£ 300,100 0 0	£ 24 0 0		"	15,005 0 0	232,577 10 0	
36 " No 2	£ 137,257 0 0	£ 137,200 0 0	£ 57 0 0		"	6,860 0 0	99,470 0 0	
36 " No 17 . . .	£ 1,901,500 0 0	£ 1,901,500 0 0			4 per cent	76,060 0 0	876,660 0 0	
38 " No 2	£ 317,000 0 0	£ 317,000 0 0			"	12,680 0 0	101 440 0 0	
39 " No 18	£ 75,000 0 0	£ 75,000 0 0			"	3,000 0 0	33,000 0 0	
40 " No 12	£ 1,999,000 0 0	£ 1,999,000 0 0			"	79,960 0 0	639 680 0 0	
41 " No 4 . . .	£ 207,352 0 0	£ 207,300 0 0	£ 52 0 0		"	8,292 0 0	66,336 0 0	
41 " No 7	£ 960,000 0 0	£ 960,000 0 0			"	38,400 0 0	211,200 0 0	
43 " No 11	£ 5,866,000 0 0	£ 5,866,000 0 0			"	234,640 0 0	1,043,960 0 0	
44 " No 12	£ 412,000 0 0	£ 412,000 0 0			"	16,480 0 0	49,440 0 0	
44 " No 28	£ 6,921,000 0 0	* £ 6,921,000 0 0			3½ & 4 per cent	243,811 0 0	519,335 7 6	
45 " No. 22	£ 500,000 0 0	£ 500,000 0 0			3½ per cent	17,500 0 0	21,875 0 0	
46 " No 23	£ 1,245,000 0 0	£ 1,245,000 0 0			"	43,575 0 0	54,468 15 0	
48 " No 26	£ 13,013 500 0 0	£ 6,071,844 0 0			"	455,472 0 0	178,590 0 0	
50 " No 28	£ 1,988,000 0 0							
Total	£ 42,195,160 18 8	£ 33,537,944 0 0	£ 1,327 0 0	£ 273,766 1 4		£ 1,582,985 0 0	£ 12,156,923 13 8	

The total amount of the Debentures issued to 31st December, 1886, was £33,537,944 0 0
 Add the Debentures authorized but not then issued, amounting to 8,929,656 0 0
 Making a total of £42,467,600 0 0
 Deduct Debentures issued in excess of amount authorized £273,766 1 4
 Less amount authorized in excess of issue 1,327 0 0
 272,439 1 4

The Treasury, New South Wales,
11 July, 1887.

Total, as above shown £42,195,160 18 8

J. N OATLEY,
Acting Accountant.

NOTE - The debt on account of Tramways, viz, £1,000,000 is not included in the above Statement. * £315,300 @ 4 per cent, £6,605,700 @ 3½ per cent.

APPENDIX TO REPORT ON RAILWAYS—1886.

No. 10.

RETURN showing the CAPITAL EXPENDITURE on the Government Railways of New South Wales, to the 31st December, 1885, and subsequent Expenditure to the 31st December, 1886.

Lines and Sections	Total Expenditure to 31 December, 1885	Amount Expended in 1886.	Total Expenditure to 31 December, 1886
	£ s. d.	£ s. d.	£ s. d.
Trunk Line—			
Darling Harbour Branch	200,068 8 1	29,341 8 7	229,409 16 8
City Extension	5,582 19 0	62 2 3	5,645 1 3
Sydney to Granville	1,034,453 7 0	21,936 17 10	1,056,390 4 10
Tramway	4,878 7 1		4,878 7 1
Total, Trunk Line	£ 1,244,983 1 2	51,340 8 8	1,296,323 9 10
Great Southern Line—			
Granville to Liverpool	158 515 3 7	334 4 2	158,849 7 9
Liverpool to Campbelltown	144,077 15 11	310 17 1	144 388 13 0
Campbelltown to Menangle	84,519 0 2	215 16 6	84,734 16 8
Menangle to Picton	337,314 12 1	3 7 6	337,317 19 7
Picton to Goulburn	1,129,542 1 7	11 100 14 10	1,140 642 16 5
Goulburn to Yass	441 083 11 4	661 7 8	441,744 19 0
Yass to Cootamundra	555 060 3 1	4,817 5 8	559,877 8 9
Cootamundra to North Wagga Wagga	421,161 16 11	2,617 18 11	423,779 15 10
North Wagga Wagga to Albury	802,766 16 4	2,900 2 8	805,666 19 0
Albury to the River Murray	100,271 16 9		
Excess Credit	14,485 2 3		
Juncie to Narrandera	85,786 14 6	7,163 12 7	92 950 7 1
Narrandera to Hay	354,717 2 2	486 9 9	355,203 11 11
Narrandera to Jerilderie	582,095 19 6	944 15 5	583,040 14 11
Sydney to Wollongong and Kiama	405,821 6 9	1,805 12 8	407,626 19 5
Goulburn to Cooma	918 429 12 7	379,538 7 11	1,297 968 0 6
Cootamundra to Gundagai	615,826 9 4	323,080 2 0	938 906 11 4
Murrumbidgee to Blayney	124,336 17 4	28,818 2 2	223,154 19 6
Tarago to Braidwood	496,305 6 10	333,181 3 3	829 486 10 1
Gundagai to Tumut	2,384 11 6	441 0 9	2,825 12 3
Kiama to Jervis Bay	23,194 0 8	10,417 17 3	33,611 17 11
Bega to Eden	490 9 10	2,238 4 5	2,728 14 3
Goulburn to Crookwell	1,547 8 8	3 032 11 5	4,582 0 1
Galong to Burrows	2,742 19 10	1,060 16 1	3,803 15 11
Wagga Wagga to Tumbarumba	1,015 6 9	112 16 9	1,128 3 6
Culcairn to Corowa	3 195 2 0	2,842 14 9	6,037 16 9
	862 8 7	1,578 11 5	2,441 0 0
Total, Southern Line	£ 7 762,794 17 10	1,119 704 13 7	8,882,499 11 5
Great Western Line—			
Granville to Penrith	557,487 8 5	23,865 17 1	581,353 5 6
Blacktown to Richmond	169,695 19 9	902 16 4	170,598 16 1
Penrith to Bathurst	2,092,111 6 7	19 130 14 7	2,111,242 1 2
Bathurst to Orange	393,496 8 0	7,565 0 1	401,061 8 1
Orange to Wellington	441,849 13 0	12,751 5 6	454,600 18 6
Wellington to Dubbo	232,977 7 4	2,235 2 7	235,212 9 11
Dubbo to vicinity of Bourke	1,273,840 3 7	9,902 0 2	1,283 742 3 9
Wallerawang to Mudgee	945,923 16 8	1,412 1 5	947 335 18 1
Orange to near Forbes	220,886 17 11	49 796 14 8	270,683 12 7
Perth to Rockley	1,352 6 4	873 3 5	2 225 9 9
Forbes to Wilcann a	10,747 13 9	1,189 1 8	11,936 15 5
Nyngan to Cobar	3 777 12 10	27 5 9	3,804 18 7
Total, Western Line	£ 6,344,146 14 2	129,651 3 3	6,473,797 17 5

*Reduced by £14,480 2s. 3d. Credit during 1886 as marked above—thus f.

No. 10—continued.

Lines and Sections	Total Expenditure to 31 December, 1885	Amount Expended in 1886	Total Expenditure to 31 December, 1886
	£ s. d.	£ s. d.	£ s. d.
Great Northern Line—			
Newcastle to West Maitland	658,151 17 11	15,229 18 10	673,381 16 9
Morpeth Branch	57,602 0 11	...	57,602 0 11
West Maitland to Singleton	349,142 17 7	3,161 17 6	352,304 15 1
Singleton to Murrurundi	737,895 10 0	730 15 3	738,626 5 3
Murrurundi to Tamworth	461,306 0 6	4,700 13 8	466,006 14 2
Werris Creek to Gunnedah	247,982 13 0	127 6 0	248,109 19 0
Tamworth to Uralla	945,427 6 3	928 8 5	946,355 14 8
Uralla to Glen Innes	733,212 10 11	2,019 13 9	735,232 4 8
Glen Innes to Tenterfield	670,857 9 3	92,403 18 6	763,261 7 9
Gunnedah to Narrabri	305 007 5 7	255 19 10	305,263 5 5
Homebush to Waratah	916 914 15 5	570,403 10 5	1,487,318 5 10
North Shore to S. and N. Junction Railway	4,052 2 4	64 11 10	4,116 14 2
Inverell to Glen Innes	5 339 0 10	592 16 2	5,931 17 0
South Grafton to Glen Innes	26,752 11 4	3,819 5 11	30,571 17 3
Grafton to Tweed River	2,162 18 0	4,558 18 10	6,721 16 10
Musclebrook to Cassilis	1,933 4 8	637 8 2	2,570 12 10
Tenterfield to Queensland Border	1,068 15 8	43,221 2 3	44,289 17 11
Narrabri to Morce	2,334 9 0	140 6 5	2,474 15 5
Total, Northern Line	£ 6,127,143 9 2	742,996 11 9	6,870,140 0 11
Total cost of Construction	£ 21,479,068 2 4	2,043,692 17 3	23,522,760 19 7
Rolling Stock—			
South and West	2,300,720 0 11	187,903 10 2	2,488,623 11 1
Richmond Line	5,226 1 1	.....	5,226 1 1
North	545,551 13 11	45,680 10 3	591,232 4 2
Tramway	1,712 12 3	.....	1,712 12 3
Total, Rolling Stock	£ 2,853,210 8 2	233,584 0 5	3,086,794 8 7
Machinery—			
South and West	117,576 2 7	29,453 1 1	147,029 3 8
North	23,381 11 7	6,759 1 11	30,140 13 6
Total, Machinery	140,957 14 2	36,212 3 0	177,169 17 2
Workshops—			
Redfern and Eveleigh	413,575 18 6	85,861 13 9	499,437 12 3
Furniture—			
South and West	4,722 0 6	725 19 0	5,447 19 6
North	845 15 8	2 3 5	847 19 1
Total, Furniture	£ 5,567 16 2	728 2 5	6,295 18 7
Trial Surveys	56,106 11 4	5,013 16 1	61,120 7 5
Grand total	£ 24,948,486 10 8	2,405,092 12 11	27,353,579 3 7

1 Railway vehicles were used on the Camden Line, and their value is included here.

No. 10a.

DETAIL of Cost of Additions and Improvements to Stations and Buildings, and Siding Accommodation, to meet increasing traffic, &c., charged to Capital Account during 1886.

NORTH AND NORTH-WESTERN LINE.

BULLOCK ISLAND JUNCTION AND DYKE.			<i>High-street</i> —		
Signals and interlocking, Bullock	£	s. d.	Additions for S.-m.'s house (land	£	s. d.
Island Branch	943	3 8	taken for)	65	12 3
Sidings, Bullock Island Branch ...	1,337	7 0	Gas lamps and waiting-shed		
Room to berthing-master's house	138	11 3	(down platform)	125	17 11
Buffer stops, new sidings... ..	58	13 0			
			<i>West Maitland</i> —		
			Water supply	64	4 4
			Enlarging culvert at Elgin-street..	56	2 1
			Turntable and siding	749	3 0
			10-ton crab winch... ..	15	6 2*
			Constructing new level crossing,		
			Rose-street	65	6 3
			WEST MAITLAND TO SINGLETON.		
			<i>Farley</i> —		
			Extending loading stage	545	16 6
			„ siding	75	3 4
			<i>Rutherford</i> —		
			Erecting platform	27	0 4
			<i>Belford</i> —		
			Sidings	102	3 8
			<i>Whittingham</i> —		
			Erecting distant signal	5	12 2*
			<i>Singleton</i> —		
			Refreshment-room	2,406	1 6
			SINGLETON TO MURRURUNDI.		
			<i>Glennie's Creek</i> —		
			Signals	23	13 0*
			<i>Ravensworth</i> —		
			Station-master's house	448	13 10
			<i>Musclebrook</i> —		
			Erecting weighbridge	115	9 3
			<i>Scone</i> —		
			Erecting loading stage	31	11 4*
			<i>Wingen</i> —		
			W.-c. to ladies' room	4	12 0*
			Parcel-room	3	7 6*
			Distant signal	17	12 2*
			<i>Dumaresque</i> —		
			Level-crossing and gate	22	8 3
			<i>Murrurundi</i> —		
			Refreshment-room	8	12 7*
			Constructing underground tank at		
			goods-shed	63	19 1

* Part cost only.

No. 10a—continued.			
MURRURUNDI TO TAMWORTH.			
	£	s.	d.
<i>Quirindi</i> —			
Fixing dray weigh-bridge... ..	80	6	3
„ 10-ton crane	3	2	0*
<i>Flood openings north</i>			
„ 151 miles 20 chains and 151 miles 60 chains	99	3	5
<i>Werris Creek</i> —			
Passenger station	4,033	19	5
Water supply	21	6	9*
Gas works	170	2	5
Platform lamps	20	1	0*
Signals	47	18	11
Erecting verandah to Porter's house	14	14	0*
Flood openings 154 miles 56 chains	19	5	10*
„ 154 miles 16 chains	13	12	0*
<i>Mount Terrible</i> —			
Siding 160 miles	121	7	2
<i>Currabubula</i> —			
Waiting-room	4	2	10*
<i>Tamworth</i> —			
Water supply	23	13	8
WERRIS CREEK TO GUNNEDAH.			
<i>Gap</i> —			
Flood openings 159 miles 60 chains	37	14	2*
<i>Brecza</i> —			
Flood openings 170 miles N.W....	8	9	10*
„ 173 miles 75 chains	47	14	8
„ 174 miles			
„ 175 miles 75 chains			
GUNNEDAH TO NARRABRI.			
<i>Emerald Hill</i> —			
Flood openings 204 miles 60 chains	63	10	0
Erecting fence 204 miles 60 chains	4	9	3*
<i>Flood openings N.W.</i> —			
„ 216 miles 40 chains	57	13	6
<i>Baan Baa</i> —			
Verandah to station buildings ...	11	0	6*
<i>Narrabri</i> —			
Dray weigh-bridge (fixing 10 ton)	87	4	0
TAMWORTH TO URALLA.			
	£	s.	d.
<i>Moonbi</i> —			
Erecting lamp-post and lamps ...	4	4	10*
Signalman's house 208 miles, erecting do	2	7	3*
<i>Farquharson</i> —			
Siding at Swamp Oak	36	12	9*
<i>McDonald River</i> —			
Erecting lamp-posts and amps ..	5	16	1*
<i>Walcha Road</i> —			
Making safety switches	14	15	1*
<i>Kentucky</i> —			
Additional distant signals ...	61	1	3
<i>Uralla</i> —			
Erecting loading-stage	46	18	3
URALLA TO GLEN INNES.			
<i>Kelly's Plains</i> —			
Fencing off Mr. Parrott's land ...	11	2	0*
<i>Armidale</i> —			
Plans for drying sand (traffic) ...	15	17	3*
<i>Duval</i> —			
Erecting platform, 273 miles 10 chains	32	13	7
<i>Black Mountain</i> —			
Level crossing	25	4	2
<i>Guyra</i> —			
Erecting loading-stage & approach	84	4	3
<i>Glencoe</i> —			
Additional lamps	4	11	6
GLEN INNES TO TENTERFIELD.			
<i>Deepwater</i> —			
5-ton crane	54	3	9
	£24,567 4 1		
CREDITS.			
Gatehouse, Scone	£9	3	4
	9 3 4		
	£24,558 0 4		
RICHMOND LINE.			
BLACKTOWN TO RICHMOND.			
<i>Riverstone</i> —			
Station-master's house			831 19 11
Ladies' waiting-room			63 3 5
New siding			7 13 0*
Total			£902 16 4

* Part cost only.

No. 10a—continued.

SOUTHERN LINE.

<i>Darling Harbour—</i>			<i>Summer Hill—</i>		
	£	s. d.		£	s. d.
Offices at Pier-street	2,070	15 7	Station building, platform, and waiting-shed, galvanized fence on platform	2,616	2 11
Additional sidings	11,634	15 0	Distant-signal	1 6	4*
Overbridge, William Henry-street, ironwork and masonry... ..	14,014	14 6	Water supply	196	13 7
Lamps	66	14 1	Approach road	122	2 10
Draining yard, meat-shed	139	4 11	<i>Ashfield—</i>		
Meat-shed	1,084	7 10	Drinking-fountain	11	5 1*
(Additional) wool-shed (platform) and goods-shed	186	11 4	Up-signal (advance)	38	14 3
Laying on water to wood office	11	6 6*	<i>Croydon—</i>		
W.-c. and urinals... ..	77	0 9	Interlocking	338	0 5
Laying on water to goods-shed	7	16 4*	Picket-fence	6	15 0*
Laying wood-blocks	48	1 9	Pitching and metalling road	2	3 9*
SYDNEY TO GRANVILLE.			<i>Burwood—</i>		
<i>Sydney—</i>			Extending interlocking	31	13 1
Additional siding in goods-yard ..	900	13 5	Siding	406	13 8
Interlocking apparatus	32	2 9*	<i>Strathfield—</i>		
Ash-pit and coal-stage	252	11 1	New station and platform	2,966	1 8
Water supply	28	1 8	Interlocking	1,226	16 1
Parcels office	4	9 5*	<i>Homebush—</i>		
Bolt and spike machine	464	18 8	Platform at dock siding (wall)	182	13 3
Oil store on coal-stage	28	4 4*	Fencing land	111	16 3
<i>Eveleigh—</i>			Extending siding	11	7 7*
Shed for storing signal material... ..	44	6 9	<i>Flemington—</i>		
Booking-office, awning, Ticket-office	8	10 9*	Interlocking cattle-yard	16	16 5*
Waiting-shed and platform	2,003	7 6	Water-supply yard	2	2 10*
W.-c. and urinals, Wells-street	193	15 3	Waiting-shed and ticket office	92	19 3
Bridge, Wells-street	231	7 8	<i>Rookwood—</i>		
<i>Macdonaldtown—</i>			Siding, Sydney Meat Co.... ..	139	5 8
Platform (draining)	765	9 6	<i>Sidings South—</i>		
Subway	135	15 11	Sidings, 10 miles 61 chains	3	3 3*
New station and waiting-shed	1,610	0 3	<i>Auburn—</i>		
Signals	1	17 1*	Interlocking apparatus	268	18 10
<i>Newtown—</i>			Approach road, extending siding... ..	665	10 1
Subway, Phillip-street	106	11 1	<i>Ritchie's Siding—</i>		
Interlocking apparatus	0	15 6*	Interlocking	2	15 6*
<i>Stanmore—</i>			<i>Granville—</i>		
Improvements, station, £3,002 12 8			Water supply	12	16 6*
Less amount paid by Mrs. Johnston ... 3,000 0 0			Cottage for pumper	634	17 9
			Siding and approach	124	3 9
			Closet accommodation	91	8 3
			GRANVILLE TO LIVERPOOL.		
			<i>Pottery Siding—</i>		
			Interlocking	2	5 10*
			<i>Morris Siding—</i>		
			Interlocking	6	11 4*
			<i>Merrylands—</i>		
			Interlocking	4	6 5*
			Kitchen for S.-M. house	61	10 6
			<i>Guildford—</i>		
			Interlocking	2	15 6*

* Part cost only.

		No. 10a—continued.			
		£	s. d.		£ s. d.
<i>Cabramatta</i> —				<i>Bunadoo</i> —	
Interlocking apparatus		14	15 0*	Interlocking apparatus	231 7 8
<i>Liverpool</i> —				<i>Austermere</i> —	
Additional w.c.		12	5 5*	Interlocking	317 8 8
GRANVILLE TO LIVERPOOL.					
Bridges south—part cost, 22, 23, 24 miles		229	14 2	<i>Moss Vale</i> —	
LIVERPOOL TO CAMPBELLTOWN.					
<i>Glenfield</i> —				Overbridge, Argyle-street	1,978 10 1
Interlocking		9	16 10*	Signals	7 1 6*
<i>Ingleburn</i> —				Drinking fountain	8 17 8*
Interlocking apparatus		11	5 5*	<i>Meryla</i> —	
Approach to siding		3	10 8*	Interlocking	187 12 3
<i>Minto</i> —				<i>Badgery's Siding</i> —	
Interlocking apparatus		26	16 3	Interlocking	499 19 3
<i>Holly Lea</i> —				<i>Erith</i> —	
Platform		156	12 3	Interlocking	204 6 5
<i>Campbelltown</i> —				<i>Cable's Siding</i> —	
Engine-pits		102	15 8	Interlocking	398 0 1
CAMPBELLTOWN TO MENANGLE.					
<i>Menangle</i> —				<i>Barber's Creek</i> —	
Water supply		215	16 6	Water supply	179 8 3
MENANGLE TO PICTON.					
<i>Douglas Park</i> —				<i>Morrice's Siding</i> —	
House for porter in charge		3	7 6*	Interlocking	280 15 8
PICTON TO GOULBURN.					
<i>Redbank</i> —				<i>Marulan</i> —	
Station buildings		14	14 2*	Signals	41 18 5
Fencing resumed land		4	9 4*	<i>Carrick</i> —	
<i>Bargo</i> —				Interlocking	265 7 11
Interlocking		581	10 3	<i>Towrang</i> —	
<i>Hill Top</i> —				Interlocking and signals	463 17 4
Home signals		0	2 7*	<i>Goulburn</i> —	
<i>Colo Vale</i> —				Permanent way workshops	789 1 4
Signals		0	12 0*	Additional ladies w.c.	5 9 2*
<i>Fresh Food and Ice Co's. Siding</i> —				Running-shed (additions)	1,543 15 4
Interlocking milk siding		252	19 7	Interlocking signals	1,933 16 10
<i>Mittagong</i> —				Additional siding accommodation	593 7 4
Signals		5	9 10*	Additional stop blocks	6 9 7*
W.-c. accommodation		107	3 2	Blacksmiths' shop	96 19 9
<i>Joadja</i> —				GOULBURN TO YASS.	
Interlocking		253	2 4	<i>Joppa</i> —	
<i>Bowral</i> —				Interlocking	185 1 0
Lengthening and widening plat- form		43	5 2	<i>Gunning</i> —	
Altering carriage dock		30	5 8	Cart weighbridge	134 6 11
				<i>Yass</i> —	
				Drinking fountain	9 18 1*
				Signals	96 0 2
				Wiring fence near 190'70 to 191'15	31 17 6
				Cart weighbridge	145 15 8
				Wiring fence 188'40 to 190'8	58 8 4

* Part cost only.

				No. 10a—continued.					
YASS TO COOTAMUNDRA.							<i>Junee Junction—</i>		
<i>Burrowa—</i>			£ s. d.	Improvements to gas-works ...	162	9	3	£ s. d.	
Interlocking	0	17	8*	Interlocking	598	4	4		
<i>Binalong—</i>							<i>Water supply</i>		
Interlocking and signals	51	9	9	New traffic siding... ..	3	1	6*		
<i>Galong—</i>							<i>Bath-room for Inspector... ..</i>		
Interlocking	263	9	11	Supply and laying metal, laying paving	38	10	9		
<i>Cunninggar—</i>							<i>Wiring fence, 277·28 to 285·42 ...</i>		
Interlocking	299	8	1				<i>Wagga Wagga South—</i>		
<i>Harden—</i>							<i>Drinking fountain</i>		
Additional w.-c.	9	15	5*	Interlocking stock-yards	287	2	9		
Water supply	771	16	11				<i>WAGGA WAGGA TO ALBURY.</i>		
Additional refreshment and accommodation rooms	894	5	9				<i>Connorton—</i>		
<i>Murrumburrah—</i>							<i>Interlocking</i>		
Interlocking	225	5	6				<i>Sandy Creek—</i>		
Siding	372	12	7				<i>Interlocking</i>		
Lengthening and widening platform and verandah	34	13	4				<i>Room for night officer</i>		
Widening bridge	32	5	6				<i>The Rock—</i>		
<i>Demondrille—</i>							<i>Interlocking</i>		
Approach to siding	83	15	6				<i>Stock and trucking-yards</i>		
Lengthening platform	145	9	0				<i>Yerong Creek—</i>		
Kitchen for porter-in-charge	66	4	9				<i>Interlocking</i>		
Interlocking	167	5	2				<i>Dudal Cooma—</i>		
W.-c. and urinals... ..	37	10	8				<i>Siding</i>		
Room for night officer	35	10	4				<i>Interlocking</i>		
<i>Nubba—</i>							<i>New goods-shed and door</i>		
Waiting-shed	4	11	0*				<i>Removing crossing (Mr. Kughan's (345·17) Land)</i>		
Cart weighbridge	13	19	1*				<i>New American crossing (345·68½)</i>		
Converting siding into loop	62	13	11				<i>Yambla—</i>		
Interlocking	251	4	10				<i>10-ton cart weighbridge</i>		
8 ft. culvert 236·50 and 236·60	222	11	5				<i>Interlocking</i>		
" 238·76	136	14	3				<i>Ettamogah—</i>		
" 239·31	272	17	10				<i>Interlocking</i>		
" 237·71	0	7	6*				<i>Albury—</i>		
<i>Wallendbeen—</i>							<i>Interlocking</i>		
Approach	39	11	2				<i>" Racecourse</i>		
<i>Cootamundra—</i>							<i>JUNEE TO NARRANDERA.</i>		
Extending siding	63	8	8				<i>Marrar—</i>		
Gatehouse	92	14	10				<i>Kitchen to gatehouse</i>		
" at level crossing 252·35	127	0	0				<i>Narrandera—</i>		
<i>COOTAMUNDRA TO NORTH WAGGA.</i>							<i>2 new drinking fountains</i>		
<i>Mullaly's Siding—</i>							<i>NARRANDERA TO HAY.</i>		
Interlocking	213	15	9				<i>Yanko—</i>		
<i>Cungegong—</i>							<i>Converting siding into loop</i>		
Interlocking	220	4	5				<i>Scotch blocks</i>		
<i>Bethungra—</i>							<i>Darlington—</i>		
Distant signal	42	2	11				<i>Water supply</i>		
<i>Illabo—</i>							<i>Bricking trough for watering cattle</i>		
Room for operator	7	5	2*				<i>Carrathool—</i>		
Interlocking	908	8	5				<i>Weighbridge</i>		
Wiring fence, 273·40, 274·40	22	5	11				<i>123 1 2</i>		
" 247·70, 277·30	2	5	0*						

* Part cost only.

No. 10a—continued.

NARRANDERA TO JERILDERIE.

	£	s.	d.
<i>Cuddell</i> —			
New platform	27	10	0
<i>Bundure</i> —			
Waiting-shed	66	6	1
Stock-yards	95	8	9
Signals	2	13	0*
<i>Gillembah</i> —			
New siding	10	18	9*
<i>Jerilderie</i> —			
Pitching and blending station yards	101	10	9
Weighbridge	114	2	11
GOULBURN TO COOMA.			
<i>Lake Bathurst</i> —			
Goods-shed	266	18	4
Waiting-shed and platform ...	17	7	9*
<i>Bungendore</i> —			
Drivers' quarters, &c.	39	15	8
Approach to siding	54	2	3
<i>Queanbeyan</i> —			
Weigh-bridge	128	7	2
<i>Fairy Meadow</i> —			
New platform waiting-shed ...	93	1	6

COOTAMUNDRA TO GUNDAGAI.

	£	s.	d.
<i>Muttama</i> —			
House over pumping-engine ...	25	7	4
MURRUMBURRAH TO YOUNG.			
<i>Kingsvale</i> —			
Making roadway	37	9	7
<i>Young</i> —			
Fencing paddock with barb wire, and reserve stock yards ...	306	11	7
Approach road to siding	43	6	8
	£77,195 0 4		

EXCESS CREDITS.

Stock-yards, Home-bush	£293	17	10
Dam, Mittagong	72	0	3
Interlocking colliery, Ringwood... ..	154	9	2
	520 7 3		
	£76,674 13 1		

ILLAWARRA LINE.

Starting signals, Illawarra Junction	0	17	11*	<i>Hurstville</i> —			
Instrument-table and battery boxes at station	8	14	6*	Signal lever and frame	0	3	4*
<i>St. Peter's</i> —				Weighbridge	119	10	0
Lever and frame signal	6	13	6*	Block signalling, Redfern to Hurstville	80	10	0
Wicket-gate, Goodsell-street ...	9	19	3*	<i>Oatley's</i> —			
Lighting station with gas ...	148	5	4	Signals	4	11	2*
<i>Marrickville</i> —				Siding, Steam Brick and Invest- ment Co... ..	140	15	3
Lever and frame signal	6	8	6*	<i>Como</i> —			
<i>Tempe</i> —				Lamps at station	13	11	10*
Lever and frame signal	8	3	1*	Level-crossing	60	16	4
<i>Arncliffe</i> —				<i>Laycock's</i> —			
Signal lever and frame	0	3	4*	Making platform	194	16	6
Kitchen	67	11	0	<i>Sutherland</i> —			
<i>Rockdale</i> —				Lamps at station	7	17	1*
Signal lever and frame	0	3	5*	<i>Heathcote</i> —			
Water supply	879	14	10	Slip points... ..	17	10	6*
Drinking fountain	36	1	4	Gate and approach to siding ...	18	9	8*
Water tanks	4	16	1*	<i>Waterfall</i> —			
Siding and approach	87	7	6	Waiting-shed	4	13	3*
Fencing platforms	21	18	6*	Platform to goods-shed removed from Homebush to	11	7	6*
<i>Kogarah</i> —				Signal at loop	2	12	6*
Signal lever and frame	0	3	4*	Lamps at station	0	13	6*
<i>Carlton</i> —				Siding	0	11	6*
Platform	10	16	4*		Total £1,976 7 8		

* Part cost only.

No. 10a—continued.

HOMEBUSH TO HORNSBY.

	£	s.	d.
<i>Field of Mars</i> —			
Water supply	6	5	7*
New signals	17	10	0*
<i>Dundas</i> —			
Fencing Station-master's house	13	12	3*
<i>Carlingford</i> —			
Signals	7	14	5*
Total	£45	2	3

WESTERN LINE.

GRANVILLE TO PENRITH.				£	s.	d.
<i>Parramatta</i> —						
Interlocking	97	9	0			
Slip points	14	1	5*			
<i>Westmead</i> —						
Platform	133	9	10			
<i>Wentworthville</i> —						
Interlocking	180	1	1			
<i>Seven Hills</i> —						
Station arrangements	31	12	4			
Signals	2	15	7*			
<i>Blacktown</i> —						
Station-master's house	3	0	0*			
<i>Doonside</i> —						
Interlocking signals	279	7	10			
<i>Rooty Hill</i> —						
Siding	1	0	0*			
<i>Mount Druitt</i> —						
Interlocking	237	9	8			
Porter's house	632	11	8			
<i>St. Mary's</i> —						
Extending siding	15	0	10*			
<i>Cross Roads</i> —						
Interlocking	301	10	0			
Extending siding	45	19	4			
PENRITH TO BATHURST.						
<i>Emu Plains</i> —						
Station and approach (land claim)	242	2	10			
New loop	1	5	6*			
Tar paving platform	11	18	0*			
<i>Blaxland</i> —						
Interlocking	12	2	11*			
<i>Lapstone</i> —						
Improving grades, Zig Zag	763	15	7			
Interlocking	4	16	1*			
Extending dead end	383	16	4			
<i>Springwood</i> —						
Improving line, Glenbrook to	78	12	1			
Tanks and gate-houses, Penrith to	18	14	0*			
Siding	13	1	10*			
Station-master's house	1,029	3	0			
<i>Faulconbridge</i> —				£	s.	d.
Station buildings (platform)	67	12	0			
Interlocking	17	12	7*			
<i>Linden</i> —						
Water supply	112	10	3			
<i>Wentworth Falls</i> —						
Lengthening platform	64	15	8			
Siding and converting siding into loop	13	0	5*			
<i>Gladstone</i> —						
Interlocking apparatus	3	8	0*			
<i>Katoomba</i> —						
Signals interlocking	9	15	7*			
New siding	1,758	9	10			
<i>Medlow</i> —						
Interlocking	11	4	3*			
<i>Blackheath</i> —						
Goods-shed	2	12	0*			
Water-supply tanks, new dam	1,232	10	11			
Approach to goods-shed	17	10	0*			
Station-master's house	164	18	10			
<i>Mount Victoria</i> —						
Additions to passenger station	1,123	12	5			
Trucking yards, additions	23	9	6*			
<i>Hartley Vale</i> —						
Interlocking apparatus, Hartley Vale Co.'s siding	67	1	2			
Interlocking main camp siding	15	12	11*			
<i>Mount Wilson</i> —						
New siding	1,334	16	11			
<i>Vale of Clwydd</i> —						
Up distant signal	8	4	0			
<i>Esk Bank</i> —						
Siding	842	13	7			
Siding and coal stage	2,020	11	7			
Additional w.-c. accommodation	54	11	1*			
Interlocking	3	15	7*			
Water supply	539	1	3			
Engine-shed, ashpits	405	3	2			
Fencing S.-m. house	52	15	4			

* Part cost only.

No. 10a—continued.

		£	s.	d.			£	s.	d.
<i>Lithgow—</i>					<i>Huntley—</i>				
Interlocking, bottom pts. Zig Zag	...	319	16	10	Fencing Commissioner's land	...	28	0	10*
Lowering line, do	...	467	17	9	Siding	...	39	6	7
Safety siding, Zig Zag	...	44	9	6	<i>Orange—</i>				
Water supply, bottom points	...	7	13	0*	Weighbridge and office	...	67	13	1
<i>Bowenfels—</i>					Station-master's house	...	205	14	1
Interlocking	...	371	11	1	Water supply	...	1,269	2	8
<i>Wallerawang—</i>					Footbridge	...	4	7	6*
Interlocking	...	12	9	4*	New siding	...	546	8	7
Additional water-way	...	489	4	8	Turntable	...	0	7	0*
<i>Sodwalls—</i>					Loading stage at Racecourse Gate and approach	...	53	13	9
Interlocking	...	12	2	4*	ORANGE TO WELLINGTON.				
<i>Tarana—</i>					<i>Lawrence—</i>				
5-ton crane	...	213	15	7	Interlocking	...	9	17	9*
<i>Brewongle—</i>					<i>Mullion Creek—</i>				
Additions to s.-m. house	...	124	11	3	Room for night officer	...	59	0	7
<i>Raglan—</i>					<i>Kerr's Creek—</i>				
Interlocking	...	21	16	11*	W.-c. and urinals...	...	20	14	6*
<i>Bathurst—</i>					<i>Warne—</i>				
Additions ladies, waiting-room	...	5	1	4*	House for porter in charge	...	33	11	10
Gas to engine-shed, &c.	...	290	4	8	<i>Store Creek—</i>				
Combined fire and loco. tanks	...	708	8	9	Water supply	...	75	19	5*
Water supply foundations for water cranes...	...	21	6	0*	Signals	...	29	15	6
Blacksmiths' shops, &c. (loco. shops)	...	445	7	9	Station crossing	...	9	16	6*
Carriage-shed	...	627	13	2	Siding and approach	...	139	6	5
Approach to station	...	2	11	2*	<i>Mumbil—</i>				
Additions to foundry	...	146	10	11	Fencing station	...	5	11	6*
Machinery to per.-way shops	...	9	9	3*	Station crossing, level crossing	...	129	11	3
Coal stage	...	2,118	2	10	Signals	...	11	14	7*
Machinery, new loco. shops	...	18	7	10*	Loading stage (approach to)	...	18	15	0*
Baths	...	2	13	4*	Room for night officer	...	66	10	6
Overbridge (land taken)	...	467	5	0	Ladies room	...	90	10	8
BATHURST TO ORANGE.					Lengthening siding (dead end siding)	...	14	2	7*
<i>Perth—</i>					Goods-shed	...	20	9	6
Improving loading stage...	...	51	5	8	<i>Burrandong—</i>				
<i>Wimbledon—</i>					Platform	...	246	6	5
Additions to station	...	25	13	5*	<i>Springs—</i>				
House for porter in charge	...	673	16	5	Porter's house, house for night officer...	...	169	16	6
<i>Blayney—</i>					<i>Wellington—</i>				
Station-master's house (insp.)	...	894	19	11	Drivers' barracks	...	142	16	6
<i>Millthorpe—</i>					Alterations to signals	...	8	8	7*
Station buildings (platform)	...	2,581	18	10	Water supply, enlargement of dam	...	245	19	9
Signals and siding	...	439	7	11	Coal stage and siding	...	1,215	7	7
New stock-yards	...	103	9	4	Refreshment and accommodation rooms...	...	5,128	14	2
Alterations to station-yards	...	6	18	5*	Engine-shed and pit	...	4,883	14	9
<i>Springhill—</i>					Overbridge	...	3	3	0*
New station, asphaltting platform	...	105	9	9	Extending yard	...	16	18	11*

* Part cost only.

No. 11.

STATEMENT showing the COST OF CONSTRUCTION and COST PER MILE open on different Sections of the Railway Lines, to 31st December, 1886.

Lines opened for Traffic	Length in Miles	Total Cost.	Cost per Mile.
	No.	£	£
Darling Harbour Branch	1	229,410	229,410*
Sydney to Granville	13	1,049,931	80,764*
Haslem's Creek Branch	$\frac{1}{2}$	6,459	12,918
Granville to Wodonga ..	374 $\frac{1}{2}$	4,189,953	11,188
Juncce to Hay	167	938,244	5,618
Narrandera to Jerilderie ..	65	407,627	6,271
Granville to Bourke	490	5,067,213	10,341
Wallerawang to Mudgee	85	947,336	11,145
Blacktown to Richmond	16	170,599	10,662
Goulburn to Bungendore ..	40	440,000	11,000
Cootamundra to Gundagai ..	34	223,155	6,562
Orange to Molong ..	22	191,620	8,710
Murrumburrah to Cowra ..	61	500,000	8,197
Sydney to Waterfall	24	360,000	15,000
Newcastle to Tenterfield ..	380	4,614,081	12,142
Werris Creek to Narrabri ..	97	553,373	5,705
Bullock Island Branch	1 $\frac{1}{2}$	61,088	40,725†
Morpeth Branch ..	4	57,602	14,400
Strathfield to Hornsby	14	297,288	21,236
Average cost of construction	1,889 $\frac{1}{2}$	20,304,979	10,746
Pitt-street Tramway		£ 4,678	
Rolling Stock		3,086,794	
Machinery		177,170	
Workshops—Redfern and Eveleigh ..		499,438	
Furniture		6,296	
		3 774 576	
Average cost per mile, including all charges	1,889 $\frac{1}{2}$	24,079,555	12 74†

In rolling stock the cost of the Carriages and Waggon's used on the Camden Line is included, as the vehicles were those originally provided for Railway service. Total value of stock so used, £3,223.

* Between Sydney and Granville, including the Darling Harbour Branch, there are 5 $\frac{1}{2}$ miles of sidings, the cost of which is included in the amounts shown

† On the Bullock Island Branch there are 8 $\frac{1}{2}$ miles of sidings, the cost of which is included.

No. 12.

TABLE showing the number of MILES OPENED per annum, and the annual and average daily MILEAGE of TRAINS, from the commencement, on 26th September, 1855, to 31st December, 1886.

Year.	Opened per annum	Total opened	Total Train Mileage	Average Daily Mileage
1855	14	14	14,107	147
1856	9	23	68,371	187
1857	17	40	107,822	295
1858	15	55	141,495	388
1859	Nil	55	147,618	404
1860	15	70	179,249	491
1861	3	73	214,881	589
1862	24	97	274,565	752
1863	27	124	315,177	863
1864	19	143	415,422	1,138
1865	Nil	143	483,446	1,324
1866	Nil	143	490,475	1,344
1867	61	204	600,751	1,646
1868	43	247	768,529	2,106
1869	71	318	893,552	2,448
1870	21	339	901,139	2,469
1871	19	358	931,333	2,552
1872	40	398	1,036,255	2,839
1873	5	403	1,109,879	3,041
1874	Nil	403	1,249,233	3,423
1875	34	437	1,472,204	4,033
1876	72	509	1,688,964	4,627
1877	89	598	2,106,802	5,772
1878	90 $\frac{1}{2}$	688	2,655,176	7,274
1879	46	734	2,932,463	7,572
1880	115	849	3,239,472	8,871
1881	146	995	3,923,920	10,750
1882	273	1,268	4,851,127	13,291
1883	52	1,320	5,937,261	16,266
1884	298	1,618	6,403,041	17,543
1885	114	1,732	6,638,399	18,197
1886	157	1,889 $\frac{1}{2}$	6,479,265	17,752

An average length of 59 miles opened per annum.

No. 13.

RETURN of EARNINGS from Traffic in Passengers and Goods during year 1886.

Year and Name of Railway.	Miles open for Traffic.	Gross Earnings from Coaching.							Gross Earnings from Goods.						Gross Earnings from all sources.	
		Passengers.			Excess-Luggage, Parcels, Cloak Room, Horses, Carriages, and Dogs.	Mails.	Miscellaneous.	Total from Coaching.	Live Stock.	Minerals.	Wool.	General Merchandise.	Miscellaneous.	Total from Goods.		
		1st and 2nd Class Passengers.	Holder's of Season Tickets	Total from Passengers.												
1886.		£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
South and West	1,407	554,510 2 11	49,363 1 8	603,873 4 7	54,507 11 1	37,555 19 0	11,038 0 5	707,274 15 1	164,792 5 0	61,751 13 6	122,117 11 1	652 595 11 8	3,830 0 5	1,005,087 1 8	1,712,361 16 9	
North	489½	103,750 9 9	2,760 5 6	106,510 15 3	16,325 4 10	13,131 18 8	5,999 15 8	141,977 14 5	24,956 12 11	78,349 9 6	43,661 6 9	156,674 0 7	2,088 15 4	395,730 5 1	447,707 19 6	
Total	1 889½	658,260 12 8	52,123 7 2	710,383 19 10	70,842 15 11	50,987 17 8	17,037 16 1	849,252 9 6	189,748 17 11	140,101 3 0	165,778 17 10	809,269 12 3	5,918 15 9	1,310,817 6 9	2,160,069 16 3	
1885.																
South and West	1,307	557,301 14 10	43,000 3 5	600,301 18 3	54,283 7 2	23,764 10 0	12,958 1 8	691,307 17 1	136,891 13 9	63,005 14 10	126,418 7 2	685,141 14 3	4,207 10 7	1,015,665 0 7	1,706,972 17 8	
North	425½	107,340 7 0	1,979 9 9	109,319 16 9	16,278 18 10	8,528 0 0	5,469 3 5	139,595 19 0	22,398 19 3	77,603 6 5	38,330 14 5	187,630 9 11	1,875 17 4	327,799 7 4	467,395 6 4	
Total	1,732½	664,642 1 10	44,979 13 2	709,621 15 0	70,562 6 0	32,292 10 0	18,427 5 1	830,903 16 1	159,290 13 0	140,609 1 3	164,749 1 7	872,822 4 2	6,083 7 11	1,343,464 7 11	2,174,368 4 0	
Increase	1886	157	7,143 14 0	762 4 10	280 9 11	18,695 7 8	.....	18,348 13 5	30,548 4 11	.....	1,029 16 3	.....	.....	.....	.....
Decrease	1886	.....	6,381 9 2	.....	.....	.....	.....	.....	.....	507 18 3	.....	63,552 11 11	164 12 2	32,647 1 2	14,298 7 9

APPENDIX TO REPORT ON RAILWAYS--1886.

No. 14.

RETURN of TRAFFIC in Passengers and Goods, the number of Trains run, and the number of miles travelled by Trains, 1886.

Year and Name of Railway.	Miles open for Traffic.	Coaching Traffic.							Goods Traffic.							Number of Trains.			Number of miles travelled by Trains.				
		Passengers.				Carriages.	Horses conveyed in Passenger Trains.	Dogs.	Horses conveyed in Goods Trains.	Cattle.	Sheep.	Pigs.	Mineral.	Wool.	General Merchandise.	Passenger.	Goods.	Total.	Passenger.	Goods.	Total Train miles.	Ballasting, Shunting, &c.	Total.
		First Class.	Second Class.	Total 1st and 2nd Class.	Season Tickets.																		
1886.		No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	Tons.	Bales.	Tons.	No.	No.	No.	No.	No.	No.	No.	No.
South and West...	1407	4,771,279	8,976,572	13,747,851	23,519	2,698	8,003	13,638	7,835	108,799	1,564,943	20,153	333,883	239,743	938,240	78,458	39,656	118,114	2,328,181	2,909,897	5,238,078	1,295,572	6,533,650
North	482½	265,571	868,182	1,133,753	1,030	967	2,516	3,401	2,231	23,909	389,219	13,658	1,649,194	84,203	162,519	10,737	23,035	33,772	436,790	804,397	1,241,187	492,551	1,733,738
Total	1889½	5,036,850	9,844,754	14,881,604	24,549	3,665	10,519	17,039	10,066	132,708	1,954,162	33,811	1,983,077	323,946	1,100,759	89,195	62,691	151,886	2,764,971	3,714,294	6,479,265	1,788,123	8,267,388
1885.																							
South and West...	1307	4,195,530	8,271,803	12,467,333	21,279	3,709	8,512	14,014	8,121	91,789	1,663,173	15,137	336,390	276,694	955,351	73,553	40,066	113,619	2,261,985	3,064,613	5,326,598	1,126,313	6,452,911
North	425½	243,686	795,327	1,039,013	964	1,119	2,629	3,553	2,148	26,587	297,601	16,399	1,660,158	84,424	184,373	9,928	34,455	44,383	442,460	869,341	1,311,801	493,003	1,804,804
Total	1732½	4,439,216	9,067,130	13,506,346	22,243	4,828	11,141	17,567	10,269	118,376	1,960,774	31,536	1,996,548	361,118	1,139,724	83,481	74,521	158,002	2,704,445	3,933,954	6,638,399	1,619,316	8,257,715
Increase, 1886...	157	597,634	777,624	1,375,258	2,306	...	...	...	...	14,332	...	2,275	...	...	...	5,714	...	...	60,526	...	...	168,807	9,673
Decrease, 1886...	...	...	...	...	...	1,163	622	528	203	...	6,612	...	13,471	37,172	38,965	...	11,830	6,116	...	219,660	159,134	...	...

No. 17.

CAMDEN TRAMWAY.

RETURN of EARNINGS from Traffic in Passengers and Goods during the year 1886.

Year.	Miles open for Traffic.	Gross Earnings from Coaching Traffic.						Gross Earnings from Goods Traffic.					Gross Earnings from these Sources.
		Passengers.			Excess-Luggage, Parcels, Cloak-room, Horses, Carriages, and Dogs.	Mails.	Total from Coaching.	Live Stock.	Minerals.	Wool.	General Merchandise.	Total from Goods.	
		1st and 2nd Class Passengers.	Holders of Season Tickets.	Total from Passengers.									
1886	7½	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1885	7½	1,217 2 7	3 8 4	1,220 10 11	486 13 2	140 0 0	1,847 4 1	60 15 0	5 14 0	14 8 0	1,804 13 2	1,885 10 2	3,732 14 3
Increase, 1886 .....	.....	.....	3 8 4	.....	7 8 3	44 0 0	.....	11 18 0	1 13 4	5 16 6	.....	.....	.....
Decrease, 1886 .....	.....	75 6 9	.....	71 18 5	.....	.....	20 10 2	.....	.....	.....	70 5 7	50 17 9	71 7 11

RETURN of the TRAFFIC in Passengers and Goods, the number of Trains run, and the number of miles travelled by Trains, 1886.

Year.	Miles open for Traffic.	Coaching Traffic.							Goods Traffic.							Number of Trains.			Number of miles travelled by Trains.				
		Passengers.				Carriages.	Horses conveyed in Passenger Trains.	Dogs.	Horses conveyed in Goods Trains.	Cattle.	Sheep.	Pigs.	Minerals.	Wool.	General Merchandise.	Passenger.	Goods.	Total.	Passenger.	Goods.	Total Train miles.	Ballasting, Shunting, &c.	Total.
		First Class.	Second Class.	Total 1st and 2nd Class.	Season Tickets.																		
1886	7½	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	Tons.	Bales.	Tons.	No.	No.	No.	No.	No.	No.	No.	No.	
1885	7½	4,291	21,067	25,358	8	30	106	85	69	501	1,805	1,101	76	144	14,066	825	2,110	2,935	12,274	10,695	22,969	6,976	29,945
Increase, 1886 .....	.....	112	.....	.....	8	.....	.....	18	12	186	1,071	.....	61	105	82	.....	174	.....	425	.....	.....	765	164
Decrease, 1886 .....	.....	.....	615	503	.....	6	42	.....	.....	.....	.....	902	.....	.....	.....	461	.....	287	.....	1,026	601	.....	.....

RETURN of Working Expenses and Rolling Stock, during the year 1886.

Year.	Miles open for Traffic.	Locomotive Power.	Carriage and Wagon repairs.	Maintenance and Renewal of Way.	Traffic Charges.	Compensation.	General Charges.	Total Working Expenses.	Total Earnings.	Net Earnings.	Proportion per cent. of Expenditure to total Earnings.	Rolling Stock on 31 December.			
												Engines.	Cars.	Trucks.	Total.
1886	7½	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	59.84	2	2	Railway Stock used.	4
1885	7½	858 19 2	58 1 2	898 17 7	374 17 9	20 0 0	23 3 0	2,233 18 8	3,732 14 3	1,498 15 7	64.77	2	2	.....	4
Increase, 1886 .....	.....	.....	.....	126 7 3	.....	3 5 0	.....	.....	.....	158 18 1	.....	.....	.....	.....	.....
Decrease, 1886 .....	.....	49 2 9	129 1 8	.....	93 18 11	.....	87 14 11	230 6 0	71 7 11	.....	4.93	.....	.....	.....	.....

No. 17—continued.
CAMDEN TRAMWAYS.

List and condition of Locomotives on 31st December, 1886.

Stock No.	Makers' Names.	Makers' No.	Class.	Description.	Cylinders.			No. of wheels on Engine.	Coupled or Single wheels.	Diameter of Wheels.			Commenced to run.	Condition.			
					Position.	Diameter.	Length of Stroke.			Leading.	Driving.	Trailing.					
292	Manning, Wardle, & Co.....	918	Passenger ...	Tank Engine	inside ...	inches. 12	inches. 17	6	All coupled	ft. 3	in. 0	ft. 3	in. 0	ft. 3	in. 0	July, 1884.....	In fair order.
293	Do	919	do ...	do	do ...	12	17	6	do	3	0	3	0	3	0	do	do

WEIGHT of Locomotive Engines and Tenders, Empty and Loaded.

No. of Engine.	Empty.				In Steam.				Remarks.
	Leading.	Driving.	Trailing.	Total.	Leading.	Driving.	Trailing.	Total.	
292 } 293 }	tons cwt. qrs. 4 19 3	tons cwt. qrs. 4 17 0	tons cwt. qrs. 4 16 2	tons cwt. qrs. 14 13 1	tons cwt. qrs. 5 14 2	tons cwt. qrs. 5 17 2	tons cwt. qrs. 6 6 2	tons cwt. qrs. 17 18 2	No Tenders.

RETURN of Rolling Stock on hand on 31st December, 1886.

	Tank Engines.	Composite carriages.	Total.
Totals, 31st December, 1885	2	2	4
Received during 1886 .....	.....	.....	.....
Total to 31st December, 1886.....	2	2	4
Increase .....	.....	.....	.....
Decrease .....	.....	.....	.....

NOTE.—The Goods Rolling Stock in use on the Camden Tramway is borrowed from the Railways.

WEIGHT of Locomotive Engines and Tonnage carried during the year 1886.

No. of Engine.	Weight of Engine and Tender for whole journey.	Mileage of each Engine and Tender.	Total tons carried.
	Tons. cwt. qrs.		
292	16 16 3	14,228	239,564
293	16 16 3	15,717	264,635
Total	33 13 2	29,945	504,199
Average	16 16 3	14,972	252,099

No. 18.

MOTORS received during the year 1886.

No.	Description of Motor.	Diameter and position of Cylinders.	Diameter of Wheels.			Coupled or Single.	Length of Stroke.	Wheel Base.	Maker's Name.	Commenced to run.
			Lead-ing.	Driv-ing.	Trail-ing.					
97	4 Wheels ...	Horizontal, 10" dia-meter.	ft. in. 2 6	ft. in. 2 6	ft. in.	Coupled...	ft. in. 1 4	ft. in. 6 0.	Thos. Wearne..	1886. 10 February.

No. 19.

LIST OF TRAMWAY ROLLING STOCK (exclusive of Motors) received during the year 1886.

Description and Class.	Nos.	Name of Maker.	Carrying capacity.	Weight.	Diameter of Wheels.	No. of Wheels.	Commenced to run.
Cars, single deck (sliding doors), C I	108 & 109	Stansfield & Carey	Passengers. 60	5 tons ...	ft. in. 2 0	8	1886. 26 January.
Do do	C I 110 & 111	do ...	60	5 do ...	2 0	8	13 March.
Do do	C I 112 & 113	do ...	60	5 do ...	2 0	8	15 April.
Do do	C I 114 & 115	do ...	60	5 do ...	2 0	8	8 June.
Do do	C I 116 & 117	do ...	60	5 do ...	2 0	8	10 June.
Do do	C I 118	do ...	60	5 do ...	2 0	8	28 August.
Do do	C I 119	Hudson Brothers, under Messrs. Basting's and Duncan's Contract.	60	5 do ...	2 0	8	24 July.
Do do	C I 120 & 121	do ...	60	5 do ...	2 0	8	31 July.
Do do	C I 122 & 123	do ...	60	5 do ...	2 0	8	7 August.
Do do	C I 124	do ...	60	5 do ...	2 0	8	13 August.
Do do	C I 125	do ...	60	5 do ...	2 0	8	21 August.
Do do	C I 126, 127, 128	do ...	60	5 do ...	2 0	8	2 October.

No. 20.

TOTAL number of Miles run by each Motor during the year 1886.

No. of Motor.	Number of Miles run.	No. of Motor.	Number of Miles run.	No. of Motor.	Number of Miles run.	No. of Motor.	Number of Miles run.
1	m. 18,424	26	m. 18,137	51	m. 18,227	76	m. 7,181
2	16,503	27	.....	52	8,672	77	27,253
3	22,119	28	3,499	53	16,114	78	20,064
4	15,962	29	.....	54	18,928	79	28,469
5	21,468	30	.....	55	5,433	80	21,725
6	27,491	31	8,704	56	17,032	81	27,149
7	11,205	32	5,411	57	13,439	82	21,695
8	23,981	33	4,222	58	23,627	83	25,926
9	14,594	34	.....	59	14,812	84	27,376
10	20,067	35	13,449	60	17,206	85	19,861
11	... ..	36	11,977	61	21,557	86	22,812
12	34,074	37	8,640	62	22,549	87	25,333
13	.....	38	19,574	63	21,403	88	26,504
14	40,447	39	3,227	64	23,207	89	19,978
15	.....	40	15,947	65	26,040	90	13,124
16	.....	41	3,264	66	23,408	91	29,064
17	.....	42	3,439	67	27,516	92	29,931
18	11,719	43	6,354	68	16,853	93	21,223
19	12,623	44	21,984	69	16,170	94	24,403
20	1,989	45	20,244	70	12,499	95	25,176
21	1,909	46	21,487	71	10,064	96	23,096
22	5,435	47	11,651	72	9,639	97	3,918
23	16,295	48	25,652	73	8,724	Grand total.	} 1,481,554
24	3,043	49	21,055	74	6,625		
25	13,786	50	Unserviceable.	75	7,595		

No. 21.

WORKING EXPENSES.

SCHEDULES of Expenditure in Revenue Account, during the year ending 31 December, 1886.

Schedules.	South, Western, and Richmond.	Northern.	Total.
LOCOMOTIVE BRANCH.			
GENERAL EXPENSES.			
Schedule No.	£ s. d.	£ s. d.	£ s. d.
1. Superintendence and office expenses	30,946 1 3	8,824 7 10	39,770 9 1
2. Repairs of offices, workshops, and buildings	829 19 11	206 12 5	1,036 12 4
3. Renewals of do do do	2,284 18 0	3 2 7	2,288 0 7
4. Repairs of machinery, tools, and implements	7,220 1 2	1,846 2 1	9,066 3 3
5. Renewals of machinery	313 12 7	224 6 6	537 19 1
6. Lighting buildings and depôts	2,669 7 10	252 14 3	2,922 2 1
7. Casualties	2,252 4 0	3 11 9	2,255 15 9
8. Sundries.....	5,058 6 1	1,142 14 0	6,201 0 1
RUNNING EXPENSES.			
10. Wages of enginemen and firemen	118,349 2 8	24,926 19 5	143,276 2 1
11. Wages of cleaners, fuelmen, and shed labourers	41,848 2 3	8,409 8 1	50,257 10 4
12. Fuel	34,852 9 2	14,462 8 2	49,314 17 4
13. Running stores, exclusive of fuel	19,027 3 5	3,310 4 3	22,337 7 8
14. Cleaners' stores.....	4,929 18 10	871 7 8	5,801 6 6
15. Water supply	14,124 17 11	2,650 18 7	16,775 16 6
16. Renewals for water supply	1,978 16 0	283 0 5	2,261 16 5
REPAIRING EXPENSES.			
20. Repairs of engines	64,231 0 9	11,451 14 7	75,682 15 4
21. Renewals of engines.....	14,202 10 11	11,847 14 9	26,050 5 8
22. Improvements to engines.....	420 3 8	0 5 4	420 9 0
23. Casualties	958 13 0	46 14 11	1,005 7 11
CARRIAGES.			
30. Repairs of carriages.....	19,338 1 3	7,219 14 0	26,557 15 3
31. Renewals of carriages	9,578 4 6	495 19 4	10,074 3 10
32. Improvements to carriages	3,052 8 5	0 15 8	3,053 4 1
33. Casualties	340 11 10	11 14 7	352 6 5
WAGGONS.			
40. Repairs to waggons	17,679 15 10	5,393 14 2	23,073 10 0
41. Renewals of waggons	18,434 15 0	2,356 9 5	20,791 4 5
42. Improvements to waggons	2,428 2 2	383 5 7	2,811 7 9
43. Casualties	308 3 4	70 12 1	378 15 5
Total, Locomotive Branch	£ 437,657 11 9	106,696 12 5	544,354 4 2
PERMANENT WAY BRANCH.			
GENERAL EXPENSES.			
50. Superintendence and office expenses	32,270 7 4	6,670 1 10	38,940 9 2
51. Repairs of offices, workshops, and buildings.....	207 2 1	5 19 0	213 1 1
52. Renewals of do do	233 2 7	32 19 11	266 2 6
53. Repairs of machinery and tools and implements.....	3,668 11 6	1,004 7 7	5,272 19 1
54. Renewals of machinery	213 1 2	.....	213 1 2
55. Lighting workshops and buildings.....	62 12 8	205 3 4	267 16 0
56. Casualties	459 19 0	108 14 7	568 13 7
57. Sundries.....	6,272 7 6	212 19 2	6,485 6 8
MAINTENANCE.			
60. Repairs of line, sidings, &c.....	161,971 14 6	44,814 14 9	206,786 9 3
61. Renewal of ditto	54,740 9 10	7,325 9 9	62,065 19 7
62. Repairs of station buildings, platforms, gate-houses, wharves, signals, &c.....	11,409 10 3	4,271 8 8	15,680 18 11
63. Renewals of station buildings, platforms, gatehouses, wharves, signals, &c.....	10,369 12 10	506 16 11	10,876 9 9
64. Repairs of tunnels, viaducts, bridges, culverts, gates, fences, &c.	19,706 19 5	4,215 17 1	23,922 16 6
65. Renewals of tunnels, viaducts, bridges, culverts, gates, fences, &c.	56,540 0 11	572 16 0	57,112 16 11
66. Slips and flood repairs	2,676 19 6	1,021 6 10	3,698 6 4
Total, Permanent Way Branch	£ 360,802 11 1	71,568 15 5	432,371 6 6

No. 21—continued.

Schedules.	South, Western, and Richmond.	Northern.	Total.
	£ s. d.	£ s. d.	£ s. d.
TRAFFIC BRANCH.			
GENERAL EXPENSES.			
Schedule No.			
70. Management and office expenses.....	49,905 16 11	25,398 17 1	75,304 14 0
71. Wages of signalmen, switchmen, gatekeepers, &c.	21,252 1 11	12,470 7 11	33,722 9 10
72. Greasing and oiling goods and passenger stock	7,786 13 7	3,231 10 9	11,018 4 4
73. Line telegraphs	25,481 15 5	6,978 17 11	32,460 13 4
74. Repairs of station furniture, fittings, and implements (includes cranes and weighing machines)	2,112 5 8	335 19 8	2,448 5 4
75. Renewals of station furniture, fittings, and implements (includes cranes and weighing machines).....	8,229 7 11	1,106 10 1	9,335 18 0
76. Fuel and lighting (includes lamps, gas, &c.).....	17,414 12 5	3,718 10 2	21,133 2 7
77. Casualties	116 11 1	182 0 10	298 11 11
78. Sundries	13,460 5 3	3,837 18 6	17,298 3 9
COACHING CHARGES.			
80. Wages of clerks, guards, conductors, porters, &c.....	67,824 10 5	10,357 19 3	78,182 9 8
81. Compensation for personal injury	5,827 5 7	845 5 0	6,672 10 7
82. Sundries	570 19 6	672 10 5	1,243 9 11
GOODS CHARGES.			
90. Wages of clerks, guards, wharfingers, porters, &c.	93,061 1 0	27,533 7 9	120,594 8 9
91. Compensation for loss of, or damage to, goods.....	834 6 3	136 1 3	970 7 6
92. Steam cranes and staiths	258 8 9	14,322 16 3	14,581 5 0
93. Repairing tarpaulins.....	1,621 8 9	781 14 8	2,403 3 5
94. Renewing tarpaulins.....	1,669 3 11	983 1 0	2,652 4 11
95. Sundries.....	7,450 0 6	373 16 6	7,823 17 0
Total, Traffic Branch.....£	324,876 14 10	113,267 5 0	438,143 19 10
GENERAL CHARGES.			
100. Proportion of general establishment	10,978 13 1	3,614 7 0	14,593 0 1
101. Auditing.....	7,354 5 8	2,742 15 8	10,097 1 4
102. Store expenses	4,325 17 9	1,099 6 7	5,425 4 4
103. Office expenses and contingencies	1,814 6 6	243 0 0	2,057 6 6
104. Advertising and stationery, printing, &c.	895 18 11	71 5 3	967 4 2
105. Holidays.....	26,793 15 0	6,720 13 3	33,514 8 3
106. Half-pay.....	922 4 11	426 3 2	1,348 8 1
107. Compensation	272 2 0	1,987 10 2	2,259 12 2
108. Sundries.....	6,101 3 10	1,759 1 10	7,860 5 8
Total, General Charges.....£	59,458 7 8	18,664 2 11	78,122 10 7
Grand total, Working Expenses	£1,182,795 5 4	310,196 15 9	1,492,992 1 1

SUMMARY OF EXPENDITURE—1886.

	£	s.	d.
Locomotive branch	544,354	4	2
Permanent way branch	432,371	6	6
Traffic branch	438,143	19	10
General charges	78,122	10	7
	£1,492,992	1	1
*Expenses of Royal Commission 'o Railway Bridges, temporarily charged to working expenses pending report and decision thereon	1,634	13	0
Total Expenditure	£1,494,626	14	1

* Expenses of Royal Commission, 1884	£1,799	14	0
" " " 1885	2,964	5	9
" " " 1886	1,684	13	0
Total.....	£6,388	12	9

No. 22.

ABSTRACT of the amount of WORKING EXPENSES on the different Lines during 1885 and 1886, and Increase and Decrease in 1886.

Hheads of Expenditure.	1885.			1886.			Increase.			Decrease.		
	South and West.	North.	Total.	South and West.	North.	Total.	South and West.	North.	Total.	South and West.	North.	Total.
	£	£	£	£	£	£	£	£	£	£	£	£
Locomotive power and repairing engines	359,447	81,703	432,150	358,250	89,395	447,645	7,803	7,692	15,495	.....	.....	.....
Carriage and waggon repairs	60,109	13,179	73,288	79,408	17,301	96,709	19,299	4,122	23,421	.....	.....	.....
Maintenance and renewal of way	360,351	74,296	434,647	360,802	71,569	432,371	451	.....	451	.....	2,727	2,727
Traffic charges	304,498	108,090	412,588	318,215	112,286	430,501	13,717	4,196	17,913	.....	.....	.....
Compensation, personal	6,896	210	7,106	5,827	846	6,673	.....	636	636	1,069	.....	1,069
Compensation, goods	890	185	1,075	834	136	970	.....	.....	.....	56	49	105
Miscellaneous	69,033	28,266	97,299	59,459	18,664	78,123	.....	.....	.....	9,574	9,602	19,176
Total	1,152,224	305,929	1,458,153	1,182,795	310,197	1,492,992	41,270	16,646	57,916	10,699	12,378	23,077

8-11

No. 23.

TRAMWAYS—CITY AND SUBURBAN.

WORKING EXPENDITURE of City and Suburban Tramways during the Year ending 31 December, 1886.

LOCOMOTIVE BRANCH.		£	s.	d.	Locomotive Branch, brought forward		£	s.	d.
GENERAL EXPENSES.					117,937	1	6		
Schedule No.					<i>Per. Way Branch, brought forward.....</i>				
1.	Superintendence and office expenses ...	6,884	14	1	1,268 15 3				
2.	Repairs of offices, workshops, and buildings	541	13	5	PERMANENT WAY BRANCH—contd.				
3.	Renewals of offices, workshops, and buildings.....	10	1	0	MAINTENANCE.				
4.	Repairs of machinery, tools, and imple- ments.....	1,760	18	3	Schedule No.				
5.	Renewals of machinery.....	19	10	9	60.	Repairs of line, sidings, &c.	24,712	2	5
6.	Lighting buildings and depôts.....	2,253	9	6	61.	Renewal of line, sidings, &c.	5,189	16	5
7.	Casualties ..	339	14	11	62.	Repairs of station buildings, platforms, gate-houses, wharves, signals, &c. ...	71	18	6
8.	Sundries	333	7	8	63.	Renewals of station buildings, platforms, gate-houses, wharves, signals, &c. ...	61	17	7
RUNNING EXPENSES.					64.	Repairs of tunnels, viaducts, bridges, culverts, gates, fences, &c.	7	12	7
10.	Wages of enginemmen and firemen	34,856	8	9	65.	Renewals of tunnels, viaducts, bridges, culverts, gates, fences, &c.	28	12	3
11.	Wages of cleaners, fuelmen, and shed labourers	10,542	0	10	Total, Permanent Way Branch ...£				
12.	Fuel	11,504	0	1	31,340 15 0				
13.	Running stores, exclusive of fuel	2,248	7	4	TRAFFIC BRANCH.				
14.	Cleaners' stores	739	4	4	GENERAL EXPENSES.				
15.	Water supply	327	1	8	70.	Management and office expenses	5,349	2	4
16.	Renewals for water supply	73	14	5	71.	Wages of signalmen, switchmen, gate- keepers, &c.	6,968	11	11
17.	Sweeping and cleaning roads	376	4	10	72.	Greasing and oiling goods and passenger stock	609	3	11
REPAIRING EXPENSES.					73.	Line telegraphs	13	13	2
20.	Repairs of engines	29,919	6	8	74.	Repairs of station furniture, fittings, and implements (includes cranes and weighing-machines).....	67	0	0
21.	Renewals of engines	5,039	6	7	75.	Renewals of station furniture, fittings, and implements (includes cranes and weighing-machines)	12	18	2
22.	Improvements to engines.....	23	11	7	76.	Fuel and lighting (includes lamps, gas, &c.)	1,411	6	10
23.	Casualties	30	11	2	77.	Casualties	7	18	3
CARRIAGES.					78.	Sundries.....	2,044	13	0
30.	Repairs of carriages	7,722	2	6	79.	Sweeping and cleaning roads	386	3	6
31.	Renewals of carriages	2,158	12	9	COACHING CHARGES.				
32.	Improvements to carriages	54	14	2	80.	Wages of clerks, guards, conductors, porters, &c.	22,452	9	0
33.	Casualties	123	17	6	81.	Compensation for personal injury	2,411	16	5
WAGGONS.					82.	Sundries	2	10	0
40.	Repairs to waggons	28	9	1	Total, Traffic Branch...£				
41.	Renewals of waggons	25	17	8	41,737 6 6				
Total, Locomotive Branch					GENERAL CHARGES.				
£117,937 1 6					100.	Proportion of general establishment ...	1,244	3	2
PERMANENT WAY BRANCH.					101.	Auditing.....	487	10	6
GENERAL EXPENSES.					102.	Store expenses	1,624	19	0
50.	Superintendence and office expenses ...	1,144	2	0	103.	Office expenses and contingencies	157	5	7
51.	Repairs of offices, workshops, and buildings	15	0	6	104.	Advertising and stationery, printing, &c.	3	19	2
53.	Repairs of machinery and tools and implements	69	4	3	105.	Holidays.....	5,065	2	5
54.	Renewals of machinery	10	12	2	106.	Half-pay.....	271	8	0
55.	Lighting workshops and buildings.....	1	0	8	107.	Compensation	105	15	6
56.	Casualties	3	13	4	108.	Sundries	709	16	1
57.	Sundries	25	2	4	Total, General Charges.....£				
<i>Total, General Expenses, Per. Way Branch, carried forward.</i>					9,669 19 5				
<i>Total, Locomotive Branch, carried forward...</i>					Grand Total, Working Expenses				
£117,937 1 6					£200,685 2 5				

SUMMARY OF EXPENDITURE.

	£	s.	d.
Locomotive Branch	117,937	1	6
Permanent Way Branch.....	31,340	15	0
Traffic Branch	41,737	6	6
General Charges	9,669	19	5
Total Expenditure	£200,685	2	5
Adjustments to be made:—			
Total expenditure	£200,685	2	5
Add ½ of relaying Redfern Line, 1882	2,387	10	0
Add ½ of relaying Crown-street Line, 1883.....	173	13	4
	£203,246	5	9
Less ½ cost of relaying with 70 lb. rails distributed over 3 years	1,509	0	0
	£201,737	5	9

No. 24.

CAMDEN TRAMWAY.

WORKING EXPENDITURE during the Year ending 31 December, 1886.

LOCOMOTIVE BRANCH.		PERMANENT WAY BRANCH— <i>contd.</i>	
GENERAL EXPENSES.	£ s. d.	MAINTENANCE— <i>continued.</i>	£ s. d.
Schedule No.		Schedule No.	
1. Superintendence and office expenses.....	8 9 10	62. Repairs of station buildings, platforms, gatehouses, wharves, signals, &c. ...	19 17 11
RUNNING EXPENSES.		63. Renewals of station buildings, platforms, gatehouses, wharves, signals, &c. ...	15 1 7
10. Wages of enginemen and firemen	502 15 8	64. Repairs of tunnels, viaducts, bridges, culverts, gates, fences, &c.	7 1 7
11. Wages of cleaners, fuelmen, and shed labourers	101 0 10	65. Renewals of tunnels, viaducts, bridges, culverts, gates, fences, &c.	0 18 0
12. Fuel	72 3 3	Total, Permanent Way Branch ...£	898 17 7
13. Running stores, exclusive of fuel	48 2 10	TRAFFIC BRANCH.	
14. Cleaners' stores	8 16 11	GENERAL EXPENSES.	
15. Water supply	36 19 6	70. Management and office expenses	88 18 10
REPAIRING EXPENSES.		75. Renewals of station furniture, fittings, and implements (includes cranes and weighing machines)	10 11 3
20. Repairs of engines	80 10 4	76. Fuel and light (includes lamps, gas, &c.)	14 2 9
CARRIAGES.		77. Casualties	0 11 0
30. Repairs of carriages	54 5 7	78. Sundries	13 9 1
31. Renewals of carriages.....	2 11 4	COACHING CHARGES.	
WAGGONS.		80. Wages of clerks, guards, conductors, porters, &c.	247 4 10
40. Repairs to waggons	0 15 8	81. Compensation for personal injury.....	20 0 0
42. Improvements to waggons	0 8 7	Total, Traffic Branch.....£	394 17 9
Total, Locomotive Branch£	917 0 4	GENERAL CHARGES.	
PERMANENT WAY BRANCH.		105. Holidays.....	23 3 0
GENERAL EXPENSES.		Total, General Charges £	23 3 0
50. Superintendence and office expenses.....	83 9 8	Grand Total, Working Expenses £	
53. Repairs of machinery and tools and implements	0 10 0	2,233 18 8	
55. Lighting workshops and buildings	0 4 2		
57. Sundries	0 1 2		
MAINTENANCE.			
60. Repairs of line, sidings, &c.	660 3 3		
61. Renewal of line, sidings, &c.	111 10 3		

SUMMARY OF EXPENDITURE.

Locomotive Branch	£ s. d.
Permanent Way Branch	917 0 4
Traffic Branch	898 17 7
General Charges	394 17 9
	23 3 0
Total Expenditure	£2,233 18 8

NORTH

NORTH SHORE CABLE TRAMWAY, 1886.

LOCOMOTIVE BRANCH.		PERMANENT WAY.	
GENERAL EXPENSES.		MAINTENANCE OF WAY.	
Schedule No.	£ s. d.	Schedule No.	£ s. d.
C. 1. Superintendence and office expenses ...	29 16 4	50. Superintendence and office expenses ...	10 4 3
2. Repairs of offices, workshops, and buildings	106 15 11	53. Tools and implements	1 4 0
3. Renewals of offices, workshops, and buildings	0 13 11	54. Repairs of lines, sidings, &c.	363 14 6
4. Repairs of machinery, tools, and implements	28 8 2	56. Repairs to rope tube and sheave pits ...	1 1 9
5. Renewals of machinery, tools and implements	5 9 10	57. Casualties	1 4 0
6. Lighting buildings and depôts	51 19 8	Permanent Way Total	£ 377 8 6
7. Casualties	0 12 3		
8. Sundries	47 10 5		
RUNNING EXPENSES.		TRAFFIC BRANCH.	
10. Wages of gripmen and stationary engine drivers	906 7 7	60. Management and office expenses.....	20 4 1
11. Wages of cleaners, firemen, pulley oilers, and running shed labourers.....	214 18 2	61. Greasing and oiling rolling stock.....	15 10 11
12. Cost of fuel	454 17 11	63. Repairs, furniture, fittings, implements	4 8 3
13. Running stores for engines or cable ...	144 13 4	65. Fuel and lighting	15 8 2
15. Cost of water.....	4 3 4	66. Wages of clerks, conductors, &c.	619 4 0
16. Cleaning grooves, sweeping dust from roadway.....	9 1 2	67. Cost of personal injury	38 5 0
		68. Casualties	0 1 5
		69. Sundries	25 3 4
		Traffic Branch Total.....	£ 738 5 2
REPAIRING EXPENSES.		GENERAL CHARGES.	
20. Repairs of stationary engines	3 13 1	70. Proportion of general establishment ...	28 10 6
21. Renewals of stationary engines	87 10 11	71. Auditing	3 14 0
22. Improvement to stationary engines.....	6 17 7	72. Store expenses	35 1 10
23. Repairs of cable	46 6 10	73. Office expenses and contingencies	1 3 8
25. Repairs of running gear and other cable fittings	26 5 7	75. Holidays	50 14 10
26. Renewals of running gear and other cable fittings.....	25 19 0	77. Compensation	1,118 0 1
27. Repairs of grippers	12 10 9	78. Sundries	42 12 8
28. Renewals of grippers	0 13 3	General Charges Total	£ 1,279 17 7
29. Repairs to water supply (pipes, &c.) ...	2 13 9		
30. Renewals of water supply (pipes, &c.)...	12 16 10		
CARRIAGE REPAIRS.			
C40. Repairs of carriages and dummies	55 12 3	Grand Total	£ 4,716 8 2
41. Renewals of carriages and dummies ...	3 3 6		
43. Casualties	31 5 7		
Locomotive Total.....	£ 2,320 16 11		

SUMMARY OF EXPENDITURE.

	£ s. d.
Locomotive Branch	2,320 16 11
Permanent Way Branch.....	377 8 6
Traffic Branch	738 5 2
General Charges	1,279 17 7
Total Expenditure.....	£4,716 8 2

No. 25.

STATEMENT of the Number and Class of Rolling Stock manufactured by different Contractors during the year 1886, Great Southern, Western, and Northern Lines.

Locomotives.				
Lines and Contractors.	Passenger.	Tank.	Goods.	Total.
SOUTHERN AND WESTERN.				
Dübs & Co.	6	.....	.....	6
Beyer, Peacock, & Co. ....	.....	6	.....	6
Henry Vale .....	.....	.....	4	4
	6	6	4	16
NORTHERN.				
Dübs & Co.	3*	.....	.....	3
	3	.....	.....	3
	9	6	4	19

* To replace Nos. 5N, 8N, and 17N, worn out. Cost charged against Revenue (less value of old material).

Passenger Traffic.

	Sleeping Cars, on Bogies.	Sleeping Cars, (four wheels).	First-class, Ordinary, on Bogies.	Composite (American).	Composite, Ordinary, on Bogies.	Second-class, Ordinary, on Bogies.	Composite Brake-vans (eight wheels).	Composite Brake-vans (six wheels).	Composite Brake-vans (four wheels).	Mail-vans.	Hearses.	Horse-boxes.	Workman's-vans.	Carriage-trucks.	Total.
SOUTHERN AND WESTERN.															
Hudson Bros. (Limited)	1	1	12	2	4	9*	...	7	4	3*	...	17	3	...	63
The Executor of S. Glasson .....	...	...	...	...	...	...	...	...	...	...	...	...	...	6	6
Total, Southern and Western	1	1	12	2	4	9	...	7	4	3	...	17	3	6	69
NORTHERN.															
Hudson Bros. (Limited) .....	...	...	...	...	6	3	2	4	...	...	3	3	...	...	21
Total, Northern .....	...	...	...	...	6	3	2	4	...	...	3	3	...	...	21
Total, all lines, during 1886	1	1	12	2	10	12	2	11	4	3	3	20	3	6	90

* One of each of these is to replace one destroyed at Cootamundra. Cost charged against Revenue.

Goods Traffic.

	B Waggon.	C Vans.	D Waggon.	E Waggon.	F Waggon.	G Waggon.	Cattle-vans.	Sheep-vans.	Powder-vans.	Meat-vans.	Water Trucks.	Brake-vans.	Total.
SOUTHERN AND WESTERN.													
The Executor of S. Glasson	31*	...	200	10	...	50	...	...	...	...	...	...	291
Hudson Bros. (Limited) .....	...	10	...	...	...	...	...	...	4	...	...	...	14
Burton Humanity Patent .....	...	...	...	...	...	...	...	1	...	...	...	...	1
Pope Maher and Son .....	...	...	...	...	...	...	...	...	...	...	12	...	12
Total, Southern and Western	31	10	200	10	...	50	1	...	4	...	12	...	318
NORTHERN.													
Hudson Bros. (Limited) .....	...	...	70	...	8	..	10	10	...	4	...	7†	109
Total, Northern .....	...	...	70	...	8	...	10	10	...	4	...	7	109
Total, all lines, during 1886	31	10	270	10	8	50	11	10	4	4	12	7	427

* To replace others worn out. Cost charged against Revenue.

† Four of these were to replace four Passenger vans worn out. Cost charged against Revenue.

No. 26.*

RETURN showing the descriptions and quantities of GOODS, LIVE STOCK, &c., carried on Great Southern, Western, and Northern Railways, for the year 1886.

Description of Goods.	Great Southern and Western.		Great Northern.	
	Tons.	Freight.	Tons.	Freight.
SUMMARY.				
		£ s. d.		£ s. d.
A Class	188,885	80,231 10 2	57,620	17,670 15 7
B „	41,876	52,207 6 10	13,741	18,394 7 10
1st Class	39,946	73,520 14 4	14,243	23,210 8 1
2nd „	32,275	58,005 15 0	10,387	17,144 3 1
3rd „	48,764	185,956 19 10	18,087	61,371 6 4
4th „	2,503	10,004 6 9	905	3,345 7 7
Miscellaneous Class	353,960	58,025 18 2	25,074	2,657 12 1
„ „ in truck loads	2,084	1,704 9 4	564	350 9 10
A „ „	70,279	50,650 2 5	5,298	4,420 10 0
Mixed Goods „	7,837	25,963 5 8	.....	.....
Coal	182,369	61,757 7 6	1,633,875	78,349 9 6
Gunpowder	542	4,042 5 6	122	834 15 6
Hay, straw, and chaff in trucks	62,733	27,292 11 11	9,784	3,053 14 4
Iron, galvanized, and wire, in truck loads	827	4,165 14 4	.....	.....
Meat, in trucks	9,048	2,489 18 11	271	187 6 6
Milk	2,028	2,558 10 0	.....	.....
Shale	26,230	8,786 6 5	31	12 19 8
Sugar, by truck	4,394	13,915 4 3	1,589	4,622 9 11
Wool, bales	42,019	122,131 19 1	16,107	43,661 6 9
„ by weight.....	29	71 3 3	.....	.....
	1,118,628	843,481 9 8	1,807,698	279,287 2 7
Less difference over-charges and special credits .....	.....	5,191 18 3	.....	602 5 9
	.....	838,289 11 5	.....	278,684 16 10
Live stock	61,646	164,853 0 0	14,980	24,956 12 11
Demurrage, storage, weighing, use of cranes, &c. ....	.....	3,830 0 5	.....	2,088 15 4
Total	1,180,274	1,006,972 11 10	1,822,678	305,730 5 1
Departmental—				
Coal	151,514	69,168 8 7	15,319	5,993 1 1
General	44,151	33,754 6 10	4,802	4,340 7 7
Grand total	1,375,939	1,109,895 7 3	1,842,799	316,063 13 9

* Includes Camden Line.

REVENUE and EXPENDITURE of each Station, for the year ending 31st December, 1886.

Stations.	No. of hands employed, including Station-masters.	Total Expenditure.		No. of Tickets issued.	Revenue from Tickets and Coaching Traffic.		Goods.		Coal.		Hay, Straw, & Chaff.		Wool.		Earnings from Goods Traffic.	Total Earnings.		
					£	s. d.	£	s. d.	Tonnage outwards.	Tonnage inwards.	Tonnage outwards.	Tonnage inwards.	Trucks outwards.	Trucks inwards.			Bales outwards.	Bales inwards.
SUBURBAN, ILLAWARRA, AND HOMEBUSH RAILWAYS, INCLUDING SYDNEY.																		
Central	9	1,328	18 4	22,080	44,058	17 7½	.....	.....	.....	.....	.....	.....	.....	.....	.....	44,058	17 7½	
Darling Harbour	141	18,200	12 7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sydney	326	41,373	14 7	1,625,823	183,980	0 10½	102,028	270,247	13,742	19,472	2,764	8,865	6,814	216,647	237,901	17 4	237,901	17 4
Eveleigh	17	2,313	6 0	198,107	3,524	19 11	180,455	3,204	1,059	1,075	284	.....	6,811	.....	29,942	10 8	213,922	11 6½
Macdonald Town	4	572	19 7	131,752	2,060	12 8	.....	2,517	.....	.....	.....	.....	.....	.....	.....	3,524	19 11	.....
Newtown	19	2,738	12 11	371,027	7,229	11 4	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,060	12 8	.....
Stanmore	7	820	12 2	105,959	3,082	1 9	.....	.....	.....	.....	.....	.....	.....	.....	23,390	3 0	30,619	14 4
Petersham	18	2,438	0 2	542,603	15,056	9 8	709	20,022	.....	20,151	2	45	.....	.....	11,068	17 3	26,125	6 11
Summer Hill	10	1,199	8 9	265,783	9,380	17 6	.....	21	.....	.....	.....	.....	.....	.....	18	8 3	9,399	5 9
Ashfield	13	1,772	10 7	272,828	11,566	9 3	886	15,022	24	5,492	6	86	.....	.....	4,184	14 7	15,751	3 10
Croydon	9	1,031	6 7	151,682	6,550	6 8	.....	11	.....	.....	.....	.....	.....	.....	19	16 0	6,570	2 8
Burwood	13	1,753	12 1	309,115	14,397	3 8	639	19,909	19	8,761	18	370	.....	.....	6,047	17 0	20,445	0 1
Strathfield	5	795	3 1	59,425	3,766	0 1	.....	153	.....	13	.....	.....	.....	.....	.....	.....	3,766	0 1
Homebush	13	1,836	5 6	77,828	4,633	5 2	1,023	5,484	26	978	1	51	.....	.....	119,066	19 10	123,700	5 0
Flemington	7	961	8 11	2,683	22	2 1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	22	2 1
Rookwood	8	1,200	0 11	85,724	3,520	14 9	445	7,238	.....	1,268	.....	49	.....	.....	1,515	12 0	5,036	6 9
Auburn	8	906	16 6	60,024	2,176	7 10	581	4,599	.....	2,422	.....	2	.....	.....	1,886	16 3	4,063	4 1
Clyde	.....	.....	.....	12,006	28	0 7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Granville	32	5,194	12 0	152,599	8,781	4 2	14,581	25,410	4	5,045	.....	146	1,280	1,300	13,170	1 2	21,951	5 4
Erskineville	3	379	8 3	64,859	1,429	19 1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,429	19 1
St. Peters	5	688	9 4	113,723	2,312	1 11	.....	.....	.....	24	.....	.....	.....	.....	.....	.....	2,312	1 11
Marrickville	6	804	3 0	113,620	2,692	9 8	2,186	3,432	33	15,223	9	.....	.....	.....	5,928	16 7	8,621	6 3
Tempe	4	392	6 1	59,104	1,882	14 6	.....	3	.....	.....	.....	.....	.....	.....	1	10 8	1,884	5 2
Arncliffe	4	545	11 7	44,124	1,308	10 9	6	23	.....	.....	.....	.....	.....	.....	7	7 6	1,315	18 3
Rockdale	5	698	17 4	91,445	2,994	5 4	419	9,374	6	1,192	.....	23	.....	.....	2,204	7 10	5,198	13 2
Kogarah	4	455	17 4	75,938	2,835	8 11	4	156	.....	.....	.....	.....	.....	.....	87	15 5	2,923	4 4
Hurstville	6	943	14 6	62,340	2,716	2 11	1,723	3,385	100	2,049	11	29	.....	.....	1,570	16 3	4,286	19 2
Como	.....	.....	.....	2,872	30	15 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	30	15 6
Penshurst	.....	.....	.....	357	5	0 7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5	0 7
Sutherland	2	198	3 0	10,003	781	5 10	4,626	2,436	9	481	.....	39	.....	.....	445	18 7	1,227	4 5
Heathcote	.....	.....	.....	2,440	59	10 11	.....	.....	.....	34	.....	.....	.....	.....	.....	.....	59	10 11
Waterfall	3	538	5 9	13,937	1,897	0 9	197	3,986	34	1,915	1	76	.....	.....	2,166	5 7	4,063	6 4
Ryde	2	77	2 10	5,355	248	7 2	132	575	.....	172	1	2	.....	.....	259	1 4	507	8 6
Dundas	1	30	4 4	3,426	215	11 4	81	147	.....	19	.....	1	.....	.....	5	18 10	221	10 2
Hornsby	2	92	14 0	3,818	254	2 8	642	2,322	.....	19	.....	2	.....	.....	393	4 0	647	6 8
Total.....1886	.....	.....	.....	5,114,409	345,478	13 5	313,536	446,847	15,174	131,199	3,097	9,853	14,905	218,203	461,284	15 11	806,763	9 4
Total.....1885	.....	.....	.....	4,583,382	318,503	10 3	282,558	439,022	15,731	126,309	1,850	13,838	15,669	254,815	401,779	14 5	720,283	4 8

APPENDIX TO REPORT ON RAILWAYS--1886.

Stations.	Number of hands employed, including Station-masters.	Total Expenditure.	Number of Tickets issued.	Revenue from Coaching Traffic.	Goods.		Coal.		Hay, Straw, and Chaff.		Wool.		Earnings from Goods Traffic.	Total Earnings.
					Tonnage outwards.	Tonnage inwards.	Tonnage outwards.	Tonnage inwards.	Trucks outwards.	Trucks inwards.	Bales outwards.	Bales inwards.		
GREAT SOUTHERN RAILWAY.														
		£ s. d.		£ s. d.									£ s. d.	£ s. d.
Merrylands	2	211 16 7	7,641	438 2 3	9,603	984	.....	2,468	.....	2	.....	.....	1,331 0 2	1,769 2 5
Guildford	1	133 1 2	8,889	533 18 1	929	860	.....	175	.....	3	.....	.....	146 11 8	680 9 9
Fairfield	5	564 14 0	42,321	3,202 14 4	3,527	4,324	.....	155	7	158	.....	.....	1,044 10 0	4,247 4 4
Cabramatta	1	134 8 0	8,444	447 8 9	3,123	844	.....	42	6	6	.....	.....	213 19 7	661 8 4
Liverpool	11	3,86 16 3	36,371	4,305 12 10	28,498	5,440	.....	6,507	12	133	8,385	12,940	6,416 8 4	10,722 1 2
Minto	1	143 10 0	5,057	440 17 1	13,459	931	.....	6	17	31	11	.....	189 4 6	630 1 7
Campbelltown	9	1,174 10 1	30,362	5,324 13 10	1,722	6,082	.....	65	76	132	27	.....	2,134 9 9	7,459 3 7
Menangle	4	554 3 9	3,638	583 8 1	833	476	.....	.....	98	38	27	.....	222 7 8	805 15 9
Douglas Park	3	400 18 7	2,850	575 8 11	2,324	306	.....	.....	42	2	6	.....	188 17 6	764 6 5
Pictou	12	1,410 0 3	5,773	1,617 0 7	1,521	2,122	.....	.....	31	45	90	.....	1,597 10 3	3,214 10 10
Thirlmere	2	279 13 1	1,356	197 18 6	7,702	534	.....	.....	1	16	.....	.....	323 8 4	521 6 10
Bargo	2	240 0 0	175	12 19 6	.....	12	.....	.....	.....	.....	.....	.....	3 6 11	16 6 5
Hill Top	2	262 16 0	734	78 18 2	356	50	.....	.....	.....	.....	.....	.....	34 15 2	113 13 4
Colo Vale	2	280 7 1	1,615	167 2 7	1,738	91	.....	.....	.....	10	.....	.....	49 13 6	216 16 1
Mittagong	7	1,018 5 11	10,315	2,912 2 4	24,234	3,195	3,111	257	12	53	72	.....	11,428 6 5	14,340 8 9
Bowral	5	604 5 8	9,894	2,658 9 5	1,400	4,339	.....	335	2	124	6	.....	3,586 9 0	6,244 18 5
Moss Vale	7	860 4 6	11,621	4,855 11 11	2,556	4,785	2,091	377	6	148	45	.....	5,014 12 7	9,870 4 6
Bundanoon	3	319 15 7	3,119	488 3 7	2,344	525	.....	.....	.....	3	.....	.....	198 18 2	687 1 9
Wingello	2	250 18 6	1,505	229 10 7	2,351	77	946	.....	1	23	.....	.....	111 10 9	341 1 4
Marulan	5	666 6 3	4,794	1,215 14 8	7,953	1,377	.....	744	56	11	671	.....	1,263 11 3	2,479 5 11
Towrang	2	253 13 0	2,328	251 17 3	1,713	407	.....	.....	.....	20	449	122	153 2 9	405 0 0
Goulburn	35	4,624 9 3	35,894	19,695 5 0	27,521	31,097	2	6,362	168	195	5,215	247	41,731 4 0	61,426 9 0
Breadalbane	3	322 2 7	2,869	682 6 5	1,654	438	.....	.....	35	1	212	.....	323 14 4	1,006 0 9
Gunning	5	547 19 10	4,395	1,475 17 0	558	772	.....	8	22	1	1,379	7	1,491 9 2	2,967 6 2
Jerrawa	2	229 19 7	680	134 9 3	86	35	.....	.....	21	.....	50	.....	33 18 8	168 7 11
Yass	5	648 0 3	6,329	4,199 15 4	623	3,756	.....	6	22	7	2,522	.....	6,063 5 4	10,263 0 8
Bowning	3	451 8 6	1,351	544 10 4	477	413	.....	5	7	.....	1,506	.....	833 3 10	1,377 14 2
Binalong	5	572 4 9	2,932	1,636 16 6	450	1,188	.....	.....	7	7	2,546	.....	3,169 10 3	4,806 6 9
Rocky Ponds	2	249 12 0	353	56 2 11	106	58	.....	.....	.....	2	9	.....	10 10 7	66 13 6
Harden	12	1,664 0 2	7,695	3,091 3 4	920	1,453	.....	13	205	23	1,824	.....	2,516 15 6	5,607 18 10
Murrumburrah	2	267 11 6	7,430	2,477 0 0	2,260	2,725	12	80	52	14	49	.....	3,268 7 0	5,745 7 0
Nubba	1	117 6 5	591	134 6 11	.....	.....	.....	.....	72	1	119	.....	.....	134 6 11
Wallendbeen	3	517 0 3	2,087	687 5 5	1,801	826	.....	.....	42	3	1,183	.....	846 14 8	1,534 0 1
Cootamundra	10	1,478 2 3	14,017	8,551 9 3	5,047	6,182	.....	291	75	53	3,465	26	15,835 0 2	24,386 9 5
Bethungra	3	345 1 4	1,742	489 4 9	482	460	.....	.....	12	2	634	.....	467 11 5	956 16 2
Illabo	3	306 14 4	1,390	358 7 2	231	278	.....	.....	14	2	897	.....	263 8 11	621 16 1
June Junction	16	2,266 11 3	13,729	8,237 7 11 3/4	1,012	3,950	.....	67	96	91	678	.....	3,892 2 8	12,129 10 7 1/2
Harefield	2	208 16 0	612	95 5 9	103	118	.....	.....	6	.....	292	.....	41 1 0	136 6 9
Bomen	2	291 4 0	794	265 7 9	49	92	.....	.....	18	.....	743	.....	949 16 0	1,215 3 9
Wagga Wagga	10	1,553 14 9	17,062	10,980 17 7 1/2	8,171	14,099	.....	1,100	216	171	5,159	3	21,475 18 0	32,456 15 7 1/2
Sandy Creek	2	196 8 7	1,037	157 16 10	614	139	.....	.....	17	3	30	.....	72 8 4	230 5 2
The Rock	3	386 0 6	2,563	705 16 0	670	608	.....	6	.....	8	2,885	.....	423 6 10	1,129 2 10
Yerong Creek	3	350 8 2	2,690	1,047 4 0	314	716	.....	.....	.....	18	1,490	.....	587 10 9	1,634 14 9
Culcairn	3	499 18 4	4,107	1,411 12 7	960	873	.....	.....	.....	9	1,165	.....	1,239 13 0	2,651 5 7
Gerogery	3	512 18 6	1,837	434 4 10	3,140	444	.....	23	86	1	456	.....	307 7 1	741 11 11
Yambula	1	134 8 0	1,161	289 6 1	798	311	.....	6	85	.....	38	.....	349 1 9	638 7 10
Albury and Platforms	19	3,063 4 1	31,891	14,784 15 3	10,422	20,464	.....	534	865	2	16	4,361	8,584 0 11	23,368 16 2
Tarago and Platform	3	388 18 11	4,921	2,416 13 6	2,941	2,180	50	6	933	16	1,950 3 8	4,366 17 2

No. 27—continued.

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Stations.	No. of hands employed, including Station-masters.	Total Expenditure.	No. of Tickets issued.	Revenue from Tickets and Coaching Traffic.	Goods.		Coal.		Hay, Straw, and Chaff.		Wool.		Earnings from Goods Traffic.	Total Earnings.
					Tonnage outwards.	Tonnage inwards.	Tonnage outwards.	Tonnage inwards.	Trucks outwards.	Trucks inwards.	Bales outwards.	Bales inwards.		
GREAT SOUTHERN RAILWAY—continued.														
Bungendore	6	£ 808 s. 0 d. 4	8,401	£ 6,860 s. 6 d. 11	687	22,171	.....	595	.....	173	7,368	.....	£ 30,640 s. 19 d. 10	£ 37,501 s. 6 d. 9
Coolac	2	145 17 7	1,160	253 8 9	280	326	.....	.....	6	.....	1,038	.....	428 17 4	682 6 1
Gundagai	4	307 12 5	2,791	2,498 4 4	960	2,095	.....	.....	1	2	3,353	.....	6,815 1 8	9,313 6 0
Young	5	841 2 6	9,586	6,157 5 7	1,932	13,642	.....	649	35	78	11,162	.....	21,674 14 1	27,831 19 8
Cowra .....	.....	56 6 7	362	305 17 8	82	743	.....	12	.....	.....	1,385	.....	1,516 7 1	1,822 4 9
Old Junee	2	291 4 3	1,486	308 10 5	717	664	.....	5	25	52	3,251	.....	1,254 5 6	1,562 15 11
Coolaman	2	229 5 6	2,437	980 6 2	3,344	1,120	.....	6	7	97	1,794	.....	2,741 1 2	2,741 7 4
Grong Grong	1	134 8 0	2,060	484 2 1	2,287	526	.....	.....	2	23	1,597	.....	561 7 8	1,045 9 9
Narrandera	8	1,072 19 6	9,863	5,804 2 4	3,044	3,452	2	37	67	179	5,375	1,455	8,722 15 2	14,526 17 6
Yanco .....	.....	.....	321	84 10 1	8	89	.....	.....	7	12	986	.....	240 9 1	324 19 2
Whitton	3	458 0 9	2,311	1,396 15 3	77	1,211	.....	6	2	70	4,598	.....	3,245 10 2	4,642 5 5
Darlington	2	238 12 7	1,029	563 9 11	19	336	.....	.....	.....	3	1,563	.....	632 10 3	1,196 0 2
Bringagee	1	169 3 6	511	241 18 10	6	194	.....	.....	.....	1	1,317	.....	87 15 0	329 13 10
Carrathool	3	415 19 0	2,841	1,724 6 6	256	1,380	.....	.....	17	18	3,631	.....	4,320 16 6	6,045 3 0
Hay	6	1,019 8 8	5,130	6,679 11 1	402	6,974	.....	411	.....	295	5,870	4	17,946 8 11	24,626 0 0
Colombo	1	179 5 0	3,755	882 14 2	4,274	409	.....	2	13	10	656	.....	458 4 10	1,340 19 0
Jerilderie	2	281 4 3	1,771	1,343 7 6	785	5,273	.....	19	75	11	8,451	.....	4,434 19 10	5,778 7 4
Victorian Railways .....	.....	.....	24,016	29,375 16 1	16,824	1,199	.....	.....	.....	.....	.....	.....	338 3 6	29,713 19 7
Camden	3	240 19 11	11,666	1,462 5 11	3,748	.....	84	340	145	46	102	.....	2,029 16 10	3,492 2 9
1886 .....	.....	.....	463,058	182,985 0 7	233,708	196,988	6,164	21,489	3,183	2,792	108,635	19,283	259,490 2 6	442,475 3 1
1885 .....	.....	.....	458,280	188,276 18 4	233,641	183,213	7,799	23,674	4,457	2,244	121,269	20,066	278,344 17 5	466,621 15 9
GREAT WESTERN RAILWAY.														
Parramatta	22	2,327 9 4	292,712	19,067 7 3	12,717	23,482	27	5,794	25	719	3	81	7,832 0 9	26,899 8 0
Seven Hills	3	298 19 0	10,724	566 16 10	4,441	1,913	.....	426	1	6	.....	.....	684 16 10	1,251 13 8
Blacktown	7	1,052 17 2	11,157	1,237 19 2	4,822	2,061	.....	44	2	55	4	16	6,910 5 2	8,148 4 4
Rooty Hill	4	578 9 1	10,155	1,315 13 9	14,501	1,858	.....	21	22	110	.....	.....	648 13 1	1,964 6 10
St. Mary's	5	589 12 8	14,467	1,401 18 5	35,434	4,329	.....	428	34	35	.....	.....	2,909 3 7	4,311 2 0
Penrith	24	2,973 9 5	24,731	4,703 9 11	18,931	6,746	6	906	163	162	14	.....	3,772 6 9	8,475 16 8
Emu Plains	5	627 5 8	3,613	482 8 2	58,372	367	.....	534	11	15	.....	.....	1,410 4 11	1,892 13 1
Glenbrook	3	351 4 0	866	144 3 0	167	152	.....	12	.....	.....	.....	.....	42 4 9	186 7 9
Springwood	4	458 19 6	4,247	742 16 8	1,573	785	.....	75	.....	5	.....	.....	419 13 7	1,162 10 3
Linden	2	234 5 4	510	58 8 8	10	583	.....	37	.....	7	.....	.....	66 19 7	125 8 3
Lawson	3	366 4 6	2,719	402 5 0	31	623	.....	37	.....	2	.....	.....	349 11 3	751 16 3
Wentworth Falls	2	247 10 0	2,505	216 17 10	106	389	.....	6	.....	1	.....	.....	204 19 7	421 17 5
Katoomba	7	739 14 0	8,149	1,662 9 7	242	2,202	31,484	114	.....	24	.....	.....	1,456 10 10	3,119 0 5
Blackheath	3	355 11 0	5,269	734 4 1	671	1,414	.....	287	.....	25	.....	.....	1,048 17 11	1,783 2 0
Mount Victoria	9	1,175 9 10	8,935	2,195 6 2	9,695	2,698	.....	333	2	23	91	.....	1,083 6 7	3,278 12 9
Hartley Vale .....	.....	86 16 2	973	81 13 8	.....	.....	.....	54	.....	21	.....	.....	26 0 9	107 14 5
Mount Wilson	2	259 13 3	890	263 12 1	196	125	.....	9	.....	2	.....	.....	117 7 7	380 19 8
Clarence Siding	2	249 12 0	633	72 7 8	280	89	7,021	56	.....	5	.....	.....	37 10 7	109 18 3
Zig Zag	4	519 0 8	490	60 19 9	.....	.....	.....	.....	.....	.....	.....	.....	60 19 9	60 19 9
Esk Bank	18	2,231 13 0	7,635	2,000 13 4	5,083	3,902	121,734	485	1	98	5	.....	5,990 19 6	7,991 12 10
Lithgow	2	285 5 1	5,309	1,514 4 3	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,514 4 3
Bowenfels	4	473 6 11	2,049	639 3 4	159	471	479	30	1	17	24	274	731 17 0	1,371 0 4

Stations.	No. of hands employed, including Station-masters.	Total Expenditure.	No of Tickets issued.	Revenue from Tickets and Coaching Traffic.	Goods.		Coal.		Hay, Straw, and Chaff.		Wool.		Earnings from Goods Traffic.	Total Earnings
					Tonnage outwards.	Tonnage inwards.	Tonnage outwards.	Tonnage inwards.	Trucks outwards.	Trucks inwards.	Bales outwards.	Bales inwards.		
GREAT WESTERN RAILWAY—continued.														
		£ s. d.		£ s. d.									£ s. d.	£ s. d.
Wallerawang	14	1,595 8 6	8,504	2,363 10 7	809	969	144	23	18	111	5	1,173 13 7	3,537 4 2	
Rydal	8	1,023 12 9	3,984	1,295 3 2	1,150	9,206	985	46	70	63	.....	9,865 10 8	11,160 13 10
Tarana	4	514 12 6	3,114	1,114 12 5	454	907	31	40	2	489	3	1,037 13 1	2,152 5 6	
Locksley	2	227 1 0	828	159 0 6	181	35	..	48	.....	21	.....	13 3 0	172 3 6
Browongle	5	645 15 0	2,814	480 19 6	1,422	421	126	369	.....	164	6	495 2 7	976 2 1
Raglan	2	274 1 0	982	173 14 5	71	271	105	782	16	95	.....	204 9 8	378 4 1
Kelso	7	794 17 0	2,064	824 7 7	206	932	183	875	25	611	6	4,462 6 9	5,286 14 4	
Bathurst	34	4,723 8 8	34,743	16,066 9 4	7,279	25,986	10,212	385	81	1,317	79	26,961 14 7	43,028 3 11	
Perth	2	240 17 0	4,100	380 9 11	2,494	548	49	420	3	810	.....	749 13 11	1,130 3 10
George's Plains	3	456 14 7	3,923	456 8 4	488	316	12	235	2	30	.....	351 17 2	808 5 6
Wimbledon	2	284 7 8	1,556	220 18 1	2,589	269	.....	51	.....	148	.....	113 7 11	334 6 0
Newbridge	5	648 13 5	5,254	1,058 12 10	2,144	864	.....	423	3	571	.....	1,434 4 7	2,492 17 5
Blayney	9	1,585 19 2	13,674	5,929 13 11	2,119	14,240	981	335	28	2,810	.....	17,968 1 9	23,897 15 8
Milthorpe	5	526 2 4	6,511	1,105 17 6	2,539	2,508	773	78	1	576	.....	1,643 18 8	2,749 16 2
Spring Hill	5	459 6 6	7,303	832 2 3	1,139	1,397	5	35	1,676	.....	132	551 11 4	1,383 13 7
Orange	30	3,879 10 10	30,864	13,012 14 4	9,103	14,888	3	3,007	961	121	2,337	26,347 3 10	39,359 18 2	
Mullion Creek	2	257 9 6	1,231	177 16 9	1,231	77	.....	7	.....	72	.....	66 13 6	244 10 3
Kerr's Creek	2	255 5 8	1,204	236 3 2	1,458	76	.....	10	.....	20	.....	51 19 10	288 3 0
Warne	2	325 1 0	1,839	457 6 7	411	217	.....	35	.....	35	3	256 7 10	713 14 5
Store Creek	2	269 2 1	408	54 3 4	.....	.....	.....	.....	.....	43	.....	1 14 11	55 18 3
Ironbarks	3	338 13 3	2,463	582 11 2	190	409	12	.....	.....	111	5	502 15 10	1,085 7 0
Mumbil	2	285 16 4	1,379	218 5 1	627	281	.....	6	.....	696	.....	138 1 6	356 6 7
Springs	2	238 1 0	1,580	393 7 10	483	74	.....	39	.....	251	.....	227 2 7	620 10 5
Wellington	12	1,920 14 8	7,508	3,539 0 6	2,503	4,626	94	47	4	1,831	6	7,224 0 5	10,763 0 11	
Mary Vale	2	188 16 0	1,263	172 13 2	255	57	12	100	6	49	.....	66 13 0	239 6 2
Ponto	2	240 0 0	822	202 15 1	357	131	.....	26	.....	170	.....	38 8 9	241 3 10
Murrumbidgee	3	282 3 2	1,541	316 4 6	1,565	204	.....	55	1	700	.....	135 0 7	451 5 1
Dubbo	27	3,871 3 8	12,984	11,775 9 2	7,242	7,630	7	647	107	33	11,243	21,475 14 10	33,251 4 0	
Narromine	3	450 18 8	2,189	785 4 2	692	401	.....	56	1	1,908	.....	815 4 1	1,600 8 3
Trangie	3	442 2 4	1,990	1,263 1 2	1,252	817	.....	2	20	6,079	.....	1,960 4 2	3,223 5 4
Nevertire	9	1,011 2 1	3,162	3,313 2 3	91	2,535	7	4	34	11,464	.....	6,869 17 10	10,183 0 1
Mullengudgerly	2	199 9 2	292	157 13 4	3	65	.....	.....	1	531	.....	275 9 8	433 3 0
Nyngan	14	1,657 6 11	4,631	6,295 16 9	3,212	6,038	26	7	320	12,790	13	21,021 15 6	27,317 12 3	
Girilambone	3	381 5 1	837	647 1 11	121	213	.....	1	.....	2,944	.....	542 2 2	1,189 4 1
Coolabah	3	413 3 1	572	523 7 11	635	500	.....	.....	8	2,017	.....	1,643 10 4	2,166 18 3
Byrock	7	852 7 0	2,516	2,773 11 5	326	1,626	6	11	99	4,752	.....	6,032 18 2	8,806 9 7
Mooculta	1	112 14 0	481	117 16 6	.....	.....	.....	.....	.....	100	.....	266 7 9	384 4 3
Bourke	19	2,542 16 2	4,915	10,865 4 5	1,103	11,390	58	6	328	24,947	353	53,883 1 6	64,748 5 11	
Borenore	.....	.....	3,157	365 18 4	331	2,867	3	70	7	6,313	.....	4,117 7 3	4,483 5 7
Molong	.....	.....	5,403	2,337 5 2	2,246	3,853	127	136	9	3,971	.....	7,518 11 7	9,855 16 9
Piper's Flat	2	211 4 0	1,096	276 18 5	37	506	12	7	3	22	.....	812 18 8	1,089 17 1
Capertee	2	175 16 0	1,144	500 13 4	3,732	598	18	9	5	373	.....	349 4 9	849 18 1
Rylstone	4	461 6 2	3,011	1,513 10 0	333	851	255	49	3	119	.....	1,413 6 1	2,926 16 1
Mudgee	10	1,549 9 3	7,670	6,731 5 11	2,398	5,163	.....	1,015	591	10,081	1	14,919 7 5	21,650 13 4
1886	626,304	141,633 0 7	235,335	179,151	161,022	28,417	8,425	2,585	114,379	1,133	281,743 4 2	423,376 4 9
1885	628,872	156,483 5 5	263,475	202,216	161,220	33,599	11,336	2,370	138,011	730	334,910 5 7	491,393 11 0

Stations	No. of hands employed, including Station-masters	Total Expenditure	No of Tickets issued	Revenue from Tickets and Coaching Traffic	Goods		Coal		Hay, Straw, and Chaff.		Wool.		Earnings from Goods Traffic.	Total Earnm s.
					Tonnage outwards.	Tonnage inwards.	Tonnage outwards	Tonnage inwards	Trucks outwards	Trucks inwards.	Bales outwards	Bales inwards.		
WINDSOR AND RICHMOND RAILWAYS														
Riverstone	2	£ s d. 217 15 3	10,161	£ s d. 1,088 4 1	26,120	1,772		595	18	10	1,024	1,082	£ s. d. 6,687 10 8	£ s. d. 7,765 14 9
Mulgrave	2	188 11 0	3,012	493 13 0	8,069	537		194	188	19	788	42	384 15 11	888 8 11
Windsor	5	679 10 2	19,492	3,086 13 6	6,456	3,754	9	402	344	76	10		1,985 18 9	5,072 12 3
Clarendon	1	144 7 0	1,635	340 7 6	284	94		6	47	3	2		66 19 6	407 7 0
Richmond	5	618 11 0	13,341	2,616 5 5	7,999	2,364		67	66	30			1,622 0 7	4,238 6 0
1886			47,641	7,625 3 6	48,928	8,521	9	1,264	663	138	1,824	1,124	10,747 5 5	18,372 8 11
1885			49,299	8,098 4 5	54,970	10,193		1,168	903	94	1,745	1,083	10,513 11 2	18,611 15 7
GREAT NORTHERN RAILWAY.														
Central Office			785	3,043 9 4										3,043 9 4
Newcastle	179	25,020 19 2	139,922	26,446 16 10	51,180	36,674	46	1,609,351	366	951	415	50,804	108,130 17 6	134,577 14 4
Honeysuckle Point	17	2,216 18 10	62,390	2,758 0 2	3,479	6,747		347	1	109			1,497 11 1	4,255 11 3
Bullock Island	18	2,128 11 3	18	17 3 6	6,259	2,427	28	111	7	12			4,931 2 10	4,948 6 4
Hamilton	27	3,637 18 1	66,199	1,905 17 11	950	10,567	134	1,073	1	150	37	857	1,500 0 10	3,405 18 9
Hamilton Weighbridge					18,769		1,617,758							
Waratah	12	1,681 1 7	70,244	3,092 4 1	2,082	5,106	2,532	7,114	11	168	1		837 12 8	3,929 16 9
Hexham	8	747 13 10	19,284	1,149 10 11	975	1,578	111	2,075	47	30	1		620 8 8	1,769 19 7
Tarro	1	140 0 0	6,073	373 4 4	891	207			28				83 10 9	456 15 1
Woodford	1	140 0 0	3,433	165 5 11	1,160	104			22				21 17 2	187 3 1
East Maitland	11	1,146 10 11	35,433	2,998 15 7	4,304	1,261	11	70	153	15	1,343	1,730	5,094 2 3	8,092 17 10
High-street	2	407 16 10	31,044	3,077 8 9	6	197							21 9 11	3,098 18 8
West Maitland	34	3,843 3 2	36,323	6,695 0 8	9,820	10,904		1,855	613	175	161	228	11,707 14 10	18,402 15 6
Farley	5	410 16 2	2,306	159 0 4	258	119			6				167 19 5	326 19 9
Lochinvar	6	562 18 8	3,762	473 19 2	258	510		23	81	3	15		369 11 3	843 10 5
Allandale	1	135 13 4	3,128	295 9 4	577	377			25				133 8 9	428 18 1
Greta	5	482 4 4	7,919	1,160 12 10	432	1,842	10,748	66	4	29			698 16 2	1,859 9 0
Branxton	4	518 11 6	7,723	1,261 13 3	1,949	1,288		55	109	9	164		577 18 3	1,839 11 6
Singleton	33	3,701 14 10	19,102	5,990 6 8	2,974	5,435	1,605	993	173	22	309	1	4,996 3 0	10,986 9 8
Glennie's Creek	1	140 0 0	1,613	242 19 6	277	258	891		15	1	25		91 17 2	334 16 8
Ravensthorpe	8	541 5 3	1,707	301 15 7	64	104			3	1	377		220 12 6	522 8 1
Musclebrook	21	1,748 5 5	8,849	3,260 0 3	854	2,826	2	151	6	12	3,683		4,722 1 3	7,982 1 6
Aberdeen	6	464 6 8	1,681	413 11 6	130	276			7	2	222		391 3 8	804 15 2
Seone	12	960 2 4	5,185	1,948 4 10	450	1,816		125	10	4	3,935	4	2,313 2 2	4,261 7 0
Wingen	6	463 19 7	1,161	280 17 1	104	157			11	1	343		193 5 5	474 2 6
Blandford	3	218 4 4	938	336 16 4	56	262			6		1,078		241 2 11	577 19 3
Murrurundi	39	3,778 10 10	5,426	2,451 13 4	362	1,594		77	26	34	173		2,387 1 2	4,838 14 6
Doughboy Hollow	4	350 3 7	971	103 0 7	45	67	2	2		3	266		60 9 4	163 9 11
Willow-tree	6	611 2 10	2,383	649 1 9	216	377		5	19	5	2,432		849 1 8	1,498 3 5
Quirindi	15	1,352 18 9	6,747	2,523 15 10	834	2,383		192	5	78	5,231		5,263 12 3	7,787 8 1
Werris Creek	10	1,146 1 2	4,050	1,936 18 2	215	419		1	16	2	303		684 7 6	2,621 5 8
Currabubula	6	497 16 6	1,636	406 7 1	447	298		6	7		214		291 13 7	698 0 8
West Tamworth	15	1,985 10 8	4,425	1,316 13 9	796	2,220		27	29	6	8,865		6,301 1 7	7,617 15 4
Tamworth	20	1,987 17 10	12,168	8,228 14 3	4,187	6,630	7	685	85	17	474	26	13,723 19 6	21,952 13 9
Moonbi	11	766 12 6	3,995	719 13 6	223	470		1			780	1	425 7 2	1,145 0 8
Macdonald River	3	257 10 0	636	126 16 6	45	117				4	434	96	104 18 5	231 14 11
Walcha Road	9	798 14 7	2,741	1,612 15 4	211	1,243		6		2	4,180		4,861 9 6	6,474 4 10

Stations.	No. of hands employed, including Station-masters.	Total Expenditure.	No of Tickets issued.	Revenue from Tickets and Coaching Traffic.	Goods.		Coal.		Hay, Straw, and Chaff.		Wool.		Earnings from Goods Traffic.	Total Earnings.	
					Tonnage outwards.	Tonnage inwards.	Tonnage outwards.	Tonnage inwards.	Trucks outwards.	Trucks inwards.	Bales outwards.	Bales inwards.			
GREAT NORTHERN RAILWAY—continued.															
Kentucky	4	£ 239 13 1	2,335	£ 352 12 1	59	143	.....	.....	4	.....	803	.....	£ 351 6 0	£ 703 18 1
Uralla	14	1,062 2 5	6,511	2,451 12 8	467	2,168	.....	19	19	10	3,927	35	5,479 7 8	7,931 0 4
Armidale	30	2,912 13 10	13,693	7,028 19 3	2,818	6,379	.....	740	355	84	3,261	103	16,339 8 5	23,368 7 8
Eversleigh	11	526 8 9	1,580	297 1 0	410	189	.....	.....	.....	.....	570	2	301 10 8	598 11 8
Black Mountain	6	400 2 3	1,609	327 2 7	624	215	.....	.....	3	.....	415	.....	207 2 8	534 5 3
Guyra	11	965 16 5	3,698	1,183 5 8	1,518	1,445	.....	.....	107	39	995	1	5,533 11 6	6,716 17 2
Ben Lomond	6	362 19 7	1,020	303 5 9	342	284	.....	.....	29	.....	355	.....	436 18 8	740 4 5
Glencoe	10	626 17 5	1,274	393 13 8	697	286	.....	.....	30	.....	109	.....	698 8 0	1,092 1 8
Glen Innes	20	2,050 10 10	8,512	8,610 0 5	4,072	9,463	.....	603	103	11	5,448	4	32,546 3 3	41,156 3 8
Dundee	12	139 19 1	617	115 3 11	833	100	.....	.....	.....	.....	565	103	79 4 0	194 7 11
Deepwater	7	226 2 10	1,331	680 4 11	675	640	.....	7	.....	16	424	.....	1,585 13 10	2,265 18 9
Bolva	2	93 6 8	441	143 15 1	66	42	.....	.....	.....	.....	85	.....	63 8 5	207 3 6
Tenterfield	13	507 10 10	2,100	2,135 4 1	136	1,965	.....	18	1	43	398	.....	4,249 5 9	6,384 9 10
Breeza	9	612 12 10	1,164	523 8 3	46	226	.....	.....	.....	3	794	.....	1,016 10 2	1,539 18 5
Curlewis	2	215 0 0	609	199 0 9	834	122	.....	.....	.....	.....	297	.....	139 13 11	338 14 8
Gunnedah	16	1,687 16 6	5,685	3,611 11 11	489	2,080	.....	39	2	26	5,280	122	6,959 3 4	9,670 15 3
Boggabri	11	766 15 1	2,286	941 16 10	1,045	666	.....	6	.....	17	1,548	.....	1,580 16 2	2,522 13 0
Baan Baa	2	205 0 0	583	180 1 8	1,175	62	.....	.....	.....	13	46	.....	77 5 10	257 7 6
Narrabri	21	2,656 18 5	5,062	6,285 10 4	1,371	6,342	.....	69	3	258	23,983	10	23,104 1 0	29,389 11 4
Morpeth Platform	25	3,122 8 8	15,921	1,111 2 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,111 2 6
Morpeth															7,087	663 13 6	13,145	4,229	7,961	65	24	301	30,076	19,276 8 4	19,940 1 10
Wallsend	8	879 19 9	55,490	2,591 17 4	1,271	10,026	.....	.....	8	234	1	.....	2,266 6 6	4,858 3 10
1886	.....	.....	720,008	128,053 18 11	147,932	147,932	1,633,875	1,633,875	2,624	2,624	84,203	84,203	305,908 6 2	433,962 5 1
1885	.....	.....	658,117	129,282 14 3	172,291	172,291	1,640,601	1,640,601	2,100	2,100	84,424	84,424	327,644 14 3	456,927 8 6
GRAND SUMMARY.															
Suburban, Illawarra, North Coast, and Sydney	707	92,393 2 7	5,114,409	345,478 13 5	313,536	446,847	15,174	131,199	3,097	9,853	14,905	218,203	461,284 15 11	806,763 9 4	
Southern Line	302	40,794 1 1	463,058	182,985 0 7	233,708	196,988	6,164	21,489	3,183	2,792	108,635	19,283	259,490 2 6	442,475 3 1	
Western Line	431	55,296 19 3	626,304	141,633 0 7	235,335	179,151	161,022	28,417	8,425	2,585	114,379	1,133	281,743 4 2	423,376 4 9	
Windsor and Richmond Line	15	1,848 14 5	47,641	7,625 3 6	48,928	8,521	9	1,264	663	138	1,824	.....	10,747 5 5	18,372 8 11
Northern Line	787	85,201 10 7	6,251,412	677,721 18 1	831,507	831,507	1,633,875	1,633,875	2,624	2,624	239,743	239,743	1,013,265 8 0	1,690,987 6 1	
1886	.....	.....	6,971,420	805,775 17 0	979,439	979,439	1,816,244	1,816,244	17,992	17,992	323,946	323,946	1,319,173 14 2	2,124,949 11 2
1885	.....	.....	6,377,950	800,644 12 8	1,006,935	1,006,935	1,825,351	1,825,351	20,646	20,646	361,118	361,118	1,353,193 2 10	2,153,837 15 6
												1886—Add Mails, advertising, sale of Old Material, &c. £58,226 17s. 9d. Less Credits, £19,373 18s. 5d. ...		} 38852 19 4	
												1885— " " " £52,912 10s. 7d. " " £28,577 19s. 11d. ...			
														1886—Gross Earnings	2163802 10 6
														1885— " " "	2178172 6 2

No. 28.

GREAT SOUTHERN, WESTERN, AND RICHMOND RAILWAYS.

RETURN showing Outwards and Inwards Traffic at each Station during 1886.

Stations.	Coaching		Goods.		Coaching and Goods.		Total Coaching and Goods Outwards and Inwards.
	Outwards.	Inwards	Outwards.	Inwards.	Outwards.	Inwards.	
SUBURBAN, ILLAWARRA, AND NORTH COAST RAILWAY, INCLUDING SYDNEY.							
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Central	47,726 18 7	807 8 4	...	...	47,726 18 7	807 8 4	48,534 6 11
Darling Harbour	...	...	88,115 17 10	242,465 5 3	88,115 17 10	242,465 5 3	330,581 3 1
Sydney	174,809 12 9	241,921 14 2	344,271 3 5	469 19 1	519,080 16 2	242,391 13 3	761,472 9 5
Eveleigh	3,555 2 1	1,956 8 3	...	957 13 5	3,555 2 1	2,914 1 8	6,469 3 9
McDonald Town	2,062 0 7	851 7 8	...	1 8 7	2,062 0 7	852 16 3	2,914 16 10
Newtown	7,131 13 1	5,031 11 11	1,259 13 4	23,369 7 3	8,391 6 5	28,400 19 2	36,792 5 7
Stanmore	3,048 5 2	1,146 11 5	...	2 17 2	3,048 5 2	1,149 8 7	4,197 13 9
Petersham	15,139 19 3	7,578 18 7	397 12 9	11,292 19 2	15,537 12 0	18,871 17 9	34,409 9 9
Summer Hill	9,363 11 10	3,900 6 8	7 19 5	24 12 10	9,371 11 3	3,924 19 6	13,296 10 9
Ashfield	11,596 19 3	6,286 0 1	826 10 4	4,384 19 0	12,423 9 7	10,670 19 1	23,094 8 8
Croydon	6,508 18 8	2,722 19 1	0 18 6	19 16 10	6,509 17 2	2,742 15 11	9,252 13 1
Burwood	14,332 11 9	7,481 13 3	271 3 2	6,330 5 2	14,603 14 11	13,811 18 5	28,415 13 4
Strathfield	3,711 18 9	1,190 0 8	...	27 13 7	3,711 18 9	1,217 14 3	4,929 13 0
Homebush	4,442 18 2	3,483 9 8	5,028 2 11	120,048 11 5	9,471 1 1	123,532 1 1	133,003 2 2
Flemington	109 12 6	320 17 8	...	...	109 12 6	320 17 8	430 10 2
Rookwood	3,483 3 6	6,884 1 7	147 11 11	1,625 3 6	3,630 15 5	8,509 5 1	12,140 0 6
Auburn	2,178 13 6	1,629 2 5	225 19 3	1,413 17 7	2,404 12 9	3,043 0 0	5,447 12 9
Clyde	362 18 9	74 10 3	...	684 0 8	362 18 9	758 10 11	1,121 9 8
Granville	9,108 14 4	8,513 5 2	10,321 2 2	8,554 13 3	19,429 16 6	17,067 18 5	36,497 14 11
Erskville	1,414 8 3	363 2 11	...	0 2 0	1,414 8 3	363 4 11	1,777 13 2
St. Peters	2,313 3 0	1,287 5 5	...	15 13 7	2,313 3 0	1,302 19 0	3,616 2 0
Marrickville	2,721 5 7	1,146 2 0	340 18 5	5,734 8 11	3,062 4 0	6,880 10 11	9,942 14 11
Tempe	1,853 18 3	921 14 9	...	2 19 8	1,853 18 3	924 14 5	2,778 12 8
Arncliffe	1,296 13 0	907 16 0	1 14 1	9 11 3	1,298 7 1	917 7 3	2,215 14 4
Rockdale	2,967 14 8	3,717 16 2	68 17 6	2,165 0 11	3,036 12 2	5,882 17 1	8,919 9 3
Kogarah	2,800 1 5	2,432 11 9	4 11 7	89 8 7	2,804 13 0	2,522 0 4	5,326 13 4
Hurstville	2,653 7 11	2,746 5 0	216 14 0	1,392 13 0	2,900 1 11	4,138 18 0	7,038 19 11
Penshurst	9 9 1	40 18 7	...	0 1 3	9 9 1	40 19 10	50 8 11
Oatley's	6 17 8	89 7 4	...	0 3 9	6 17 8	89 11 1	96 8 9
Como	101 7 7	1,656 1 7	3 0 5	12 10 11	104 8 0	1,668 12 6	1,773 0 6
Sutherland	513 3 11	1,369 16 10	486 8 0	905 18 7	999 11 11	2,276 15 5	3,276 7 4
Loftus	40 4 11	2,324 17 2	11 16 6	79 3 8	52 1 5	2,404 0 10	2,456 2 3
Heathcote	228 0 5	393 5 2	...	59 10 8	228 0 5	457 15 10	685 16 3
Waterfall	1,865 16 10	2,125 6 9	101 15 10	2,741 16 7	1,967 12 8	4,867 3 4	6,834 16 0
Rhodes	1 1 8	1 16 2	...	0 1 10	1 1 8	1 18 0	2 19 8
Ryde	249 1 1	220 8 7	41 8 1	234 14 10	290 9 2	455 3 5	745 12 7
Dundas	151 11 5	157 10 1	12 17 1	33 3 9	164 8 6	190 13 10	355 2 4
Pennant Hills	...	28 19 5	...	0 2 6	...	29 1 11	29 1 11
Carlingford	13 16 11	106 3 8	...	0 1 3	13 16 11	106 4 11	120 1 10
Beecroft	15 5 10	50 15 9	...	0 9 5	15 5 10	51 5 2	66 11 0
Thornleigh	45 1 8	128 18 11	49 19 4	31 11 8	95 1 0	160 10 7	255 11 7
Hornsby	249 18 4	744 4 10	41 9 7	384 12 7	291 7 11	1,128 17 5	1,420 5 4
	340,185 1 11	324,746 11 8	452,285 5 5	435,568 4 11	792,470 7 4	760,314 16 7	1,552,785 3 11
GREAT SOUTHERN RAILWAY.							
Merrylands	430 16 1	196 13 6	744 6 3	942 8 1	1,175 2 4	1,139 1 7	2,314 3 11
Guildford	537 12 11	330 15 6	88 6 2	290 9 4	625 19 1	621 4 10	1,247 3 11
Fairfield	2,823 8 5	2,067 1 3	528 3 6	1,181 18 9	3,351 11 11	3,240 0 0	6,600 11 11
Canley Vale	363 10 1	384 17 10	...	13 16 7	363 10 1	398 14 5	762 4 6
Cabramatta	447 13 1	287 13 0	399 15 9	205 1 4	847 8 10	492 14 4	1,340 3 2
Liverpool	3,493 16 1	3,220 5 5	4,115 17 1	6,304 10 2	7,609 13 2	9,524 15 7	17,134 8 9
Glenfield	118 16 6	269 17 1	471 19 3	50 9 9	590 15 9	320 6 10	911 2 7
Ingleburn	240 9 6	428 17 8	872 2 10	102 0 11	1,112 12 4	530 18 7	1,643 10 11
Minto	500 9 11	452 4 0	589 14 3	206 0 5	1,090 4 2	658 4 5	1,748 8 7
Leumeah	1 11 4	31 14 1	...	0 8 7	1 11 4	32 2 8	33 14 0
Campbelltown	5,223 7 0	4,835 15 5	780 4 6	3,143 6 10	6,003 11 6	7,979 2 3	13,982 13 9
Glenlea	79 14 11	2 11 6	...	...	79 14 11	2 11 6	82 6 5
Menangle Platform	51 14 3	1 1 7	...	...	51 14 3	1 1 7	52 15 10
Menangle	606 19 11	494 13 2	416 4 6	240 4 3	1,023 4 5	734 17 5	1,758 1 10
Douglas Park	550 2 9	415 9 6	892 12 7	208 6 4	1,442 15 4	623 15 10	2,066 11 2
Pieton	1,629 9 8	2,738 8 2	1,427 18 0	1,604 8 10	3,957 7 8	4,342 17 0	7,400 4 8
Thirlmere	180 6 9	342 19 8	2,214 10 2	356 10 10	2,394 16 11	699 10 6	3,994 7 5
Pieton Lakes	2 15 1	97 11 6	...	5 18 3	2 15 1	103 9 9	106 4 10
Bargo	11 17 2	18 16 2	...	5 18 1	11 17 2	21 14 3	36 11 5
Hill Top	73 16 7	165 18 9	98 12 3	42 6 4	172 8 10	208 5 1	380 13 11
Colo Vale	163 16 9	209 14 3	494 8 6	74 6 4	658 5 3	284 0 7	942 5 10
Rush's	1 12 4	19 17 2	...	7 6 3	1 12 4	27 3 5	28 15 9
Mittagong	2,476 0 3	3,526 10 6	1,142 7 0	2,374 8 8	3,618 7 3	5,900 19 2	9,519 6 5
Joadja	...	0 0 5	9,949 8 0	1,122 15 3	9,949 8 0	1,122 15 8	11,072 3 8
Bowral	2,471 7 11	5,275 11 8	1,806 8 7	3,998 19 6	4,277 16 6	9,274 11 2	13,552 7 8
Burradoo	10 17 0	470 12 1	...	88 10 1	10 17 0	559 2 2	569 19 2
Austermere	0 5 6	16 8 3	470 15 10	6 15 4	471 1 4	23 3 7	494 4 11
Moss Vale	4,655 5 3	7,965 2 8	4,218 1 4	5,317 1 11	8,873 6 7	13,282 4 7	22,155 11 2

No 28—continued.

Stations	Coaching		Goods		Coaching and Goods		Total Coaching and Goods, Outwards and Inwards
	Outwards	Inwards	Outwards	Inwards	Outwards	Inwards	
GREAT SOUTHERN RAILWAY—continued.							
Meryla	£ 2 3 1	£ 25 5 5	£ 2 6 4	£ 35 17 10	£ 4 9 5	£ 61 3 3	£ 65 12 8
F. F. and Ice Co		.....	2 8 6		2 8 6	.....	2 8 6
Badgery's	1 19 8	1 17 3	6 17 7	23 11 0	8 17 3	25 8 3	34 5 6
Ringwood			186 16 4	140 16 0	186 16 4	140 16 0	327 12 4
Bundanoon	461 4 8	423 6 8	670 11 10	216 10 11	1,131 16 6	639 17 7	1,771 14 1
Erith	0 1 2	1 11 6	178 14 6		178 15 8	1 11 6	180 7 2
Cable's	1 3 7	6 16 9	108 0 1	1 16 1	109 3 8	8 12 10	117 16 6
Wingello	206 6 9	129 14 3	914 15 3	78 9 8	1,121 2 0	208 3 11	1,329 5 11
Barber's	17 5 0	143 17 8	10 7 2	27 4 3	27 12 2	171 1 11	198 14 1
Morrice's	1 13 0	1 17 9	570 12 11	99 9 4	572 5 11	101 7 1	673 13 0
Marulan	1,085 2 7	1,009 6 3	4,143 5 5	1,186 2 2	5,228 8 0	2,195 8 5	7,423 16 5
Carrick	4 6 0	132 15 5	37 13 10	23 10 4	41 19 10	156 5 9	198 5 7
Towrang	229 15 0	170 1 6	367 7 4	150 4 1	597 2 4	320 5 7	917 7 11
North Goulburn	15 16 0	40 9 9	0 6 6	96 4 10	16 2 6	136 14 7	152 17 1
Goulburn	18,644 19 6	19,198 4 6	24 543 8 6	35 377 16 1	43,188 8 0	54,576 0 7	97,764 5 7
Joppa	87 0 4	33 1 5		1 5 11	87 0 4	34 7 4	121 7 8
Yarra	0 17 6	64 5 5	0 5 2	1 16 11	1 2 8	66 2 4	67 5 0
Breadalbane	602 19 8	478 17 9	1,292 15 2	443 19 1	1,895 14 10	922 16 10	2,818 11 8
Cullerin	28 19 7	27 4 8	0 14 4	7 6 0	29 13 11	34 10 8	64 4 7
Fish River	28 8 5	64 3 11		31 11 3	28 8 5	95 15 2	124 3 7
Gunning	1,391 12 1	1,132 15 5	1,500 19 4	1,698 0 2	2,892 11 5	2,830 15 7	5,723 7 0
Jerrawa	124 13 1	92 8 3	159 2 9	56 1 5	283 15 10	148 9 8	432 5 6
Yass	3,882 12 8	3,891 12 4	3,259 8 10	7,720 17 5	7,142 1 6	11,612 9 9	18,754 11 3
Burrowa			6 9 0		6 9 0		6 9 0
Bowning	406 15 6	450 14 7	1,288 17 10	956 2 8	1,695 13 4	1,406 17 3	3,102 10 7
Binalong	1,453 3 0	1 328 4 8	2,594 15 1	3,233 14 6	4,047 18 1	4 561 19 2	8,609 17 3
Galong	10 3 6	67 17 7	40 6 3	56 18 11	50 9 9	124 16 6	175 6 3
Rocky Ponds	52 1 11	33 7 7	1 8 8	4 6 11	53 10 7	37 14 6	91 5 1
Cunningar	17 19 3	204 6 1	697 5 8	190 2 5	715 4 11	394 8 6	1 109 13 5
Harden	2,456 9 11	2 285 11 8	3,389 19 8	2,253 4 10	5 846 9 7	4,538 16 6	10,385 6 1
Murrumburrah	2,338 11 11	2,238 8 9	1,466 17 9	3 245 0 3	3 805 9 8	5,483 9 0	9,288 18 8
Nubba	132 7 0	84 8 10	226 15 7	170 9 5	359 2 7	254 18 3	614 0 10
Wallendbeen	603 15 3	593 5 10	1,891 15 1	894 16 0	2,495 10 4	1,488 1 10	3 983 12 2
Demondrille	51 1 10	25 0 5	0 13 3	47 15 9	51 15 1	72 16 2	124 11 3
Cootamundra	7,904 11 8	7 318 3 1	7,389 17 3	16,269 18 11	15 294 8 11	23,588 2 0	38,882 10 11
Cungegong	15 7 2	106 11 4	105 17 11	47 14 3	121 5 1	154 5 7	275 10 8
Mullaly's		..	19 15 10	11 16 6	19 15 10	11 16 6	31 12 4
Betnunga	401 16 5	332 1 11	875 10 4	402 19 7	1,277 6 9	735 1 6	2,012 8 3
Illabo	324 14 0	307 1 6	593 6 11	251 18 4	918 0 11	558 19 10	1 477 0 9
Junee Junction	6,402 18 9	6,777 9 6	1,389 4 1	3,562 3 1	7,792 2 10	10 339 12 2	18,131 15 0
Harefield	83 4 2	115 13 2	177 16 2	40 3 4	261 0 4	155 16 6	416 16 10
Bomen	256 9 0	246 17 1	2,223 0 5	265 9 8	2,479 9 5	512 6 9	2,991 16 2
South Wagga	10,244 14 0	10,777 10 8	11,145 7 0	22,091 7 11	21,390 1 0	32,868 18 7	54,258 19 7
Connorton			6 10 9		6 10 9	.....	6 10 9
Sandy Creek	145 4 3	145 3 9	99 8 3	63 2 8	244 12 6	208 6 5	452 18 11
The Rock	625 4 4	619 7 11	1,383 6 4	468 7 11	2,008 10 8	1,087 15 10	3,096 6 6
Yerong Creek	937 19 11	772 8 5	794 7 11	654 16 0	1,732 7 10	1,427 4 5	3,159 12 3
Dudal Cooma	18 8 11	82 17 3	326 5 7	96 14 1	344 14 6	179 11 4	524 5 10
Culcairn	1,329 9 7	1,049 6 9	961 19 2	1,145 15 3	2,291 8 9	2,195 2 0	4,486 10 9
Gerogery	393 3 5	281 8 3	2,289 15 2	296 5 8	2,682 18 7	577 13 11	3,260 12 6
Yambla	266 11 6	240 13 6	516 8 10	394 14 11	783 0 4	635 8 5	1,418 8 9
Ettamogah	10 7 9	55 12 2	179 19 10	66 14 6	190 7 7	122 6 8	312 14 3
Albury R C	1 0 4	161 16 8			1 0 4	161 16 8	162 17 0
Albury	16,422 2 6	18,194 4 1	14 733 2 6	12,150 12 9	31,155 5 0	30,344 16 10	61,500 1 10
Murray Bridge	2 9 3	1 14 0			2 9 3	1 14 0	4 3 3
Wodonga	377 3 4	28,470 14 4	1 592 13 0	272 14 4	1,969 16 4	28,743 8 8	30,713 5 0
Melbourne	28 983 3 11	..			28,683 3 11		28 983 3 11
Bangalore	3 14 6	144 0 11	47 5 8	111 3 9	51 0 2	255 4 8	306 4 10
Lake Bathurst	17 17 7	349 2 5	1,357 15 11	104 9 8	1,375 13 6	453 12 1	1,829 5 7
Tarago	2,353 10 9	1,971 14 4	2,638 0 11	2,293 1 7	4,991 11 8	4,264 15 11	9 256 7 7
Bungendore	6,218 15 7	5 382 10 8	7,360 0 5	34 428 16 2	13,578 16 0	39 811 6 10	53,390 2 10
Fairy Meadows	2 6 3	7 15 0	...	1 5 8	2 6 3	9 0 8	11 6 11
Brawllins	8 3 0	27 15 11	6 19 7	11 9 1	15 2 7	39 5 0	54 7 7
Muttama	9 10 0	66 8 1	43 16 10	95 1 8	53 6 10	161 9 9	214 16 7
Coolac	217 0 7	183 11 7	1,150 13 0	429 10 4	1,367 13 7	613 1 11	1,980 15 6
Gundagai ...	2,225 4 11	2,507 5 11	3,069 3 2	6,652 9 4	5,294 8 1	9,159 15 3	14,454 3 4
King's Vale	19 16 2	131 4 9	155 19 6	116 15 10	175 15 8	248 0 7	423 16 3
Young R C		43 8 3			43 8 3		43 8 3
Young	5 527 2 10	4,485 18 11	10,325 6 0	41,808 7 4	15 852 8 10	46,294 6 3	62,146 15 1
Monteagle	0 19 9	4 9 0		3 17 11	0 19 9	8 6 11	9 6 8
Koorowatha	8 0 3	19 11 9	1 14 3	10 17 10	9 14 6	30 9 7	40 4 1
Cowra	269 1 5	246 3 4	971 3 6	1,236 14 4	1 240 4 11	1 482 17 8	2,723 2 7
Old Junee	200 5 3	159 19 10	2 512 13 10	836 0 11	2,772 19 1	996 0 9	3,768 19 10
Mariar	1 18 11	107 6 10	0 4 6	37 4 1	2 3 5	144 10 11	146 14 4
Coolaman	848 3 5	761 6 6	2,802 6 9	1,480 13 7	3,650 10 2	2,242 0 1	5,892 10 3
Boggy Creek	34 11 10	60 4 2	1 10 0	9 8 10	36 1 10	69 13 0	105 14 10
Devlin's Siding	64 14 11	125 10 8	2,012 11 4	277 16 11	2,077 6 3	403 7 7	2,480 13 10
Giong Giong	402 13 11	313 14 1	554 14 4	578 8 10	957 8 3	892 2 11	1,849 11 2
Narrandera	5,527 1 0	5,260 14 8	6,572 18 5	8,381 11 5	12,099 19 5	13,642 6 1	25,742 5 6
Yanco	81 11 9	85 19 10	639 2 8	273 19 1	720 14 4	359 18 11	1,080 13 4
Whitton	1,203 2 8	1,085 12 2	3 167 18 10	2,663 6 4	4,371 1 6	3,748 18 6	8 120 0 0
Dalington	473 7 9	282 0 4	3,849 2 7	562 2 4	4,322 10 4	844 2 8	5,166 13 0

No. 28—continued.

Stations.	Coaching.		Goods		Coaching and Goods.		Total of Coaching and Goods, Outwards and Inwards.
	Outwards.	Inwards.	Outwards.	Inwards.	Outwards	Inwards.	
GREAT SOUTHERN RAILWAY—continued.							
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Benerambah...	39 4 3	141 8 6	626 9 9	130 8 3	665 14 0	271 16 9	937 10 9
Bringagee ...	233 10 2	149 6 4	252 11 10	260 4 0	486 2 0	409 10 4	895 12 4
Groongal ...	36 19 10	223 10 10	994 9 2	185 5 5	1,031 9 0	408 16 3	1,440 5 3
Carrathool ...	1,499 19 3	1,029 6 11	6,133 1 11	3,730 12 10	7,633 1 2	4,759 19 9	12,393 0 11
Uardry	6 15 6	90 18 8	328 12 11	61 19 1	335 8 5	152 17 9	488 6 2
Tnononga .	0 19 7	30 5 11	7 13 5	1 14 9	8 13 0	32 0 8	40 13 8
Beabula ...	9 16 8	117 13 0	90 5 5	185 4 6	100 2 1	302 17 6	402 19 7
Waradgery ..	16 0 5	85 17 3	49 10 3	88 9 4	65 10 8	174 6 7	239 17 3
Hay	6,140 6 10	5,834 5 2	6,071 6 3	17,135 17 0	12,211 13 1	22,970 2 2	35,181 15 3
Gillenbah .....	.....	.....	247 14 11	101 3 11	247 14 11	101 3 11	348 18 10
Cuddell	45 13 3	89 13 10	176 0 10	77 12 4	221 14 1	167 6 2	389 0 3
Colombo ...	819 17 8	212 6 0	2,685 2 7	427 18 2	3,505 0 3	640 4 2	4,145 4 5
Widgiewa	14 7 8	154 11 8	752 4 2	146 10 4	766 11 10	301 2 0	1,067 13 10
Coonong ...	28 9 6	280 19 0	188 7 2	507 12 8	216 16 8	788 11 8	1,005 8 4
Bundure ...	21 3 2	115 6 0	1,361 13 10	208 0 5	1,382 17 0	323 6 5	1,706 3 5
Yathong	15 17 11	110 4 1	61 18 11	122 18 9	77 16 10	233 2 10	310 19 8
Jerilderie ..	1,253 10 5	1,049 14 9	6,636 0 6	3,367 7 11	7,889 10 11	4,417 2 8	12,306 13 7
Mary Fields ..	.....	2 13 6	.....	.....	.....	2 13 6	2 13 6
Curran's Hill ..	33 0 7	0 1 1	.....	.....	33 0 7	0 1 1	33 1 8
Narellan	515 6 2	164 15 11	1,863 6 1	260 16 1	2,378 12 3	425 12 0	2,804 4 3
Kenny Hill	8 6 3	8 9 6	20 4 8	49 8 0	28 10 11	57 17 6	86 8 5
Camden	1,628 10 7	1,355 15 5	1,232 3 5	2,425 11 2	2,860 14 0	3,781 6 7	6,642 0 7
Kirkham's Lane ..	0 0 2	0 1 6	.....	.....	0 0 2	0 1 6	0 1 8
	174,781 16 5	179,765 11 3	207,107 11 1	276,798 6 10	381,889 7 6	456,563 18 1	838,453 5 7
GREAT WESTERN RAILWAY.							
Harris Park	486 4 3	25 5 3	.....	.....	486 4 3	25 5 3	511 9 6
Parramatta ...	18,326 17 5	13,914 2 4	2,847 18 11	7,909 3 5	21,174 16 4	21,823 5 9	42,998 2 1
Parramatta Park .....	.....	44 12 11	.....	.....	.....	44 12 11	44 12 11
Westmead	41 16 8	27 5 0	.....	.....	41 16 8	27 5 0	69 1 8
Wentworthville ..	26 14 7	79 12 11	136 10 0	89 2 8	163 4 7	168 15 7	332 0 2
Toongabbie	65 0 10	99 9 1	.....	0 14 9	65 0 10	100 3 10	165 4 8
Seven Hills	570 4 10	399 5 9	543 18 0	386 0 7	1,114 2 10	785 6 4	1,899 9 2
Doonside	2 0 3	12 14 6	.....	1 11 6	2 0 3	14 6 0	16 6 3
Crawford's .....	.....	.....	.....	0 17 10	.....	0 17 10	0 17 10
Blacktown	1,185 11 2	1,275 1 2	1,067 19 8	7,407 18 7	2,253 10 10	8,682 19 9	10,936 10 7
Rooty Hill	1,177 0 6	986 15 1	1,999 9 7	611 8 6	3,176 10 1	1,598 3 7	4,774 13 8
Mount Druitt	173 8 0	227 3 2	1,252 14 5	90 17 1	1,426 2 5	318 0 3	1,744 2 8
St. Mary's	1,607 19 5	1,005 2 5	4,327 15 5	1,104 7 5	5,935 14 10	2,109 9 10	8,045 4 8
Cross Roads.....	.....	0 3 10	.....	2,211 2 8	.....	2,211 6 6	2,211 6 6
Parkes	38 2 9	50 1 4	2,920 14 11	2 11 2	2,958 17 8	52 12 6	3,011 10 2
Penrith	4,495 10 9	4,128 9 9	1,300 0 6	3,836 15 2	5,795 11 3	7,965 4 11	13,760 16 2
Emu Plains	485 14 7	802 16 6	1,757 14 6	376 17 6	2,243 9 1	1,179 14 0	3,423 3 1
Hudson's .....	.....	.....	9,091 19 1	0 9 0	9,091 19 1	0 9 0	9,092 8 1
Lucasville	6 5 3	194 6 2	.....	3 0 8	6 5 3	197 6 10	203 12 1
Glenbrook	86 15 7	172 7 11	32 17 7	64 2 1	119 13 2	236 10 0	356 3 2
Blaxland	25 13 7	77 9 3	54 10 5	10 10 5	80 4 0	87 19 8	168 3 8
Karabar	1 16 9	3 18 2	.....	.....	1 16 9	3 18 2	5 14 11
The Valley	58 5 11	302 18 4	2 7 3	35 10 4	60 13 2	338 8 8	399 1 10
Springwood	607 17 7	1,114 19 7	546 0 0	454 5 4	1,153 17 7	1,569 4 11	2,723 2 6
Faulconbridge	27 0 11	244 13 2	2 12 2	93 10 8	29 13 1	338 3 10	367 16 11
Numantia	22 3 10	202 0 7	0 3 3	52 12 2	22 7 1	254 12 9	276 19 10
Linden	59 16 4	120 3 9	5 8 3	91 4 2	65 4 7	211 7 11	276 12 6
Woodford	49 17 5	420 18 8	12 16 5	38 5 4	62 13 10	459 4 0	521 17 10
Hazelbrook	4 9 11	80 6 3	.....	28 16 0	4 9 11	109 2 3	113 12 2
Lawson	297 15 1	1,100 10 1	9 12 10	369 14 8	307 7 11	1,470 4 9	1,777 12 8
Wentworth Falls ..	204 18 4	947 7 3	37 9 9	242 10 5	242 8 1	1,189 17 8	1,432 5 9
Gladstone .....	.....	.....	28 19 5	24 3 8	28 19 5	24 3 8	53 3 1
Katoomba	1,536 9 9	3,885 13 7	137 12 7	1,553 9 1	1,674 2 4	5,439 2 8	7,113 5 0
North's .....	.....	.....	8,515 5 0	.....	8,515 5 0	.....	8,515 5 0
Medlow	12 10 5	41 1 9	52 17 6	16 5 2	65 7 11	57 6 11	122 14 10
Blackheath	692 8 9	2,244 12 11	561 9 2	986 2 9	1,253 17 11	3,230 15 8	4,484 13 7
Mount Victoria ..	1,746 3 3	3,952 15 5	273 17 1	1,087 15 2	2,020 0 4	5,040 10 7	7,060 10 11
Hartley Vale ...	234 8 2	527 13 4	4,244 10 11	1,603 2 2	4,478 19 1	2,130 15 6	6,609 14 7
Main Camp .....	.....	6 10 0	2,380 9 9	13 19 0	2,380 9 9	20 9 0	2,400 18 9
Mount Wilson ..	186 6 10	392 13 5	34 6 5	140 11 11	220 13 3	533 5 4	753 18 7
Clarence	66 1 4	125 10 8	95 13 11	69 0 7	161 15 3	194 11 3	356 6 6
V. C. Siding .....	.....	.....	15,723 18 8	1 2 6	15,723 18 8	1 2 6	15,725 1 2

No. 28—continued.

Stations.	Coaching.		Goods.		Coaching and Goods.		Total of Coaching and Goods, Outwards and Inwards.
	Outwards.	Inwards.	Outwards.	Inwards.	Outwards.	Inwards.	
GREAT WESTERN RAILWAY—continued.							
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Zig Zag	38 15 5	89 9 0	.....	.....	38 15 5	89 9 0	128 4 5
Mort's .....	.....	.....	10,081 3 5	.....	10,081 3 5	.....	10,081 3 5
Eskbank	1,943 13 3	1,753 9 8	969 11 0	4,122 4 10	2,913 4 3	5,875 14 6	8,788 18 9
Eskbank Siding .....	.....	.....	12,755 6 11	.....	12,755 6 11	.....	12,755 6 11
Lithgow	1,397 16 7	3,488 6 5	9,589 17 7	10 10 4	10,987 14 2	3,498 16 9	14,486 10 11
Bowenfels	572 13 4	1,387 16 2	170 12 10	699 18 7	743 6 2	2,087 14 9	2,831 0 11
Bowenfels Siding .....	.....	.....	193 3 10	.....	193 3 10	.....	193 3 10
Marrangaroo	12 4 2	55 12 3	.....	0 13 7	12 4 2	56 5 10	68 10 0
Wallerawang	2,396 6 3	1,951 19 0	772 19 8	1,254 1 11	3,169 5 11	3,206 0 11	6,374 16 10
Rydal	1,248 15 1	954 7 6	843 9 6	9,464 2 4	2,092 4 7	10,418 9 10	12,510 14 5
Sodwalls	2 8 10	67 18 4	48 9 11	16 3 0	50 18 9	84 1 4	135 0 1
Tarana	1,045 7 9	1,400 7 0	1,223 17 9	993 5 3	2,269 5 6	2,393 12 3	4,662 17 9
Locksley	154 4 3	188 13 3	128 15 7	16 9 3	282 19 10	205 2 6	488 2 4
Brewongle	452 19 4	482 12 5	1,297 9 7	472 5 9	1,750 8 11	954 18 2	2,705 7 1
Raglan	171 2 0	132 4 9	1,623 8 7	232 12 7	1,794 10 7	364 17 4	2,159 17 11
Kelso	791 10 6	640 7 4	5,152 17 0	4,382 19 1	5,944 7 6	5,023 6 5	10,967 13 11
Bathurst	15,529 7 8	16,639 15 7	6,488 18 5	29,939 1 10	22,018 6 1	46,578 17 5	68,597 3 6
Orton Park	1 16 8	94 2 0	.....	0 15 0	1 16 8	94 17 0	96 13 8
Perth	368 2 11	400 5 9	2,007 9 1	732 1 2	2,375 12 0	1,132 6 11	3,507 18 11
George's Plains	426 7 0	430 5 10	952 3 5	348 12 7	1,378 10 5	778 18 5	2,157 8 10
Wimbledon	197 12 5	220 14 7	410 8 5	120 12 8	608 0 10	341 7 3	949 8 1
Newbridge	1,018 10 2	838 19 5	1,786 19 5	1,509 7 5	2,805 9 7	2,348 6 10	5,153 16 5
Blayney	5,502 3 5	4,917 5 2	5,141 19 5	21,210 1 7	10,644 2 10	26,127 6 9	36,771 9 7
Lune Siding .....	.....	1 1 11	484 9 4	234 2 2	484 9 4	235 4 1	719 13 5
Millthorpe	1,095 11 0	875 2 11	3,379 19 5	1,697 10 9	4,475 10 5	2,572 13 8	7,048 4 1
Sping Hill	731 6 1	503 11 11	1,845 13 7	581 15 1	2,576 19 8	1,085 7 0	3,662 6 8
Orange Sale Yards .....	.....	44 15 7	.....	.....	.....	44 15 7	44 15 7
Hunt ey	56 10 5	96 12 10	159 14 7	88 2 2	216 5 0	184 15 0	401 0 0
Orange Meat Co. ....	.....	6 0 10	96 3 4	3 3 10	96 3 4	9 4 8	105 8 0
Orange	12,756 5 11	12,719 10 3	12,203 14 9	25,630 5 0	24,960 0 8	38,349 15 3	63,309 15 11
Lawrence .....	.....	.....	11 0 8	.....	11 0 8	.....	11 0 8
Mullion Creek	162 17 7	165 5 5	237 1 3	72 2 1	399 18 10	237 7 6	637 6 4
Kerr's Creek	198 7 6	126 18 10	263 2 7	32 11 3	461 10 1	159 10 1	621 0 2
Warne	418 5 0	381 2 4	684 18 7	218 5 4	1,103 3 7	599 7 8	1,702 11 3
Store Creek	53 1 7	25 9 9	32 10 2	3 10 8	85 11 9	29 0 5	114 12 2
Ironbarks	597 7 3	594 11 3	750 9 2	525 17 11	1,317 16 5	1,120 9 2	2,438 5 7
Mumbil	201 6 4	168 8 3	496 6 2	224 15 11	697 12 6	393 4 2	1,090 16 8
Springs	369 16 10	290 12 10	411 12 3	136 11 10	781 9 1	427 4 8	1,208 13 9
Apsley	1 11 9	38 18 8	.....	2 5 0	1 11 9	41 3 8	42 15 5
Wellington	3,303 12 6	3,561 8 10	5,332 0 8	7,036 6 3	8,635 13 2	10,597 15 1	19,233 8 3
Mary Vale	165 6 11	184 18 6	378 13 1	82 7 4	544 0 0	267 5 10	811 5 10
Ponto	189 10 8	170 0 10	211 19 6	85 12 5	401 10 2	255 13 3	657 3 5
Murrumbidgee	291 13 10	255 4 7	1,293 18 5	146 16 1	1,585 12 3	402 0 8	1,987 12 11
Dubbo	12,324 5 10	11,982 18 9	18,678 14 1	20,138 13 4	31,002 19 11	32,121 12 1	63,124 12 0
Brummagem	0 6 0	0 2 0	.....	.....	0 6 0	0 2 0	0 8 0
Narromine	647 11 11	712 1 4	2,272 6 7	793 6 1	2,919 18 6	1,505 7 5	4,425 5 11
Trangie	1,117 19 1	1,126 5 7	6,405 11 8	1,836 0 5	7,523 10 9	2,962 6 0	10,485 16 9
Nevertire	2,922 11 1	3,200 5 4	21,001 4 6	7,101 9 2	23,923 15 7	10,301 14 6	34,225 10 0
Mullengudgerly	145 8 5	147 5 8	657 8 0	206 0 11	802 16 5	353 6 7	1,156 3 1
Nyngan	5,727 4 4	5,542 13 1	25,807 1 4	21,252 19 3	31,534 5 8	26,795 12 4	58,329 18 0
Girilambone	602 4 2	481 0 0	5,287 18 9	664 10 2	5,890 2 11	1,145 10 2	7,035 13 1
Wilga	18 5 4	104 17 4	195 15 11	54 12 4	214 1 3	159 9 8	373 10 11
Coolabah	482 18 7	369 17 4	2,307 4 9	1,762 1 1	2,790 3 4	2,131 18 5	4,922 1 9
Glenariff	14 1 2	57 11 11	.....	3 19 7	14 1 2	61 11 6	75 12 8
Byrock	2,576 1 7	2,561 13 3	7,886 7 7	5,601 16 6	10,462 9 2	8,163 9 9	18,625 18 11
Mooculta	120 19 7	92 12 6	151 10 5	399 3 5	272 10 0	491 15 11	764 5 11
Bourke	9,788 4 1	10,718 16 7	62,926 14 3	52,347 1 8	72,714 18 4	63,065 18 3	135,780 16 7
Orange Race C.	2 11 7	158 17 6	5 1 9	14 8 6	7 13 4	173 6 0	180 19 4
Cargo Road	2 6 9	30 16 11	140 15 4	78 13 2	143 2 1	109 10 1	252 12 2
Borenore	324 13 3	218 6 0	3,687 15 6	3,579 14 2	4,012 8 9	3,798 0 2	7,810 8 11
Amaroo	12 12 6	112 10 4	84 19 1	168 3 6	97 11 7	280 13 10	378 5 5
Molong	2,104 2 1	2,033 11 1	4,082 5 3	7,097 12 3	6,186 7 4	9,131 3 4	15,317 10 8
Irondale .....	.....	.....	0 6 7	.....	0 6 7	.....	0 6 7
Piper's Flat	256 10 11	154 6 1	91 0 3	888 16 0	347 11 2	1,043 2 1	1,390 13 3
Cullen's .....	.....	0 8 1	1,610 6 6	127 1 5	1,610 6 6	127 9 6	1,737 16 0
Ben Bullen	10 14 8	67 13 11	79 4 7	36 14 1	89 19 3	104 8 0	194 7 3
Capertee	459 7 5	444 0 9	478 18 5	399 6 10	938 5 10	843 7 7	1,781 13 5
Carlo's Gap	3 5 6	13 10 1	67 1 9	22 7 11	70 7 3	35 18 0	106 5 3
Excelsior Lime Sdg .....	.....	0 7 6	.....	45 1 7	.....	45 9 1	45 9 1
Ilford	57 16 10	169 1 11	149 5 6	154 15 3	207 2 4	323 17 2	530 19 6
Rylstone	1,398 5 11	1,113 2 3	3,266 4 7	1,199 13 4	4,664 10 6	2,312 15 7	6,977 6 2
Lue	84 2 6	328 19 9	916 14 1	337 18 10	1,000 16 7	666 18 7	1,667 15 1
Bumberra	25 16 7	56 16 1	31 3 4	0 15 7	56 19 11	57 11 8	114 11 7
Mudgee	6,231 6 4	6,206 15 0	12,514 10 9	14,389 18 0	18,745 17 1	20,596 13 0	39,342 10 1
	135,905 13 2	143,788 2 11	330,695 13 3	284,040 6 3	466,601 6 5	427,828 9 2	894,429 15 7

APPENDIX TO REPORT ON RAILWAYS—1886.

No. 28—continued.

Stations.	Coaching.		Goods.		Coaching and Goods.		Total of Coaching and Goods, Outwards and Inwards.
	Outwards.	Inwards.	Outwards.	Inwards.	Outwards.	Inwards.	
WINDSOR AND RICHMOND RAILWAY.							
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Douglas Siding.....	34 18 1	7 18 7	325 4 6	131 19 5	360 2 7	139 18 0	500 0 7
Schofield's.....	57 11 1	50 8 2	276 10 4	13 19 2	334 1 5	64 7 4	398 8 9
Riverstone.....	1,066 17 1	1,142 14 4	1,916 4 9	2,156 9 9	2,983 1 10	3,299 4 1	6,282 5 11
Richards'.....	.....	0 0 9	3,867 7 9	102 5 0	3,867 7 9	102 5 9	3,969 13 6
Mulgrave.....	550 17 10	439 5 6	1,778 3 11	396 8 7	2,329 1 9	835 14 1	3,164 15 10
Windsor.....	3,057 12 0	5,065 7 0	2,372 15 10	2,171 15 3	5,430 7 10	7,237 2 3	12,667 10 1
Clarendon.....	351 6 6	774 12 0	97 9 11	112 11 4	448 16 5	887 3 4	1,335 19 9
Richmond.....	2,666 5 3	2,877 7 2	2,420 4 8	1,650 4 11	5,086 9 11	4,527 12 1	9,614 2 0
	7,785 7 10	10,357 13 6	13,054 1 8	6,735 13 5	20,839 9 6	17,093 6 11	37,932 16 5
GREAT NORTHERN RAILWAY.							
Central Office.....	4,343 18 9	744 4 1	.....	.....	4,343 18 9	744 4 1	5,088 2 10
Newcastle.....	26,191 0 5	30,113 0 10	56,066 11 2	112,014 7 3	82,257 11 7	142,127 8 1	224,384 19 8
Honeysuckle Point ...	2,837 15 7	1,537 15 8	3,376 8 9	1,928 9 11	6,214 4 4	3,466 5 7	9,680 9 11
Bullock Island.....	0 7 2	.....	4,893 7 5	321 8 3	4,893 14 7	321 8 3	5,215 2 10
Wickham Siding.....	.....	.....	89 3 8	173 0 5	89 3 8	173 0 5	262 4 1
Hamilton.....	1,827 14 8	1,183 7 10	249 6 10	2,793 6 10	2,077 1 6	3,976 14 8	6,053 16 2
Do Weighbridge.....	.....	.....	77,608 12 7	.....	77,608 12 7	.....	77,608 12 7
Waratah.....	2,831 12 9	2,402 0 1	452 8 6	1,284 5 5	3,284 1 3	3,686 5 6	6,970 6 9
Sandgate.....	91 4 5	248 9 11	0 3 0	3 15 3	91 7 5	252 5 2	343 12 7
General Cemetery ...	11 11 0	670 2 3	.....	.....	11 11 0	670 2 3	681 13 3
Hexham.....	1,040 14 5	777 10 4	201 13 5	625 15 8	1,242 7 10	1,403 6 0	2,645 13 10
Tarro.....	400 7 11	214 10 7	130 2 2	48 10 0	530 10 1	203 0 7	793 10 8
Woodford.....	160 7 3	126 7 4	123 4 3	7 11 7	283 11 6	133 18 11	417 10 5
Victoria-street.....	220 4 4	16 15 0	.....	.....	220 4 4	16 15 0	236 19 4
East Maitland.....	2,890 3 9	2,817 10 3	988 7 6	7,039 17 4	3,878 11 3	9,857 7 7	13,735 18 10
High-street.....	3,241 10 10	251 17 9	6 9 0	18 17 10	3,247 19 10	270 15 7	3,518 15 5
West Maitland.....	7,325 8 8	9,824 5 5	12,773 15 10	4,825 15 8	20,099 4 6	14,650 1 1	34,749 5 7
Morpeth Platform ...	1,109 9 9	32 17 3	.....	.....	1,109 9 9	32 17 3	1,142 7 0
Morpeth.....	1,212 4 2	1,479 7 10	46,285 16 6	25,340 7 10	47,498 0 8	26,819 15 8	74,317 16 4
Wallsend.....	2,316 0 4	1,783 10 0	273 17 1	2,338 1 2	2,589 17 5	4,121 11 2	6,711 8 7
	58,051 16 2	54,223 12 5	203,519 7 8	158,763 10 5	261,571 3 10	212,987 2 10	474,558 6 8
Farley.....	160 13 3	157 14 2	87 17 10	8,299 9 3	248 11 1	8,457 3 5	8,705 14 6
Lochinvar.....	538 11 7	541 18 4	270 3 4	371 12 5	808 14 11	913 10 9	1,722 5 8
Allandale.....	307 4 4	194 0 10	253 7 3	128 11 1	560 11 7	322 11 11	883 3 6
Greta.....	1,123 15 4	920 18 6	1,029 18 10	635 16 5	2,153 14 2	1,556 14 11	3,710 9 1
Do Coal Siding.....	.....	.....	.....	.....	.....	.....	27 14 11
Branxton.....	1,150 11 8	753 9 3	888 14 1	463 2 3	2,039 5 9	1,216 11 6	3,255 17 3
Belford.....	79 1 3	105 7 0	15 0 11	16 19 10	94 2 2	122 6 10	216 9 0
Whittingham.....	118 4 3	233 9 11	197 7 3	108 9 7	315 11 6	341 19 6	657 11 0
Singleton.....	5,644 6 1	5,924 9 7	3,023 2 3	4,523 10 5	8,667 8 4	10,448 0 0	19,115 8 4
Do Coal Siding..	.....	.....	2 12 0	.....	2 12 0	.....	2 12 0
Rix Creek.....	34 16 3	32 7 4	172 18 9	31 18 7	207 15 0	64 5 11	272 0 11
Blackwall Siding.....	.....	.....	744 18 2	3 4 7	744 18 2	3 4 7	748 2 9
Glennie's Creek.....	231 6 1	196 7 7	91 11 2	58 14 3	322 17 3	255 1 10	577 19 1
Ravensworth.....	273 7 4	192 0 9	311 5 1	143 13 8	584 12 5	335 14 5	920 6 10
Liddell.....	41 7 3	63 18 0	15 0 1	13 17 9	56 7 4	77 15 9	134 3 1
Grass-tree.....	35 15 2	55 15 6	0 7 10	0 7 6	36 3 0	56 3 0	92 6 0
Musclebrook.....	3,066 16 11	2,824 19 7	2,501 4 11	4,421 7 8	5,568 1 10	7,246 7 3	12,814 9 1
Aberdeen.....	395 1 8	326 5 9	423 7 2	244 4 10	818 8 10	570 10 7	1,388 19 5
Scone.....	1,787 9 6	1,643 13 5	2,000 10 10	1,788 14 9	3,848 0 4	3,432 8 2	7,280 8 6
Park.....	21 6 6	72 13 10	0 15 11	4 2 9	22 2 5	76 16 7	98 19 0
Wingen.....	266 5 8	230 15 7	262 6 11	145 0 10	528 12 7	375 16 5	904 9 0
Blandford.....	323 7 2	310 16 5	524 18 5	298 13 10	848 5 7	609 10 3	1,457 15 10
Murrurundi.....	1,989 4 9	2,239 5 0	661 9 8	2,125 12 10	2,650 14 5	4,364 17 10	7,015 12 3
Temple Court.....	117 17 4	88 6 5	0 1 10	2 2 6	117 19 2	90 8 11	208 8 1
Doughboy Hollow ...	88 15 1	92 1 11	162 6 9	80 13 8	251 1 10	172 15 7	423 17 5
Willow Tree.....	555 1 9	466 1 3	1,593 9 10	717 7 7	2,148 11 7	1,183 8 10	3,332 0 5
Braefield.....	6 1 5	15 7 0	2 7 6	0 15 0	8 8 11	16 2 0	24 10 11
Quirindi.....	2,282 0 0	2,227 14 4	7,321 4 10	3,917 17 7	9,603 4 10	6,145 11 11	15,748 16 9
Quipolly.....	48 10 4	119 6 2	27 13 0	71 18 6	76 3 4	191 4 8	267 8 0
Werri sCreek.....	1,104 19 5	1,030 5 8	783 7 4	528 15 6	1,888 6 9	1,559 1 2	3,447 7 11
Terrible Vale.....	.....	0 6 2	13 11 3	0 10 8	13 11 3	0 16 10	14 8 1

No. 28—continued.

Stations.	Coaching		Goods.		Coaching and Goods.		Total Coaching and Goods, Inwards and Outwards.
	Outwards.	Inwards.	Outwards.	Inwards.	Outwards.	Inwards.	
GREAT NORTHERN RAILWAY—continued.							
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Currabubula.....	360 4 5	233 9 10	240 15 5	285 19 1	600 19 10	519 8 11	1,120 8 9
Duri.....	34 5 4	83 13 4	57 0 2	20 3 2	91 5 6	103 16 6	195 2 0
West Tamworth.....	1,163 7 0	932 8 0	6,839 16 8	4,903 14 6	8,003 3 8	5,836 2 6	13,839 6 2
Tamworth.....	7,673 12 4	7,871 3 7	3,717 4 0	13,290 3 9	11,390 16 4	21,161 7 4	32,552 3 8
Tintinhull.....	27 15 3	31 11 7	3 1 1	3 4 6	30 16 4	34 16 1	65 12 5
Moonbi.....	648 10 10	538 7 6	548 5 8	636 11 5	1,196 16 6	1,174 18 11	2,371 15 5
Farquharson's Siding	33 6 3	59 19 9	103 5 1	27 8 11	136 11 4	87 8 8	224 0 0
Macdonald River.....	112 18 10	75 12 0	150 14 10	123 2 0	263 13 8	198 14 0	462 7 8
Walcha Road.....	1,374 0 8	1,503 3 2	3,303 14 2	2,918 4 5	4,677 14 10	4,421 7 7	9,099 2 5
Wollun.....	26 1 0	69 4 3	23 6 1	17 12 1	49 7 1	86 16 4	136 3 5
Kentucky.....	312 9 5	262 18 5	471 17 6	191 17 11	784 6 11	454 16 4	1,239 3 3
Uralla.....	2,184 14 5	2,501 12 10	3,042 15 9	4,988 7 8	5,227 10 2	7,490 6 6	12,717 10 8
Kelly's Plains.....	40 7 4	76 14 2	11 13 9	6 9 1	52 1 1	83 3 3	135 4 4
Armidale.....	6,445 7 7	7,132 8 4	6,135 8 9	14,960 4 3	12,580 16 4	22,092 12 7	34,973 8 11
Eversleigh.....	261 7 3	192 6 8	571 5 10	276 3 0	832 13 1	468 9 8	1,301 2 9
Dural.....	1 6 5	5 7 1	.....	.....	1 6 5	5 7 1	6 13 6
Black Mountain.....	310 11 1	198 11 6	433 16 10	152 11 10	744 7 11	351 3 4	1,095 11 3
Guyra.....	1,005 6 7	908 4 3	3,015 1 11	5,060 7 9	4,020 8 6	5,968 12 0	9,989 0 6
Llangothlin.....	21 3 1	52 12 2	17 11 4	32 6 2	38 14 5	84 18 4	123 12 9
Ben Lomond.....	260 1 4	222 16 6	365 4 2	440 1 9	625 5 6	662 18 3	1,288 3 9
Glencoe.....	344 14 0	277 4 9	587 13 8	597 7 7	932 7 8	874 12 4	1,807 0 0
Stonehenge.....	16 18 4	65 15 4	84 8 7	93 0 5	101 6 11	158 15 9	260 2 8
Mill Siding.....	.....	.....	0 10 2	.....	0 10 2	.....	0 10 2
Glen Innes.....	7,562 8 9	10,184 15 1	10,108 19 9	31,764 6 11	17,671 8 6	41,949 2 0	59,620 10 6
Yarraford.....	7 17 10	16 14 0	.....	3 19 8	7 17 10	20 13 8	28 11 6
Dundee.....	98 4 6	80 13 7	502 5 7	112 11 2	600 10 1	193 4 9	793 14 10
Deepwater.....	583 1 4	547 3 2	1,826 1 5	1,388 11 6	2,409 2 9	1,935 14 8	4,344 17 5
Bolivia.....	136 1 5	67 12 10	120 13 11	64 6 1	256 15 4	131 18 11	388 14 3
Sandy Flat.....	10 11 9	21 2 8	11 4 9	1 13 10	21 16 6	22 16 6	44 13 0
Tenterfield.....	1,833 1 2	2,828 1 5	600 1 9	7,114 6 5	2,433 2 11	9,942 7 10	12,375 10 9
	54,681 12 10	58,101 3 0	66,336 19 7	118,649 17 10	121,018 12 5	176,751 0 10	297,769 13 3
Gap.....	14 9 8	74 15 8	2 1 9	20 4 2	16 11 5	94 19 10	111 11 3
Breeza.....	459 15 0	419 10 0	2,535 7 9	372 13 3	2,995 2 9	792 3 3	3,787 6 0
Curlewis.....	179 11 1	155 18 10	579 2 0	149 19 11	758 13 1	305 18 9	1,064 11 10
Gunnedah.....	3,198 6 0	3,933 16 11	5,176 0 5	4,785 0 3	8,374 6 5	7,818 17 2	16,193 3 7
Emerald Hill.....	56 16 0	78 15 11	176 3 9	16 2 7	232 19 9	94 18 6	327 18 3
Boggabri.....	765 15 10	725 12 6	2,401 1 6	1,291 11 8	3,166 17 4	2,017 4 2	5,184 1 6
Baan Baa.....	151 10 6	119 16 7	715 5 1	88 5 0	866 15 7	207 17 0	1,074 12 7
Turrawan.....	15 18 1	48 19 3	337 3 4	53 10 8	353 1 5	102 9 11	455 11 4
Narrabri.....	5,168 6 3	5,761 16 4	21,862 16 11	19,450 18 7	27,031 3 2	25,212 14 11	52,243 18 1
	10,010 8 5	10,419 2 0	33,785 2 6	26,228 1 6	43,795 10 11	36,647 3 6	80,442 14 5
Mails, &c.....	122,743 17 5	122,743 17 5	303,641 9 9	303,641 9 9	426,385 7 2	426,385 7 2	852,770 14 4
	.....	.....	.....	.....	21,322 12 4	21,322 12 4	42,645 4 8
							895,415 19 0
GRAND SUMMARY.							
Suburban and Illawarra and North Coast Lines.....	340,185 1 11	324,746 11 8	452,285 5 5	435,568 4 11	792,470 7 4	760,314 16 7	1,552,785 3 11
Southern Line.....	174,781 16 5	179,765 11 3	207,107 11 1	276,798 6 10	381,889 7 6	456,563 18 1	838,453 5 7
Western Line.....	135,905 13 2	143,788 2 11	339,695 13 3	284,040 6 3	466,601 6 5	427,828 9 2	894,429 15 7
Richmond Line.....	7,785 7 10	10,357 13 6	13,054 1 8	6,735 13 5	20,839 9 6	17,093 6 11	37,932 16 5
	658,657 19 4	658,657 19 4	1003,142 11 5	1003,142 11 5	1661,800 10 9	1661,800 10 9	3323,601 1 6
Northern Line.....	122,743 17 5	122,743 17 5	303,641 9 9	303,641 9 9	426,385 7 2	426,385 7 2	852,770 14 4
Mails, &c.....	.....	.....	.....	.....	75,616 12 7	75,616 12 7	151,233 5 2
Total.....	781,401 16 9	781,401 16 9	1,306,784 1 2	1,306,784 1 2	2,163,802 10 6	2,163,802 10 6	4,327,605 1 0

No. 29.*

RETURN showing LIVE STOCK EARNINGS for years 1885 and 1886.

Months.	Year 1885.					Year 1886.				
	Southern.	Western.	Richmond.	Northern.	Total.	Southern.	Western.	Richmond.	Northern.	Total.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
January.....	7,043 0 9	4,920 18 2	22 15 7	2,168 16 10	14,155 11 4	5,903 6 6	4,644 15 11	32 9 7	1,006 6 6	11,586 18 6
February	3,591 4 4	3,568 15 8	34 1 1	1,887 9 11	9,081 11 0	4,410 7 0	6,820 1 1	23 7 8	1,187 18 6	12,441 14 3
March	3,503 5 4	3,657 6 6	19 0 9	930 11 6	8,110 4 1	4,809 18 0	9,588 5 6	24 17 8	1,536 0 5	15,959 1 7
April	6,633 2 10	4,052 11 6	68 14 2	1,922 7 9	12,676 16 3	5,512 17 10	7,747 17 11	18 19 4	2,107 11 3	15,387 6 4
May	4,491 12 7	4,532 18 8	21 3 5	1,974 5 4	11,020 0 0	6,247 13 7	10,230 5 6	23 15 2	2,522 17 0	19,024 11 3
June	3,770 12 11	5,829 3 4	24 5 7	1,580 13 7	11,204 15 5	4,981 19 2	8,255 14 6	14 2 0	967 2 3	14,218 17 11
July	5,223 4 0	6,322 14 0	24 14 6	980 9 9	12,551 2 3	3,520 9 4	11,245 18 10	25 19 9	2,214 16 9	17,007 4 8
August	3,710 11 5	11,346 9 10	19 11 0	2,028 15 3	17,105 7 6	2,080 10 7	9,124 7 4	29 10 7	2,601 6 8	13,835 15 2
September.....	3,721 18 9	10,878 2 2	19 5 8	1,452 0 4	16,071 6 11	4,252 7 0	10,721 17 10	34 2 2	3,435 15 1	18,444 2 1
October.....	4,631 4 9	9,741 2 9	23 7 8	2,129 6 9	16,525 1 11	4,213 11 6	11,284 9 5	60 0 7	2,974 9 5	18,532 10 11
November	3,955 8 5	11,307 17 10	17 4 7	3,415 0 0	18,695 10 10	6,070 16 7	8,431 0 10	21 11 4	2,398 16 5	16,922 5 2
December	3,717 6 7	6,480 2 8	15 11 0	1,839 2 3	12,052 2 6	5,221 6 2	9,201 10 6	22 15 9	2,003 12 8	16,449 5 1
Totals	53,992 12 8	82,638 3 1	309 15 0	22,308 19 3	159,249 10 0	57,225 3 3	107,296 5 2	331 11 7	24,956 12 11	189,809 12 11

* Includes Camden Line.

No. 30.*

RETURN of the quantity of WOOL carried on the Railways of New South Wales, and the amount received therefrom, in 1885 and 1886.

Months.	1885.									1886.								
	Bales.			Weight.			Freight.			Bales.			Weight.			Freight.		
	S. & W.	North.	Total.	S. & W.	North.	Total.	S. & W.	North.	Total.	S. & W.	North.	Total.	S. & W.	North.	Total.	S. & W.	North.	Total.
	No.	No.	No.	Tons.	Tons.	Tons.	£	£	£	No.	No.	No.	Tons.	Tons.	Tons.	£	£	£
January	11,459	3,588	15,047	1,761	625	2,386	3,683	1,707	5,390	15,941	5,067	21,008	2,529	882	3,411	5,722	2,397	8,119
February	7,086	2,019	9,105	1,059	300	1,359	2,061	937	2,998	8,343	2,483	10,826	1,255	394	1,649	3,109	1,179	4,288
March	3,742	1,242	4,984	575	190	765	1,045	591	1,636	3,707	1,593	5,300	533	224	757	1,113	761	1,874
April	2,724	511	3,235	410	76	486	1,022	245	1,267	972	415	1,387	131	63	194	313	200	513
May	2,940	380	3,320	428	59	487	1,098	181	1,279	1,469	540	2,009	204	58	262	340	224	564
June	1,996	71	2,067	277	9	286	688	29	717	894	64	958	131	12	143	214	26	240
July	2,038	120	2,178	290	15	305	577	44	621	898	237	1,135	132	38	170	282	111	393
August	10,054	2,659	12,713	1,631	501	2,132	4,697	1,218	5,915	2,099	183	2,282	363	34	397	1,037	75	1,112
September	40,378	12,332	52,710	6,963	2,367	9,330	21,418	5,399	26,817	31,315	9,533	40,848	5,655	1,861	7,516	18,222	4,640	22,862
October	81,441	25,441	106,882	14,411	4,864	19,275	40,371	11,136	51,507	56,609	16,883	73,492	10,172	3,356	13,528	31,478	8,455	39,933
November	75,527	23,042	98,569	13,236	4,366	17,602	34,618	10,647	45,265	73,537	23,769	97,306	13,217	4,699	17,916	38,485	12,396	50,881
December	37,289	13,019	50,308	6,336	2,441	8,777	15,149	6,197	21,346	43,959	23,436	67,395	7,697	4,486	12,183	21,817	13,197	35,014
Total	276,694	84,424	361,118	47,377	15,813	63,190	126,427	38,331	164,758	239,743	84,203	323,946	42,019	16,107	58,126	122,132	43,661	165,793
Increase .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	294	.....	.....	5,330	1,035
Decrease .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	36,951	221	37,172	5,358	.....	5,064	4,295	.....	.....

*Includes Camden Line.

No. 31.

GREAT SOUTHERN, WESTERN, AND NORTHERN RAILWAY.

RETURN of the number of Bales of Wool forwarded from the undermentioned Stations, from 1st September, 1885, to 30th April, 1886, and from 1st September, 1886, to 30th April, 1887.

Stations	1885-1886	1886-1887	Stations	1885-1886	1886-1887
SOUTHERN AND BRANCH LINES.					
	Bales.	Bales.		Bales	Bales.
Sydney	5,924	6,361	Widgiewa	1,441	1,405
Darling Harbour	6,645	5,452	Coonong	177	82
Granville	1,391	1,075	Bundure	1,207	1,735
Liverpool	7,216	8,078	Yathong	86	65
Minto	13	11	Jerilderie	2,229	4,173
Campbelltown	31	21	Narellan	4	.....
Menangle	22	12	Camden	21	35
Douglas Park	12	6			
Mittagong	86	70		131,225	118,485
Bowral	7	6			
Moss Vale	57	40	WESTERN LINES		
Badgery's	9	2	Parramatta	1	12
Wingello	6	.....	Blacktown .....	.....	4
Barber's Creek .....	.....	1	Penrith	17	14
Morrice's	2	1	Mount Victoria	241	110
Marulan	760	555	Esk Bank	6	5
Carrick	28	31	Bowenfels	18	44
Towrang	74	376	Wallerawang	82	93
Goulburn	6,927	5,265	Rydal	38	55
Breadalbane	412	235	Sodwalls	28	24
Gunning	1,494	1,525	Tarana	465	541
Jerrawa	47	39	Locksley	24	21
Yass	3,299	2,647	Brewongle	185	175
Bowring	1,824	1,819	Raglan	95	95
Binalong	2,691	2,650	Kelso	493	604
Galong	9	.....	Bathurst	1,303	1,421
Cunningar	602	625	Perth	903	767
Harden	1,630	1,173	George's Plains	81	22
Murrumburrah	12	85	Wimbledon	116	148
Nubba	129	120	Newbridge	645	666
Wallendbeen	1,492	1,179	Blayney	4,497	2,968
Cootamundra	7,141	2,727	Millthorpe	731	635
Cungegong	286	137	Spring Hill	16	141
Bethungra	569	491	Orange	14,380	1,312
Illabo	1,372	891	Mullion Creek	125	72
June Junction	943	681	Kear's Creek	11	21
Harefield	492	293	Warne	488	342
Bomen	906	652	Store Creek .....	.....	43
South Wagga	6,450	4,903	Ironbarks	65	112
Sandy Creek	155	35	Mumbil	502	716
Rock	2,792	2,811	Springs	235	267
Yerong Creek	1,414	1,484	Wellington	2,014	1,916
Dudal Cooma .....	.....	246	Mary Vale	63	45
Culcairn	1,222	916	Ponto	173	168
Gerogery	449	428	Murrumbidgee	688	718
Yambla	844	40	Dubbo	10,150	12,317
Albury	15	327	Narramine	1,390	1,924
Bangalore	134	85	Triange	6,375	6,292
Lake Bathurst	75	25	Nevertre	9,707	12,779
Tarago	903	891	Mullengudgery	617	506
Bungendore	7,243	5,916	Nyngan	17,122	16,470
Brawlin .....	.....	18	Girulambone	1,960	2,975
Muttama .....	.....	46	Coolabah	2,875	2,697
Coolac .....	.....	1,182	Byerock	10,856	4,981
Gundagai .....	.....	3,745	Moooolta .....	.....	100
Kings Vale	52	119	Pourke	28,717	29,570
Young	12,505	11,204	Douglas Siding	732	1,102
Koorawatha .....	.....	3	Rivcrstone	9	1
Cowra .....	.....	1,518	Richards	33	34
Old Junee	4,328	3,361	Mulgrave	481	648
Coolaman	2,827	1,678	Windsor	7	.....
Devlin's Siding	1,327	1,058	Clarendon	1	.....
Grong Grong	1,859	603	Richmond .....	.....	1
Narrandera	2,827	5,199	Borenore .....	.....	8,383
Yanko	796	986	Amaroo	7	109
Whitton	6,231	4,902	Molong	95	4,161
Darlington	2,202	1,551	Piper's Flat	15	18
Benerembah	786	854	Cullen's Siding	13	10
Bringagee	2	346	Ben Bullen	7	.....
Groongal	1,007	1,037	Capertee	375	353
Carrathool	1,973	2,421	Iford	127	145
Uardry	561	539	Rylstone	723	732
Tnononga	1	5	Lue	550	871
Beabula	1,882	203	Mudgee	8,687	8,683
Hay	7,315	4,228			
Gillenbah	669	86			
Cuddell	34	39			
Colombo	620	620			
				130,360	130,159

No. 31—*continued.*

Stations.	1885-1886.	1886-1887.	Stations.	1885-1886.	1886-1887.
	Bales.	Bales.		Bales.	Bales.
NORTHERN LINES.					
Newcastle	85	444	Moonbi	608	722
Hamilton .....	.....	176	M'Donald River	411	470
Woodford .....	.....	37	Walcha Road	4,027	4,082
East Maitland .....	.....	1,722	Kentucky	821	782
West Maitland	38	317	Uralla	4,269	4,365
Farley .....	.....	2	Armidale	2,845	3,020
Lochinvar	16	14	Eversleigh.....	531	503
Greta	1	.....	Black Mountain	194	344
Branxton	183	119	Guyra	1,269	966
Singleton	259	284	Ben Lomond.....	315	407
Glennie's Creek	27	25	Glencoe.....	132	144
Ravensworth.....	531	394	Glen Innes	6,969	5,321
Musclebrook	3,481	3,747	Dundee .....	.....	882
Aberdeen	211	221	Deepwater.....	.....	589
Scone	3,529	3,529	Bolivia .....	.....	85
Wingen	420	332	Tenterfield .....	.....	404
Blandford	1,103	1,065	Breeza	687	723
Murrurundi	257	176	Curlewis	53	299
Doughboy Hollow	568	266	Gunnedah.....	6,447	5,322
Willow Tree	2,381	2,477	Boggabri	1,217	1,544
Quirindi	5,493	4,986	Baan Baa	49	54
Werris Creek	318	300	Narrabri	24,349	31,506
Currabubula	208	219	Morpeth	280	293
West Tamworth	8,750	9,847	Wallsend	7	5
Tamworth.....	200	434		83,112	93,965

SUMMARY.

	1885-1886.	1886-1887.
	Bales.	Bales.
Southern and Western Railway	261,585	248,644
Northern Line	83,112	93,965
Total	344,697	342,609

STATEMENT of the Value of LIVE STOCK and other EXPORTS and IMPORTS across the Border during the year 1886.

	Value of Live Stock.						Quantity and Value of Wool.			Other Exports.	Exports—	Imports—
	Horses.	Cattle.	Sheep.	Pigs.	Goats.	Total.	Bales.	lb.	Value.	Value.	Total Value.	Total Value.
	£	£	£	£	£	£	No.		£	£	£	£
Albury to Victoria	75,251	151,775	57,766	205	.....	284,997	16,466	6,258,657	247,750	36,915	569,662	453,078
Corowa do.	895	196	35,133	23	.....	36,247	11,203	3,967,229	167,734	10,121	214,102	84,130
Euston do. ....	.....	.....	2,926	.....	.....	2,926	1,263	374,354	26,111	76	29,113	6,093
Tocumwal do.	12	4,960	21,936	.....	.....	26,908	1,296	559,988	25,344	32	52,284	1,061
Moama do.	7,725	89,574	199,289	539	.....	297,127	25,963	9,945,193	445,436	72,955	815,518	253,580
Wentworth to { Victoria .....	.....	.....	3,218	.....	.....	3,218	12,344	4,532,891	226,987	41,414	1,015,631	191,389
{ South Australia	1,030	.....	3,150	.....	.....	4,180	44,893	16,008,714	739,832			
Swan Hill (Crossing) to Victoria	1,630	9,372	17,408	.....	.....	28,410	33,326	12,904,238	557,904	1,194	587,508	20,262
Howlong do.	1,936	7,608	271	65	.....	9,880	28	9,496	314	383	10,577	7,107
Thackaringa to { South Australia	498	21,852	65,766	.....	.....	88,116	11,450	3,797,249	118,108	406,532	612,756	277,796
{ Queensland .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	58,484
Mulwala do.	300	379	1,503	.....	.....	2,182	1,430	480,480	24,130	489	26,801	3,683
Boggabilla do. ....	.....	.....	.....	.....	.....	.....	414	181,941	7,090	588	7,678	1,237
Barrington do.	2,376	.....	96,832	.....	.....	99,208	.....	.....	.....	21,271	120,479	317,027
Wilcannia do. ....	.....	.....	.....	.....	.....	.....	.....	.....	.....	758	758	.....
Tentorfield do. ....	.....	.....	.....	.....	.....	.....	12	6,000	150	1,833	1,983	2,725
Stanthorpe do.	410	350	1,500	60	.....	2,320	185	66,380	3,650	19,254	25,224	3,049
Total.....1886	92,063	286,066	506,698	892	.....	885,719	160,273	59,092,810	2,590,540	613,815	4,090,074	1,680,701
Total.....1885	95,817	349,236	531,666	1,299	.....	978,018	117,945	44,685,155	1,952,610	266,083	3,196,711	2,201,792
Increase.....	.....	.....	.....	.....	.....	.....	42,328	14,407,655	637,930	347,732	893,363	.....
Decrease	3,754	63,170	24,968	407	.....	92,299	.....	.....	.....	.....	.....	521,091

No. 33.

CENTRAL RAILWAY OFFICE.

STATEMENT of the Business transacted and Revenue received during the year 1886.

Date.	Sleeping berths.	Parcels.						Passengers.						Value of Time-table Books sold.	Tramways.		Parcels.					Value of Sleeping-berths.	Total Amount.			
		Northern.		Southern & Western.		Total.	Northern.			Southern and Western.			Number of Tickets.		Amount.	Northern.		Southern and Western.								
		In.	Out.	Cloak.	In.		Out.	1st Class.	2nd Class.	Amount.	1st Class.	2nd Class.				Amount.	Inwards.	Outwards.	Cloaked.	Inwards.	Outwards.					
1886.										£ s. d.				£ s. d.	£ s. d.			£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
January ..	650	595	1,595	320	1,151	8,766	12,427	29	9	700 18 9	1,416	317	4,586 5 3	30 10 3	3,803,129	16,455 19 2	57 13 3	190 16 7	8 2 0	77 19 2	585 4 5	395 10 0	23,088 18 10			
February ..	505	631	1,627	275	1,310	8,837	12,680	12	17	184 13 9	1,337	265	4,003 8 4	10 16 8	3,541,347	15,236 8 9	65 6 2	174 8 10	6 16 0	80 0 10	621 15 5	364 15 0	20,748 9 9			
March	642	604	1,771	354	1,383	9,025	13,737	18	5	125 13 8	1,603	284	3,950 10 1	3 12 5	4,201,324	17,505 10 4	56 12 8	196 9 3	5 16 0	37 17 6	602 16 2	301 12 6	23,016 10 7			
April	651	614	1,687	365	1,335	9,259	13,260	33	20	116 0 4	2,214	358	4,529 3 0	25 3 1	4,051,192	16,879 19 4	63 12 5	192 18 9	9 4 0	102 10 11	659 5 4	399 2 6	22,976 19 8			
May	703	577	1,787	408	1,428	9,405	13,605	22	21	93 7 0	1,199	260	3,109 11 5	4 15 5	3,821,520	15,923 0 0	52 15 9	195 2 4	9 16 0	94 14 7	662 1 1	425 5 0	20,570 8 7			
June	566	577	1,859	378	1,293	9,345	13,452	89	16	112 7 9	1,208	306	2,999 13 2	3 7 3	3,777,094	15,737 7 10	56 18 2	190 5 6	8 16 0	92 17 3	633 5 7	343 15 0	20,178 13 6			
July	598	607	1,903	338	1,292	8,980	13,030	20	2	68 4 5	1,060	297	3,141 2 11	8 13 9	3,722,312	15,500 12 8	62 10 4	202 2 0	5 18 0	84 15 9	623 7 5	366 2 6	20,072 9 9			
August	569	560	1,760	299	1,131	8,924	12,664	13	9	21 3 4	997	208	2,413 0 10	2 3 10	3,801,318	15,838 16 6	58 5 1	185 11 8	7 18 0	79 11 1	597 5 5	351 12 6	19,555 8 3			
September..	578	561	1,722	374	1,232	9,507	13,396	28	8	74 7 2	1,702	261	2,796 3 6	6 16 2	3,749,776	15,624 1 4	61 3 1	222 11 11	7 14 0	91 0 1	644 17 4	354 0 0	19,882 14 7			
October....	772	506	1,808	371	1,394	9,167	13,246	26	112	167 13 0	1,665	344	6,004 19 11	9 11 3	3,749,703	15,623 15 3	71 15 2	224 8 9	6 0 0	87 1 3	645 2 1	473 10 0	23,313 16 8			
November..	431	519	1,837	362	1,258	10,001	13,977	24	15	72 19 0	1,150	363	2,654 5 2	10 7 3	3,966,165	16,525 13 9	64 1 2	214 7 8	12 18 0	92 14 7	730 10 2	265 12 6	20,643 9 3			
December..	604	732	1,996	402	1,808	12,170	17,108	150	44	296 9 5	2,010	641	5,267 15 0	18 6 11	4,334,180	18,059 1 8	99 19 10	265 10 9	9 14 0	131 4 4	877 11 10	370 0 0	25,395 13 9			
	7,359	7,083	21,352	4,246	15,925	113,986	162,582	464	278	2,033 17 7	17,561	3,904	45,455 18 7	134 4 3	46,519,060	194,919 6 7	770 13 1	2,454 14 0	98 12 0	1,102 7 4	7,973 2 3	4,500 17 6	259,443 13 2			

SUMMARY.

	1879.	1885.	1886.	1879.	1885.	1886.
	£ s. d.	£ s. d.	£ s. d.			
Freight, &c., Railway Department...	8,159 12 2	63,806 0 9	64,524 6 7	Number of Parcels booked	54,716	152,534
Value of Tramway Tickets	2,070 2 9	171,114 9 6	194,919 6 7	„ Passengers booked.....	8,352	23,070
				„ Tramway Tickets sold	161,268	32,775,661
				„ Sleeping-berths ordered	40	7,102
Increase for 1886—£24,523 2 11						
	£10,229 14 11	£234,920 10 3	£259,443 13 2			

No. 34.

RETURN of the quantity of COAL exported from Newcastle to Intercolonial and Foreign Ports in 1885 and 1886, showing the increase and decrease in each.

Countries.	1886.	1885.	Increase	Decrease
	Tons	Tons	Tons	Tons
Victoria	628,141	544,005	84,136	.....
New Zealand	164,453	178,707	.....	14,254
South Australia	139,476	139,337	139	.....
Tasmania	46,269	45,155	1,114	.....
Western Australia	11,576	12,309	.....	733
Fiji	20,719	15,627	5,092	.....
Queensland	20,417	44,205	.....	23,788
Total, Intercolonial	1,031,051	979,345	51,706	.....
Foreign—				
United Kingdom .....	.....	.....	.....	.....
Tahiti .....	.....	700	.....	.....
Callao	1,220	4,651	.....	3,431
New Caledonia	8,957	4,913	4,044	.....
India	72,292	101,119	.....	28,827
United States	23,682	12,756	10,926	.....
San Francisco	154,332	118,053	36,279	.....
Hong Kong	96,931	104,554	.....	7,623
China	2,475	9,413	.....	6,938
Mauritius	5,853	7,279	.....	1,426
Japan .....	.....	3,748	.....	3,748
Manilla .....	.....	52,715	.....	18,194
Valparaiso	35,720	59,045	.....	23,325
Honolulu	22,037	15,086	6,951	.....
Java	28,448	55,986	.....	27,538
Panama	2,655	2,118	537	.....
Bangkok	1,885	914	971	.....
Guam	1,795	10,231	.....	8,436
Iquique	2,271	2,371	.....	100
Mexico	8,071	1,523	6,548	.....
San Diego	6,034	4,153	1,881	.....
New Guinea	600	700	.....	100
South Sea Islands	3,664	743	2,921	.....
Total, Foreign	513,443	572,791	.....	59,348
Grand Total	1,544,494	1,552,136	.....	7,642

PORT OF NEWCASTLE.

Foreign and Intercolonial Shipping out of Newcastle 1885 and 1886.

1885.		1886		Decrease	Increase.
No of Vessels.	Tonnage	No of Vessels.	Tonnage.	No of Vessels.	Tonnage.
1,388	1,076,346	1,335	1,097,382	53	21,036

NUMBER of Tons and Value of COAL Exported.

Foreign and Intercolonial.

1886.		1885.		Decrease	
Tons	Value.	Tons.	Value	Tons.	Value.
1,544,494	£ 828,189	1,552,136	£ 832,495	7,642	£ 4,306

Coastwise.

	1886.		1885.	
	No of Vessels.	Tons	No of Vessels	Tons
Outwards	1,963	501,718	1,676	425,281

No. 35.

GREAT NORTHERN RAILWAY.

MONTHLY RETURN OF COAL hauled for the year 1886.

Months	Newcastle Colliery		New Lambton Colliery		Ferndale Colliery		Co operative Colliery		Wallsend Tunnel Colliery		Purified Coke Co *		Minnn Colliery		Greta Colliery		Goose Colliery		Rix's Creek Colliery		
	T c q	£ s d	T c q	£ s d	T c q	£ s d	T c q lb	£ s d	T c q	£ s d	T c q	£ s d	T c q	£ s d	T c q	£ s d	T c q	£ s d	T c q lb	£ s d	
1884																					
January	12304 8 0	533 10 3	4295 1 3	178 19 3	5416 12 2	235 18 2	22397 8 3 0	1170 9 5	37665 10 2	1572 13 3			14151 10 0	707 11 8	8365 5 0	762 9 2	54 0 0	2 5 0	76 2 0 0	9 11 6	
February	14386 18 3	599 6 4	6122 3 2	245 0 9	5515 3 3	235 5 4	22515 15 2 24	1259 8 3	41330 2 0	1728 6 5			15269 10 0	763 9 6	8610 19 0	803 0 6	36 0 0	1 10 0	70 9 0 0	11 17 2	
March	17434 15 3	726 9 0	4360 7 3	176 9 6	2984 16 1	129 15 6	24178 12 2 0	1297 11 9	43980 15 2	1838 19 8	849 18 3	35 8 3	16111 4 2	805 11 2	9486 2 3	867 2 0	42 0 0	1 15 0	85 16 0 0	6 18 5	
April	16583 8 2	690 19 5	6862 14 1	276 3 0			20066 16 1 0	1055 5 4	38264 1 3	1600 3 5	604 10 0	25 3 9	13447 4 3	672 6 1	9453 15 1	895 18 2	24 0 0	1 0 0	80 4 0 0	14 14 10	
May	17901 9 3	745 13 7	8910 6 1	369 6 10			22027 16 3 0	1205 6 3	41733 6 0	1748 17 9	770 4 0	32 1 9	16217 14 3	810 17 7	8309 8 3	797 3 9	36 0 0	1 10 0	108 15 0 0	14 12 11	
June	18611 1 0	775 6 0	8234 8 3	338 12 4			22339 0 2 0	1201 9 11	41672 2 1	1744 7 10	497 2 0	20 14 2	18942 6 3	947 11 7	7869 6 2	730 13 9	04 0 0	2 5 0	81 9 2 0	6 4 3	
July	18647 18 1	776 19 11	6489 15 1	258 13 7			22491 11 2 0	1177 1 11	41565 1 3	1742 2 9	253 12 1	10 11 4	15646 17 1	782 6 9	11022 19 0	1004 10 8	64 13 0	2 14 9	119 16 3 0	25 0 11	
August	13590 13 1	568 10 2	4005 16 3	166 8 2			21845 16 3 0	1111 5 6	45163 4 2	1691 10 2	1 6 0	0 3 3	18004 13 2	900 4 9	10863 10 0	995 19 10	39 3 2	1 12 7	94 15 0 0	12 1 6	
September	16072 15 1	69 13 10	5940 7 0	247 6 9			14741 13 1 0	758 3 4	43740 8 0	1831 4 1	343 7 0	14 8 0	15461 4 1	773 1 3	7132 2 3	640 17 3	34 8 0	1 8 8	109 16 0 0	21 4 3	
October	15072 1 0	628 0 0	1209 11 0	49 14 0			16683 13 1 0	898 10 6	35934 3 2	1505 0 2	378 15 1	15 15 8	11040 2 2	552 0 2	21043 3 3	929 0 0	40 13 2	1 13 11	95 14 0 0	17 10 7	
November	11097 2 2	462 7 8	2328 15 0	90 4 11			13452 11 1 0	949 1 7	37909 15 3	1585 16 9	394 8 2	16 8 9	13181 11 2	659 1 8	8459 9 2	764 16 4	23 0 0	0 19 2	43 5 2 18	3 14 7	
December	11789 2 1	491 4 5	5502 11 1	220 11 1			12507 1 3 0	644 16 11	34899 12 2	1461 0 6	350 4 0	14 11 10	10197 7 2	509 17 3	8270 4 2	761 0 7	29 15 2	1 4 9	88 19 0 0	8 12 0	
Total	183991 14 1	7668 0 7	64261 18 2	2617 15 2	13916 12 2	600 19 0	240247 18 0 24	12728 10 8	438878 4 0	20250 2 9	4443 7 3	185 6 9	177671 7 1	3883 19 5	107986 9 3	9952 12 0	477 13 2	19 18 10	1060 1 3 18	152 2 11	

	Elhott's Colliery		Blackwall Colliery		A A Co		Sneddon's Wallsend Colliery		Burwood Colliery		Rathluba Colliery		Waratah Colliery		Lambton Colliery		Wickham and Bullock Island Colliery		Tiegs Hill Colliery	
	T c q	£ s d	T c q	£ s d	T c q	£ s d	T c q	£ s d	T c q	£ s d	T c q	£ s d	T c q	£ s d	T c q	£ s d	T c q	£ s d	T c q	£ s d
January			113 3 0	47 10			1673 11 1	83 13 7	3890 16 1	162 2 4			3927 4 3	158 14 8	1232 16 0	53 8 11	2461 19 0	102 11 7	520 17 3	21 13 11
February			92 0 0	44 18 1	5 6 1	2 18 5	1704 19 1	85 4 1	4011 10 3	167 2 11			3422 17 1	142 12 5	1077 16 3	44 18 2	3054 13 0	127 5 6	668 17 3	27 17 5
March			102 0 0	53 4 6			1732 17 1	86 11 6	7020 12 2	292 10 5			2919 4 0	121 12 8	1383 14 0	57 13 2	4351 16 0	181 6 6	398 17 0	16 12 4
April			114 2 0	65 0 7	100 11 3	4 3 10	635 15 3	31 15 10	6685 4 1	278 10 11			3705 8 3	154 7 11	263 18 2	10 19 11	4309 2 2	179 10 11	1215 16 3	50 13 4
May			132 0 0	60 15 0			211 8 2	10 11 5	7242 1 1	301 15 1			2626 12 1	109 8 10			6624 16 2	251 0 8	962 19 3	40 2 5
June	4 15 0	0 14 7	126 0 2	73 10 8	56 11 0	2 7 1	605 13 0	30 4 8	7100 10 0	295 17 1			148 17 0	6 4 0			6276 1 2	261 5 5	1157 14 1	43 4 2
July			150 8 3	77 17 1			1149 14 3	57 9 8	9151 7 0	331 6 1			3909 16 2	162 18 3	22355 2 0	931 9 1	6753 6 0	281 10 2	1181 13 1	49 4 2
August			138 6 0	69 13 8			1420 6 1	70 19 4	10302 11 2	429 5 7			520 18 2	21 14 2	25189 17 2	1049 11 6	8050 12 1	226 3 4	1252 2 2	53 8 4
September	4 14 0	1 8 4	90 0 0	51 9 0			1714 6 2	85 14 4	9919 13 2	413 6 6			690 13 1	28 15 6	19771 15 1	323 16 6	5976 5 2	231 12 7	1112 4 2	46 6 10
October			150 0 0	34 15 0			1290 18 0	64 10 11	9795 18 0	408 3 2	6 0 0	0 10 6	508 19 3	21 4 2	18721 2 3	780 0 11	4776 11 0	123 12 4	938 0 3	39 1 9
November			113 16 0	62 2 0			1426 13 0	71 6 8	11097 16 0	462 8 3			1022 6 3	42 11 11	14087 13 3	586 19 9	2918 3 2	77 12 5	909 8 0	37 17 11
December	6 1 0	0 9 1	102 13 0	55 4 10			1271 11 1	63 10 8	8932 5 1	372 3 7			2216 7 1	92 7 0	14578 15 1	607 8 9	3651 18 1	97 8 8	1016 3 1	42 6 10
Total	15 10 0	2 12 0	1424 9 1	746 0 10	162 9 0	9 9 4	14837 14 3	741 12 8	95150 6 1	3964 11 11	6 0 0	0 10 6	25619 6 0	1082 11 6	118712 11 3	4946 6 8	58610 5 0	2141 3 1	11364 15 2	473 10 5

	Hill Side Colliery		Maryville Colliery		South Ferndale Colliery		Anvil Creek Colliery		Pride of Ferndale Colliery		Hughes and Tanks Colliery		Great Northern Colliery		Thornley Colliery		Hornville Colliery		Black Jack Colliery		Total	
	T c q	£ s d	T c q	£ s d	T c q	£ s d	T c q	£ s d	T c q	£ s d	T c q	£ s d	T c q	£ s d	T c q	£ s d	T c q	£ s d	T c q	£ s d	T c q lb	£ s d
January	44 0 2	1 16 8	1946 17 3	81 2 5	262 12 1	10 18 10																
February	91 9 3	3 16 3	1778 9 3	74 2 0	250 17 3	10 8 11					139 11 0	5 16 3							0 0 3	0 4 0	121349 17 0 0	5897 1 0
March	178 10 0	7 8 8	2744 5 3	114 6 11	26 7 3	1 2 0															130016 0 2 24	6378 17 5
April	181 6 3	7 11 1	2735 9 1	113 19 6																	140512 5 0 0	6824 5 2
May	187 11 1	7 16 4	3636 17 3	151 10 8													0 8 3	0 11 7			125333 14 0 0	6128 7 10
June	262 7 0	10 18 7	3581 6 3	149 4 4													5 0 0	0 7 6			137039 17 1 0	6659 2 5
July	239 12 0	9 19 8	3181 2 3	132 11 0																	137625 13 1 0	6646 6 5
August	203 16 3	8 9 10	2428 12 2	69 6 11																	164379 8 0 0	7864 8 3
September	228 11 0	9 10 5	2005 19 1	54 4 6																	163146 3 0 0	7646 8 7
October	140 14 2	5 17 4	465 19 1	11 12 11			19 0 2	3 3 5					0 8 2	0 2 7							145090 12 3 0	6703 14 6
November	84 2 0	3 10 1	1047 3 3	26 3 8			202 18 2	19 4 2	169 5 1	7 1 0			88 11 0	6 12 10							127513 13 1 0	6145 19 9
December	57 16 0	2 8 2	646 19 2	16 3 6			572 8 3	54 1 11	199 5 0	8 6 1											124980 6 0 18	5929 19 9
Total	1899 17 2	7 9 3	126199 4 0	994 8 4	539 17 3	22 9 9	794 7 3	76 9 6	368 10 1	15 7 1	139 11 0	5 16 3	88 19 2	6 15 5	5 0 0	0 7 6	0 8 3	0 11 7	0 0 3	0 4 0	1633874 12 1 14	78349 9 6

* Output of Wallsend Tunnels

No. 36.

MONTHLY Return of COAL forwarded from Western Collieries during 1886.

Months	North's.			Main Camp.			Moi't's (Zig-Zag).			Vale of Clwydd.			Eskbank.		
	T. c. q.	£ s. d.		T. c. q.	£ s. d.		T. c. q.	£ s. d.		T. c. q.	£ s. d.		T. c. q.	£ s. d.	
January	2,063 0 0	560 11 5		361 0 2	140 4 3		1,660 3 0	631 4 8		3,496 17 0	1,356 3 9		1,791 14 0	704 4 2	
February	2,714 12 0	741 3 2		386 11 3	149 18 11		2,409 5 0	885 0 5		3,657 2 0	1,414 12 7		2,520 14 0	972 7 0	
March	1,602 13 0	430 12 5		445 6 2	165 6 2		3,435 5 0	1,277 4 8		4,907 3 0	1,880 10 1		3,656 5 0	1,462 13 8	
April	1,842 4 2	492 9 8		375 9 1	129 17 1		2,985 7 0	1,124 11 0		4,083 15 0	1,602 7 9		3,654 12 0	1,421 2 10	
May	2,439 10 0	661 18 4		275 3 3	94 13 11		3,620 13 0	1,364 16 0		5,950 3 0	2,276 16 1		3,621 6 0	1,340 19 8	
June	2,997 17 0	829 10 9		236 13 2	80 3 5		2,635 17 0	974 8 6		5,561 12 0	2,151 4 1		1,881 5 0	637 6 8	
July	4,086 16 3	1,113 15 8		672 8 3	218 15 6		172 16 0	65 12 6		368 18 0	139 13 9		3,918 8 0	1,416 12 3	
August	3,831 7 0	1,053 4 1		999 4 0	332 6 9		...	...		1,292 8 0	483 11 0		3,816 8 0	1,392 2 6	
September	3,448 14 3	940 6 6		848 17 2	272 3 5		2,040 2 0	768 0 6		3,429 7 1	1,350 19 11		2,950 19 0	1,111 2 8	
October	2,399 3 1	555 6 11		832 5 1	270 10 2		2,534 4 0	942 18 6		2,779 9 0	1,069 15 4		2,292 12 0	855 14 5	
November	2,370 2 0	642 19 11		819 17 0	266 9 11		2,986 19 0	1,128 5 1		2,674 2 0	1,052 5 9		1,990 12 0	754 15 7	
December	2,047 13 0	558 0 5		768 0 1	252 11 1		2,456 2 0	936 15 1		2,500 18 1	1,000 2 1		1,883 11 0	704 19 8	
	31,483 13 1	8,579 19 3		7,020 18 0	2,373 0 7		26,936 13 0	10,098 16 11		40,701 14 2	15,778 2 2		33,978 6 0	12,774 1 1	
	Lithgow Valley.			Bowenfels Siding			Carlo's Gap.			Total.					
	T. c. q.	£ s. d.		T. c. q.	£ s. d.		T. c. q.	£ s. d.		T. c. q.	£ s. d.		T. c. q.	£ s. d.	
January	1,856 17 0	668 12 11		.....	.....		6 7 0	0 14 4		11,235 18 2	4,061 15 6		.....	.....
February	1,107 8 0	434 5 5		576 10 0	198 6 0		12 15 0	3 5 11		13,384 17 3	4,798 19 5		.....	.....
March .....	.....	.....		.....	.....		35 19 0	9 7 0		14,082 11 2	5,225 14 0		.....	.....
April .....	.....	.....		390 1 0	8 2 6		18 8 0	4 15 3		13,349 16 3	4,783 6 1		.....	.....
May	650 0 0	270 3 0		.....	.....		6 0 0	1 11 0		16,562 15 3	6,010 18 0		.....	.....
June	1,004 3 0	450 1 7		.....	.....		31 3 2	7 10 4		14,348 11 0	5,130 5 4		.....	.....
July	2,399 5 0	920 2 7		.....	.....		52 17 3	13 11 10		11,671 10 1	3,888 4 1		.....	.....
August	4,159 9 0	1,633 18 0		.....	.....		22 8 2	4 12 7		14,121 4 2	4,899 14 11		.....	.....
September	3,555 9 0	1,414 6 5		.....	.....		37 17 1	7 15 1		16,311 6 3	5,864 14 6		.....	.....
October	2,193 7 0	906 15 6		.....	.....		31 1 0	8 0 7		12,702 1 2	4,609 1 5		.....	.....
November	1,374 2 0	555 0 4		13 17 0	1 0 10		.....	.....		12,229 11 0	4,400 17 5		.....	.....
December	1,413 16 0	537 19 0		.....	.....		.....	.....		11,070 0 2	3,990 7 4		.....	.....
	19,713 16 0	7,791 4 9		980 8 0	207 9 4		254 17 0	61 3 11		161,070 5 3	57,663 18 0		.....	.....

No. 37.

MONTHLY RETURN of SHALE carried from Joadza Siding and Hartley Vale during the year 1886.

Months.	Joadza Siding.		Hartley Vale.		Total.	
	Tons cwt. qrs.	£ s. d.	Tons cwt. qrs.	£ s. d.	Tons cwt. qrs.	£ s. d.
January.....	629 19 0	205 6 0	379 12 0	128 16 1	1,009 11 0	334 2 1
February	2,301 12 0	756 4 4	1,110 1 0	380 8 0	3,411 13 0	1,136 12 4
March	2,203 0 0	724 2 4	332 10 1	106 4 5	2,535 10 1	830 6 9
April	1,459 0 0	486 18 1	1,334 18 3	459 9 1	2,793 18 3	946 7 2
May	2,027 0 0	678 17 0	157 14 2	53 18 7	2,184 14 2	732 15 7
June	1,771 0 0	594 10 0	460 0 3	196 16 11	2,231 0 3	791 6 11
July	2,266 7 0	752 1 11	395 13 0	126 3 4	2,662 0 0	878 5 3
August	1,388 0 0	464 2 0	563 0 0	179 16 7	1,951 0 0	643 18 7
September.....	1,975 0 0	655 11 4	133 5 0	43 10 2	2,108 5 0	699 1 6
October.....	1,323 0 0	437 14 7	652 1 3	227 18 2	1,975 1 3	665 12 9
November	2,220 0 0	730 11 5	435 7 0	147 19 9	2,655 7 0	878 11 2
December	643 8 2	226 4 1	54 0 3	18 9 3	697 9 1	244 13 4
Total	20,207 6 2	6,712 3 1	6,008 4 3	2,069 10 4	26,215 11 1	8,781 13 5

No. 38.

RETURN of O.H.M.S. COAL forwarded from the Western Collieries during the year 1886.

Months.	North's Siding.		Mort's Siding.		Vale of Clwydd.		Eskbank.	
	Tons cwt. qrs.	£ s. d.	Tons cwt. qrs.	£ s. d.	Tons cwt. qrs.	£ s. d.	Tons cwt. qrs.	£ s. d.
January	378 0 0	242 19 3	3,131 0 0	1,583 5 0	.....	.....	3,111 0 0	1,467 11 1
February .....	.....	.....	2,904 10 0	1,472 11 11	.....	.....	2,894 16 0	1,655 3 11
March	579 6 0	536 17 5	5,512 14 0	2,844 12 5	13 4 0	6 8 0	5,711 19 0	2,167 18 2
April	575 13 0	368 4 10	5,882 11 0	2,909 19 1	.....	.....	4,692 2 0	2,061 3 1
May	1,326 19 0	971 5 9	4,772 17 0	2,297 19 6	.....	.....	4,383 13 0	2,502 19 8
June	1,428 19 0	808 13 10	3,904 3 0	1,961 7 2	.....	.....	3,742 10 0	2,125 11 11
July	989 0 0	538 2 11	527 6 0	251 1 5	.....	.....	3,598 9 0	1,220 10 4
August	1,202 15 0	458 1 8	.....	.....	.....	.....	4,110 0 0	1,538 1 2
September	1,445 17 0	581 5 11	2,268 19 0	1,863 2 10	1,287 14 0	441 10 6	3,346 11 0	984 11 4
October	285 15 0	182 7 11	4,164 14 0	1,751 16 9	3,625 18 0	2,753 18 7	4,168 6 1	1,133 16 5
November	390 19 0	241 2 6	3,202 7 0	1,437 0 2	2,588 2 0	1,900 19 5	4,440 5 0	1,360 6 11
December	446 8 1	278 7 1	2,744 14 0	1,157 9 2	1,898 14 0	1,313 5 4	4,872 15 1	1,336 15 11
Total	9,109 11 1	5,207 9 1	39,015 15 0	19,530 5 5	9,413 12 0	6,416 1 10	49,072 6 2	19,554 9 11
	Lithgow		Bowenfels Siding.		Total.			
	Tons cwt. qrs.	£ s. d.	Tons cwt. qrs.	£ s. d.	Tons cwt. qrs.		£ s. d.	
January	2,491 0 0	838 12 7	622 0 0	287 10 3	9,733 0 0		4,419 18 10	
February	1,695 4 0	397 11 3	869 18 0	399 3 9	8,364 8 0		3,924 10 10	
March	103 4 3	13 10 5	119 19 0	71 14 3	12,040 6 3		5,641 0 8	
April	55 3 0	7 16 4	.....	.....	11,205 9 0		5,347 3 4	
May	2,618 5 2	663 8 3	478 12 0	113 13 7	13,580 6 2		6,549 6 9	
June	4,346 15 2	1,510 18 5	964 2 0	376 4 1	14,386 9 2		6,782 15 5	
July	4,003 8 1	1,919 19 7	1,017 7 0	601 13 5	10,135 10 1		4,531 7 8	
August	4,955 17 3	2,440 16 1	714 19 0	604 15 5	11,043 11 3		5,041 14 4	
September	3,531 7 3	1,384 7 1	.....	.....	11,880 8 3		5,254 17 8	
October	3,530 13 0	1,425 5 5	.....	.....	15,775 6 1		7,247 5 1	
November	3,227 14 0	1,386 6 4	.....	.....	13,849 7 0		6,325 15 4	
December	3,735 2 1	2,097 18 4	.....	.....	13,697 13 3		6,183 15 10	
Total	34,293 15 3	14,086 10 1	4,786 17 0	2,454 14 9	145,691 17 2		67,249 11 9	

No. 39.

GREAT NORTHERN RAILWAY.

ABSTRACT of the Tonnage and Amount received for carriage of COAL shipped at the Government Cranes and Staiths, Newcastle and Bullock Island, during 1885-86.

Companies.	1885.		1886		Increase, 1886		Decrease, 1886.	
	Tons	Freight.	Tons.	Freight	Tons	Freight	Tons	Freight.
		£		£		£		£
A. A Company	2,380	101	162	9	.....	.....	2,218	92
Blackwall	383	162	1 424	746	1,041	584	.....	.....
Burwood	42,755	2,142	95,150	3,965	52,395	1,823	.....	.....
Co-operative	253,712	13,858	240,249	12,728	.....	.....	13,463	1,130
Ellhot's Pit	45	12	16	3	.....	.....	29	9
Ferndale	71,980	3,078	13,917	601	.....	.....	58,063	2,477
Greta	75,067	6,972	107,986	9,953	32,919	2,981	.....	.....
Goose	408	17	478	20	.....	.....	.....	.....
Hill Side	25	2	1,900	79	1,875	77	.....	.....
Lambton	223,339	9,296	118,713	4,946	.....	.....	104,626	4,350
Lambton, New	54,703	2,127	64,262	2,618	.....	.....	.....	.....
Leconfield	2	.....	.....	.....	.....	.....	2	.....
Minmi	169,986	8,500	177,071	8,884	.....	.....	.....	.....
Maryville	9 716	405	26,199	994	16,483	589	.....	.....
Marshall's	1	1	.....	.....	.....	.....	1	1
Purified Coke	4,850	203	4,443	185	.....	.....	407	18
Rix Creek	9,711	398	1,060	152	.....	.....	8,651	246
Rathluba... .. .	1	2	6	1	5	.....	.....	.....
Speedwell	35	1	.....	.....	.....	.....	.....	.....
Sneddon's, Wallsenl... .. .	21,044	1,052	14,838	742	.....	.....	6,206	310
South Ferndale	1 982	83	540	22	.....	.....	1,442	61
Tulip's	6	1	.....	.....	.....	.....	6	1
Wallsend Tunnels	485,231	20,258	483,878	20,250	.....	.....	1,353	8
Newcastle	163,301	6,814	183,992	7,668	20,691	854	.....	.....
Waratah	39,980	1,682	25,619	1,063	.....	.....	14,361	619
New Park	12	8	.....	.....	.....	.....	12	8
Wickham & Bullock Island	5,641	249	58,610	2,141	52,969	1,892	.....	.....
Tighe's Hill	4,305	179	11,365	474	7,060	295	.....	.....
Anvil Creek .. . . .	.....	.....	794	76	794	76	.....	.....
Pride of Ferndale .. . . .	.....	.....	369	15	369	15	.....	.....
Hughes & Tunks .. . . .	.....	.....	140	6	140	6	.....	.....
Thornley .. . . .	.....	.....	5	1	5	1	.....	.....
Great Northern .. . . .	.....	.....	89	7	89	7	.....	.....
Total	1,640,601	77,603	1,633 875	78,349	204,149	10,078	210,875	9,332
Less local consumption	72,180	3,823	60,389	4,032	.....	209	11,791	.....

No. 40.

ABSTRACT of the Tonnage and amount received for the carriage of COAL and SHALE from the various Mines on the Great Southern and Western Railways in 1885 and 1886.

	1885.		1886		Increase, 1886		Decrease, 1886	
	Tons.	Freight	Tons	Freight	Tons.	Freight	Tons	Freight.
		£		£		£		£
Joadza	17,419	5,822	23,141	8,133	5,722	2,311	.....	.....
Austermere	1,807	413	2,079	472	272	59	.....	.....
Ringwood	196	99	.....	.....	.....	.....	196	99
Erith	2,463	456	946	132	.....	.....	1,517	324
Gladstone	756	205	.....	.....	.....	.....	756	205
North's	26,507	7,278	31,484	8,580	4,977	1,302	.....	.....
Hartley	6,778	2,362	6,008	2,070	.....	.....	770	292
Main Camp	821	270	7,021	2,373	6,200	2,103	.....	.....
Lithgow Valley—								
Mort's (Zig Zag)	30,890	11,640	20,937	10,099	.....	.....	3,953	1,541
Vale of Clwydd	40,982	15,560	40,702	15,778	.....	.....	280	.....
Esk Bank	28,979	11,606	33,978	12,774	4,999	1,168	.....	.....
Lithgow	30,053	11,474	19,714	7,791	.....	.....	10,339	3,683
Bowenfels Company	365	141	980	208	615	67	.....	.....
Irondale	1,358	356	.....	.....	.....	.....	1,358	356
Carlos Gap	321	80	255	61	.....	.....	66	19
Total	189,095	67,762	193,245	68,471	22,785	7,228	19,235	6,519

No. 41.

ABSTRACT of the total quantity of COAL and SHALE carried on Great Southern, Western, and Northern Railways during 1885 and 1886, and the amounts of Freight received therefrom.

	1885		1886		Increase, 1886		Decrease, 1886.	
	Tons	Freight.	Tons	Freight	Tons	Freight	Tons	Freight
COAL		£		£		£		£
Newcastle Lines	1,640,601	77,603	1,633,875	78,349	...	746	6,726	...
Great Southern Railway—								
Joadza Siding	2,944	1,056	2,934	1,421	...	365	10	...
Austermere	1,807	413	2,079	472	272	59	...	...
Ringwood	196	99	...	...	...	...	196	99
Eith	2,463	456	946	132	...	...	1,517	324
Great Western Railway—								
Gladstone	756	205	...	...	...	...	756	205
North's	26,507	7,276	31,484	8,580	4,977	1,304	...	...
Main Camp	822	270	7,021	2,373	6,199	2,103	...	...
Lithgow Valley Mines	131,269	50,422	122,311	46,650	...	...	8,958	3,772
Irondale	1,358	356	...	...	...	...	1,358	356
Carlos Gap	321	80	255	61	...	...	66	19
SHALE.								
Great Southern Railway—								
Joadza Siding	14,474	4,767	20,207	6,712	5,733	1,945	...	...
Great Western Railway—								
Hartley Vale	6,778	2,362	6,008	2,070	...	...	770	292
Total ..	1,830,296	145,365	1,827,120	146,820	17,181	6,522	20,357	5,067

No. 42.*

RETURN of the numbers and percentage proportion of FIRST and SECOND CLASS PASSENGERS on the Great Southern, Western, and Richmond and Northern Lines, and the amount received from that source during 1886.

	First Class	Second Class.	Total.
South and West—	No.	No.	No.
Passengers	2,507,021	5,826,675	8,333,696
Season Tickets	2,266,140	1,393,100	3,659,240
Workmen's Tickets	...	1,771,620	1,771,620
Northern—			
Passengers	174,521	774,130	948,651
Season Tickets	91,050	94,052	185,102
All Lines	5,038,732	9,859,577	14,898,309
Amount received—	£	£	£
South and West—			
Passengers	269,211	286,516	555,727
Season Tickets	24,646	11,748	36,394
Workmen's Tickets	...	12,973	12,973
Northern—			
Passengers	38,310	65,441	103,751
Season Tickets	2,102	658	2,760
All Lines	334,269	377,336	711,605
Percentage number—	No.	No.	No.
South and West	34.68	65.32	100.00
Northern	23.42	76.58	100.00
All Lines	33.82	66.18	100.00
Percentage amount received—	£	£	£
South and West	48.56	51.44	100.00
Northern	37.94	62.06	100.00
All Lines	46.97	53.03	100.00

* Includes Camden Tramway.

No. 43.

RETURN of the MILEAGE of SUBURBAN PASSENGERS during the years 1885 and 1886.

Description.		1885.	1886.
No. of Passengers	No.	5,945,185	6,478,978
„ Workmen's journeys	„	1,688,976	1,763,952
„ Season Ticket-holders' journeys	„	3,036,188	3,466,106
Total Passenger journeys	..	10,670,349	11,709,036
No of miles travelled	Miles.	53,490,610	60,313,463
Average mileage per passenger	„	5.01	5.15
Amount received for passengers	£	147,918 3 8	156,649 12 4
Average receipts per mile per passenger	d.	0 64	0 62

RETURN of the Number of TICKETS issued, and amounts received for same, from Suburban Stations to Suburban Stations, during the year 1886.

Stations	Down.										Up.										Total number of Passengers—Down and Up			
	Number issued				Total number issued—Down	Amounts					Number issued				Total number issued—Up	Amounts								
	Single		Return			Single		Return		Total	Single		Return			Total	Single		Return			Total		
	1	2	1	2		1	2	1	2		1	2	1	2			1	2	1	2			1	2
Central	383	131	914	248	1 676	s d	£ s d	£ s d	£ s d	£ s d													1,676	
Sydney	212,145	492,174	220,623	348,406	1 273,348	5,015 16 10	8,705 3 5	11,426 13 4	13,581 19 10	38,729 13 5													1 273,348	
Eveleigh	14,716	128,414	4 484	37,920	175,534	225 6 9	1,213 10 1	138 18 11	666 14 5	2,244 10 2	1 073	7 503	38	8s	8,099	8 17 11	31 5 3	0 9 6	0 14 2	41 6 10			184,233	
M'Donald Town	5,681	18,541	1,314	3,946	29,482	95 8 8	203 10 9	40 19 9	91 3 1	431 2 3	8 661	55 911	2 823	19,111	86,506	103 4	382 11 2	53 8 7	258 11 8	797 16 0			115,988	
Newtown	33,151	133,038	9,035	32,127	207,411	515 6 3	1,366 4 2	323 7 3	943 6 10	3 148 4 6	17,725	76,818	7,417	32,795	134,755	209 5 2	507 1s 10	138 8 10	439 15 8	1,295 5 6			342,166	
Stanmore	9,425	7,490	3 310	1,478	21,703	152 1 3	70 14 3	90 9 9	31 2 11	344 8 10	18 179	21,366	27,079	12,194	78 818	251 0 9	185 8 1	8 14 1	224 16 2	1,409 19 1			100,521	
Petersham	26,372	56,056	7,089	12,849	102,366	476 11 7	733 5 10	269 0 9	38s 9 1	1 364 7 3	57,098	167 388	81 497	93,252	399,235	766 13 4	1,379 3 11	2,274 10 8	1,741 10 4	6,161 18 3			501,601	
Summer Hill	9,155	22,171	3,229	4 741	39,296	167 4 5	282 12 0	112 9 10	121 19 8	687 5 11	34 788	72 461	47,896	56,613	211,708	519 6 7	752 18 1	1 602 16 3	1 348 15 11	4,223 16 10			251,054	
Ashfield	10,645	20,631	3,512	4 367	39,155	184 7 7	235 1 0	115 6 10	107 3 10	612 4 3	31,367	69,567	50,617	62 875	217,426	615 15 11	853 15 11	1,996 0 3	1,681 5 0	5,147 0 1			256,581	
Croydon	7,112	16,970	2 007	3,019	29,113	99 7 5	136 18 2	53 7 5	62 15 11	352 8 11	17 335	38 788	23,060	33 243	112,474	360 5 9	583 3 4	1,062 19 8	1,045 10 10	3,051 19 7			141,587	
Burwood	5,613	27,878	2,248	4,030	42,769	137 18 11	295 5 8	78 0 3	116 15 1	627 19 11	38 685	89,450	50 179	70,667	243,981	874 4 0	1,489 16 7	2 633 14 11	2,609 18 6	7,607 14 0			291,750	
Strathfield	1,855	4,458	810	897	8,020	39 16 7	59 5 9	29 2 10	20 15 11	149 1 1	11,311	13 4 9	12 299	9,264	46,443	250 17 6	208 5 7	663 17 2	346 7 2	1,469 7 5			54,463	
Homebush	1 066	5,771	324	1,047	8,203	25 13 3	88 16 4	12 16 10	28 2 11	15s 9 4	9,036	31,001	6 566	13,73s	60,358	182 10 1	384 10 9	341 16 9	441 16 7	1,350 14 2			68,566	
Flemington	4	95		3	102	0 1 10	1 4 11		0 1 4	1 8 1	130	416	4	102	652	3 17 10	8 9 8	0 8 10	3 7 9	15 19 1			754	
Rookwood	1 894	12,127	470	4,089	18,580	33 17 8	161 8 0	12 8 4	79 4 10	286 18 10	4,536	28 084	2,513	25,201	60,354	134 15 5	624 2 1	160 18 4	1,098 5 8	2,018 1 6			78 934	
Auburn	1,565	12,732	817	6,505	21,619	23 16 8	130 14 5	18 15 1	99 11 0	272 17 2	2,055	17,38s	1,673	12,906	33,919	79 5 9	442 4 7	120 2 11	599 17 2	1,241 10 5			55,538	
Clyde	271	2,143	112	256	2,782	2 10 4	10 15 2	1 10 5	2 9 8	17 5 7	435	4 491	290	3 376	8,592	17 19 9	106 17 2	23 9 6	178 0 4	326 6 9			11,374	
Granville	4,738	39,599	1 787	5,099	51,223	39 8 7	164 19 4	22 12 11	42 6 8	209 7 6	6,643	38 225	5 025	25 940	75,833	276 9 4	1,021 4 11	420 16 8	1,419 14 8	3,138 5 7			127,056	
Harris Park	27	30	2		59	0 4 5	0 2 6	0 0 6	0 7 5	2,140	4,709	1 305	2,885	11,039		106 5 6	130 3 2	94 12 4	141 4 8	472 5 8			11,098	
Parramatta											39,062	125 430	29,374	52,259	246,125	1,716 8 2	2 701 0 3	2,705 4 6	3,198 9 6	10,321 2 5			246,125	
Biskinneville	3,151	19,246	1,637	8,747	32,781	61 7 1	254 6 8	58 9 9	229 3 0	606 6 6	2 491	17,493	766	3,795	24,545	29 11 10	122 8 6	14 10 8	49 7 7	215 18 7			57,320	
St Peter s	4,958	27,403	2,093	9,738	44,242	97 14 7	357 13 0	68 18 2	259 10 10	733 16 9	7 583	31,012	4,136	14,311	57,542	90 5 10	200 16 3	76 11 3	191 15 2	569 8 6			101,784	
Marrickville	2,469	14,338	1,155	6,334	24,296	44 0 4	191 11 10	38 6 7	141 13 7	410 12 4	7,181	38,621	7,785	24,148	77,735	105 11 1	346 7 5	212 10 2	429 3 3	1,093 11 11			102,031	
Tempe	1,771	8,918	512	2,148	13,349	25 13 6	90 13 11	11 9 1	38 12 9	166 14 3	6,356	18,279	5,308	10,590	40,533	116 10 10	231 15 6	172 0 8	233 19 2	754 6 2			53,882	
Arncliffe	726	3,737	209	622	5,294	9 4 6	29 13 10	3 11 1	8 19 4	31 8 9	5,302	17,084	4,481	9,293	36,160	103 5 10	222 7 9	167 16 8	231 18 4	725 8 7			41,454	
Rockdale	602	5,383	176	578	6,739	6 14 0	38 9 1	3 3 9	8 2 10	56 9 8	8 272	39 592	5,449	24,382	77,69s	178 3 5	621 1 11	247 15 4	746 11 6	1,796 12 2			84,434	
Kogarah	441	2,400	163	485	3,489	5 9 10	19 15 7	2 12 10	6 0 5	33 18 8	8 867	31,029	7,097	19,367	66,360	243 4 0	553 13 10	363 14 2	693 2 11	1,853 14 11			69,849	
Hurstville											6,345	20,321	3,936	15 262	54,864	210 3 7	656 12 1	240 11 8	649 0 7	1,706 7 11			54,864	
Ryde											79s	2 063	203	641	3,702	41 2 1	79 14 9	13 14 9	35 12 6	170 4 1			3,702	
Total	362,936	1,081,879	268,032	489,789	2 202,636	7,501 11 9	14,848 7 6	12,979 9 10	17,085 9 8	52,414 18 9	356,739	1,086,946	388,726	648,692	2,481,103	7,595 1 10	14,830 17 4	16,551 10 1	20,038 12 9	59,016 2 0			4,683,739	
Return Tickets—Return Journeys			388,726	648,692	1,037,418								268,032	489,789	757,821									1,795,239
Grand Total	362,936	1,081,879	656,758	1,138,481	3,240,054	7,501 11 9	14,848 7 6	12,979 9 10	17,085 9 8	52,414 18 9	356,739	1,086,946	656,758	1,138,481	3,238,924	7,595 1 10	14,830 17 4	16,551 10 1	20,038 12 9	59,016 2 0			6,478,078	

APPENDIX TO REPORT ON RAILWAYS—1886.

No. 44—continued.

RETURN of the number of SEASON TICKETS issued, and Amounts received for same, by each Suburban Station during the year 1886.

Stations.	Monthly.		Quarterly.		Half-yearly.		Yearly.		Total.		Total Amount.	
	1.	2.	1.	2.	1.	2.	1.	2.	1.	2.	1st Class.	2nd Class.
1886.												
Sydney	50	52	57	8	16	...	52	...	941	76	£ s. d.	£ s. d.
Eveleigh	2	1	1	...	...	...	...	...	175	60	1,803	9 6
Macdonald Town ...	67	212	20	40	2	3	2	...	5	1	1	2 9
Newtown	186	1,075	76	152	47	76	23	4	163	350	56	6 6
Stanmore	490	311	144	35	81	25	27	2	91	255	378	12 3
Petersham	1,356	1,874	562	355	418	214	105	45	972	2,035	474	19 6
Summer Hill	562	824	295	287	295	125	70	22	332	1,307	775	3 4
Ashfield	787	579	313	209	326	122	138	21	742	373	1,458	13 0
Croydon	281	279	184	109	151	84	35	5	2,441	2,488	3,144	9 7
Burwood	637	533	337	157	296	77	108	21	4,057	2,699	1,080	3 1
Strathfield	194	43	196	27	161	3	46	1	1,222	1,258	2,213	17 0
Homebush	167	71	60	22	95	20	35	1	5,338	2,190	3,074	17 5
Rookwood	34	245	42	59	10	26	4	5	1,564	931	1,507	16 4
Auburn	19	74	18	24	4	5	5	...	651	477	582	3 5
Granville	46	186	42	76	22	14	5	...	4,720	1,718	3,282	7 4
Parramatta	251	440	143	115	87	30	16	5	1,378	788	1,609	3 10
Erskineville	22	45	2	4	...	3	...	...	2,300	154	1,609	3 10
St. Peters	30	174	23	12	7	11	2	...	597	74	99	12 11
Marrickville	60	286	53	72	24	26	1	...	1,337	269	111	11 1
Tempe	82	336	62	55	38	20	8	5	357	114	202	19 11
Arncliffe	66	91	25	20	28	10	7	...	268	638	360	14 3
Rockdale	109	105	27	80	31	23	9	4	90	335	100	7 6
Kogarah	54	137	43	58	30	14	2	1	157	176	126	8 0
Hurstville	35	58	41	34	33	4	6	1	46	103	113	4 9
Ryde	2	1	...	...	...	...	...	...	364	498	1,131	4 9
Total	5,589	8,032	2,766	2,010	2,202	935	706	143	1,394	1,025	1,528	1 0
									497	590	813	0 9
									28	75	16	5 6
									24	52	17	14 9
									165	276	45	17 11
									62	197	63	16 1
									375	658	164	5 5
									138	384	192	12 3
									592	681	303	7 5
									190	416	256	19 3
									393	211	224	1 6
									126	121	93	9 1
									484	531	327	13 9
									176	212	238	15 3
									387	407	279	14 6
									129	210	179	10 10
									428	196	296	14 11
									115	97	131	8 1
									2	1	3	5 0
									2	1	1	3 0
									35,571*	21,388*	23,469	17 10
									11,263	11,120	8,873	5 8

*All tickets brought into months.

No. 44—continued.

RETURN of the number of Workmen's Weekly Tickets issued, and Amounts received for same, by each Suburban Station during the year 1886.

	Weekly Tickets issued.	Amounts.			Weekly Tickets issued.	Amounts.	
	2nd Class.	£	s. d.		2nd Class.	£	s. d.
Sydney	23,183	2,383	5 5	Auburn	3,096	368	6 1
Eveleigh	7,985	959	18 10	Granville	4,056	540	4 6
Macdonald Town	14,476	660	8 10	Erskineville	3,413	266	10 6
Newtown	18,761	1,174	7 10	St. Peter's	5,296	358	12 7
Stanmore	3,099	199	9 2	Marrickville	5,877	463	6 1
Petersham	18,152	1,404	2 11	Tempe	2,621	226	0 0
Summer Hill	5,759	501	9 11	Arncliffe	1,481	141	7 9
Ashfield	4,867	452	12 6	Rockdale	3,551	367	14 8
Croydon	4,441	427	16 8	Kogarah	2,310	260	6 8
Burwood	4,978	517	10 2	Hurstville	972	136	8 11
Strathfield	777	85	10 0	Parramatta	4,208	544	16 7
Homebush	893	99	15 10				
Rookwood	2,744	335	5 8				
					146,996	12,875	8 1

No. 45.

DETAILED STATEMENT of the MILEAGE of ENGINES, for twelve months ending the 31st December, 1886.

Train Miles	Suburban	Illawarra	Sydney to Hornsby	Southern	Western	Richmond	Murrumburrah to Young	Northern	Total
Passenger	415,174	129,655	9,580	928,283	736,898	23,923	9,336	411,156	2,664,005
„ Special ...	7,652	8,958	1,216	25,071	17,192	2,543	715	21,876	85,223
Funeral	11,985	.	...	..	..	..	..	3,758	15,743
Goods .	16,057	10,925	1,842	996,043	1,654,730	29,896	10,016	608,092	3,327,601
„ Special .	522	881	159	104,308	83,614	157	747	50,235	240,623
Coal .	.	.	.	.	... ..	.	...	146,070	146,070
Total Train Miles	451,390	150,419	12,797	2,053,705	2,492,434	56,519	20,814	1,241,187	6,479,265
Increase	12,262	48,685	12,797	.	..	.	7,034	.	.
Decrease	.	.	.	61,814	105,122	2,362	.....	70,614	159,134
OTHER MILES.									
Shunting .	67,080	24,098	2,315	450,187	326,732	17,009	2,739	417,472	1,307,632
Coal .	.	..	..	14,910	103	.	...	..	15,013
Ballasting	4,737	934	1,360	51,942	107,049	... .	5,456	50,143	221,621
Empty .	6,241	2,876	282	55,825	78,670	534	133	24,520	169,081
Water . . . . .	....	.	.	39,783	33,917	.. .	660	416	74,776
Total other Miles	78,058	27,908	3,957	612,647	546,471	17,543	8,988	492,551	1,788,123
Grand Total ..	529,448	178,327	16,754	2,666,352	3,038,905	74,062	29,802	1,733,738	8,267,388
Total Increase ...	.	54,281	16,754	20,761	.	.	12,779	...	9,673
„ Decrease .. .	5,056	.. .	..	..	15,119	3,661	...	71,066	... .

No. 46.

STATEMENT of MILEAGE, Passenger and Goods Trains, for the years 1885 and 1886.

Lines and Trains—Train miles.	1885.	1886.
Great Southern, Western, and Richmond Railways—Passenger.....	2,261,985	2,328,181
Great Northern Railway—Passenger	442,460	436,790
Great Southern, Western, and Richmond Railways—Goods	3,064,613	2,909,897
Great Northern Railway—Goods.....	869,341	804,397
Total Train Miles.....	6,638,399	6,479,265
OTHER MILEAGE.		
Great Southern, Western, and Richmond Railways—Ballasting, Shunting, &c.	1,126,313	1,295,572
Great Northern Railway—do do	493,003	492,551
Total other Mileage.....	1,619,316	1,788,123
TOTAL MILES	8,257,715	8,267,388

No. 47.

ANNUAL and DAILY MILEAGE of TRAINS, including Sundays, 1885 and 1886.

TRAIN MILES.	1885.		1886.	
	Annual.	Daily.	Annual.	Daily.
Suburban	439,128	1,203	451,390	1,237
Illawarra	101,734	279	150,419	412
Sydney to Hornsby .....	.....	.....	12,797	35
Southern	2,115,510	5,796	2,053,705	5,627
Western	2,597,556	7,116	2,492,434	6,829
Richmond	58,881	161	56,519	155
Murrumburrah to Young	13,780	38	20,814	57
Northern	1,311,801	3,594	1,241,187	3,400
Total Train Miles	6,638,399	18,187	6,479,265	17,752
CLASS OF ENGINE.				
Passenger.....	2,704,445	7,409	2,764,971	7,575
Goods	3,933,954	10,778	3,714,294	10,177
Total.....	6,638,399	18,187	6,479,265	17,752
OTHER MILEAGE.				
Suburban.....	95,376	261	78,058	214
Illawarra	22,312	61	27,908	76
Sydney to Hornsby .....	.....	.....	3,957	11
Southern	530,072	1,452	612,647	1,679
Western	456,468	1,251	546,471	1,497
Richmond	18,842	52	17,543	48
Murrumburrah to Young	3,243	9	8,988	24
Northern	493,003	1,351	492,551	1,350
Total other Mileage	1,619,316	4,437	1,788,123	4,899
CLASS OF WORK.				
Shunting	1,259,121	3,450	1,307,632	3,583
Ballasting.....	211,155	579	221,621	607
Empty	64,869	178	169,081	463
Water	69,144	189	74,776	205
Fuel	15,027	41	15,013	41
Total.....	1,619,316	4,437	1,788,123	4,899
Total with shunting, &c.	8,257,715	22,624	8,267,388	22,651
Average daily work per engine .....	.....	46.63	.....	43.72
Do including shunting, &c.....	.....	58.01	.....	55.79
Number of engines	390		406	

No. 48.

DETAIL of MILEAGE of each Engine for the year ending 31st December, 1886.

No	Class of Engine.	Total Mileage of each Engine.	No	Class of Engine.	Total Mileage of each Engine.
GREAT SOUTHERN, WESTERN, AND RICHMOND LINES.					
1	Goods	18,195	89	Passenger	15,321
2	"	13,882	90	"	26,205
3	"	18,643	91	"	16,170
4	"	4,461	92	"	22,475
5	Passenger	12,189	93	Goods	14,856
10	"	Nil.	94	"	27,120
13	"	Nil.	95	"	26,996
14	"	44,148	96	"	13,841
15	"	31,490	97	"	18,698
16	"	24,244	98	"	20,798
17	Goods	14,459	99	"	15,710
18	"	17,716	100	"	23,674
19	"	18,221	101	"	33,866
20	"	11,720	102	"	20,435
21	"	26,198	103	"	15,803
22	"	23,082	104	"	11,637
23	Passenger	Nil.	105	"	Nil.
24	"	1,429	106	"	9,330
25	"	Nil.	107	"	20,974
26	"	26,670	108	"	23,466
27	"	374	109	"	31,805
28	"	24,164	110	"	21,787
29	"	4,153	111	"	31,669
30	"	4,717	112	"	9,890
31	"	2,574	113	"	16,499
32	"	5,431	114	"	23,716
33	"	9,110	115	"	23,139
34	"	13,599	116	"	21,058
35	"	23,581	117	"	20,142
36	"	14,508	118	Passenger	12,856
37	"	15,669	119	"	20,650
38	"	19,805	120	"	33,465
39	"	27,647	121	"	3,026
40	Goods	26,805	122	"	25,150
41	"	9,653	123	"	26,204
42	"	17,835	124	"	7,975
43	"	17,917	125	"	24,397
44	"	9,427	126	"	28,178
45	"	8,004	127	"	11,227
46	"	23,639	128	"	12,150
47	"	22,507	129	"	15,427
48	"	20,955	130	"	7,248
49	"	14,801	131	Goods	30,493
50	"	23,999	132	"	14,277
51	"	10,033	133	"	17,293
52	"	11,108	134	"	14,689
53	"	17,965	135	"	11,701
54	"	17,771	136	"	92
55	"	20,406	137	"	13,045
56	"	21,850	138	"	30,468
57	"	12,859	139	"	19,962
58	"	15,837	140	"	4,667
59	"	15,977	141	"	22,333
60	"	27,787	142	"	14,681
61	"	Nil.	143	Passenger	9,825
62	"	30,800	144	"	19,636
63	"	Nil	145	"	7,954
64	"	6,288	146	"	25,736
65	"	26,659	147	"	21,635
66	Passenger	Nil.	148	"	20,769
67	"	Nil.	149	"	8,542
68	"	11,238	150	"	7,605
69	"	16,460	151	"	23,633
70	"	21,666	152	"	17,205
71	"	21,096	153	"	14,069
72	"	13,902	154	"	6,252
73	"	22,704	155	"	2,861
74	"	15,343	156	"	17,048
75	"	12,810	157	"	25,667
76	"	31,230	158	"	16,991
77	"	11,780	159	"	15,780
78	"	32,808	160	"	44,250
79	"	30,498	161	"	12,902
80	"	19,276	162	"	28,764
81	"	18,453	163	"	22,213
82	"	12,226	164	Goods	30,482
83	"	16,280	165	Passenger	5,800
84	"	30,048	166	"	4,548
85	"	17,782	167	"	19,946
86	"	15,696	168	"	12,477
87	"	9,949	169	"	24,147
88	"	22,110	170	"	16,685

No. 48—continued.

No	Class of Engine	Total Mileage of each Engine	No	Class of Engine	Total Mileage of each Engine
GREAT SOUTHERN, WESTERN, AND RICHMOND LINES—continued.					
171	Passenger	16,087	272	Passenger	21,807
172	"	24,504	273	"	29,952
173	"	23,919	274	"	29,167
174	"	15,447	275	"	20,296
175	"	17,968	276	"	27,832
176	"	15,011	277	"	29,762
177	"	11,926	278	"	20,642
178	"	8,775	279	"	33,198
179	"	9,928	280	"	27,184
180	"	32,525	281	"	28,317
181	"	14,318	282	"	21,657
182	"	19,154	283	"	21,514
183	Goods	14,812	284	"	26,391
184	"	18,048	285	"	36,621
185	"	27,313	286	"	17,638
186	"	23,937	287	"	10,474
187	"	11,223	288	"	33,284
188	"	22,389	289	"	21,093
189	"	20,961	290	"	15,049
190	"	28,159	292	"	72
191	"	25,539	293	"	108
192	"	17,245	294	Goods	25,154
193	"	26,080	295	"	32,281
194	"	26,748	296	"	22,192
195	"	29,166	297	"	16,437
196	"	22,009	298	"	23,314
197	"	24,312	299	"	30,528
198	"	25,144	300	"	27,682
199	"	11,942	301	"	33,384
200	"	18,539	302	"	15,504
201	"	21,028	303	"	12,151
202	"	18,101	304	Passenger	29,879
203	"	26,350	305	"	29,719
204	"	23,257	306	"	27,317
205	"	22,477	307	"	30,140
206	"	11,965	308	"	31,533
207	"	22,580	309	"	21,988
208	"	14,463	310	"	22,932
209	"	15,634	311	"	14,008
210	"	18,422	312	"	26,605
211	"	12,120	313	"	29,782
212	"	22,808	314	Goods	31,902
213	"	25,802	315	"	27,207
214	"	29,895	316	"	30,767
215	"	28,766	317	"	18,377
216	"	26,305	318	"	26,745
217	"	11,089	319	"	31,814
218	"	9,219	320	"	28,447
219	"	22,986	321	"	31,889
220	"	13,496	322	"	30,815
225	"	26,780	323	"	34,170
226	"	25,095	324	"	26,347
227	"	13,775	325	"	34,794
228	"	21,620	326	"	28,651
229	"	23,269	327	"	32,492
230	"	20,396	328	"	30,191
239	"	24,105	341	Passenger	36,594
240	"	21,183	342	"	37,890
241	"	22,745	343	"	36,420
242	"	31,558	344	"	36,514
243	"	30,993	345	"	32,974
244	"	24,379	346	"	31,945
245	"	7,748	347	"	10,167
246	"	13,852	348	"	13,748
247	"	22,750	349	"	5,310
248	"	24,866	350	"	25,009
249	"	13,768	351	"	4,850
250	"	26,015	352	"	19,963
251	"	24,351	353	"	29,291
252	"	29,864	354	"	7,036
253	"	22,356	355	"	15,376
254	"	19,020	356	"	27,326
255	Passenger	12,099	357	"	14,808
256	"	9,869	358	"	10,191
257	"	40,012	359	"	14,077
258	"	31,734	360	"	4,837
259	"	36,738	361	"	12,159
260	"	37,508	362	"	12,451
265	"	11,340	369	Goods	21,574
266	"	23,118	370	"	28,195
267	"	19,890	371	"	26,958
268	"	5,983	372	"	28,909
269	"	24,994		Contractors	400
270	"	16,481			
271	"	21,754			
				Total mileage	6 533,650

No. 48—continued.

No.	Class of Engine.	Total Mileage of each Engine.	No.	Class of Engine.	Total Mileage of each Engine.
GREAT NORTHERN LINE.					
1	Passenger	17,852	44	Goods	22,469
2	"	29,622	45	"	30,166
3	"	9,135	46	"	19,325
4	"	34,503	47	Passenger	29,379
6	Goods	11,895	48	"	21,985
7	"	18,611	49	"	24,872
9	"	15,107	50	"	14,466
10	"	13,210	51	"	29,489
11	"	20,654	221	Goods	20,859
12	"	27,958	222	"	25,490
13	"	15,059	223	"	20,723
14	"	13,522	224	"	17,395
15	"	14,246	231	"	20,647
16	"	22,120	232	"	25,434
18	"	30,281	233	"	17,868
19	"	16,253	234	"	24,087
20	"	12,461	235	"	23,979
21	"	25,623	236	"	21,939
22	"	22,041	237	"	23,587
23	"	12,570	238	"	20,444
24	"	21,729	261	Passenger	1,893
25	"	18,786	262	"	37,661
26	"	21,997	263	"	11,784
27	Passenger	22,187	264	"	4,988
28	"	35,790	291	Goods	23,395
29	"	34,093	329	"	29,681
30	"	22,804	330	"	29,322
31	Goods	33,419	331	"	26,598
32	"	23,817	332	"	28,885
33	"	25,384	333	"	27,083
34	"	18,461	334	Passenger	33,516
35	"	17,600	335	"	29,231
36	"	30,359	336	"	34,706
37	Passenger	19,426	337	"	26,789
38	"	28,615	338	"	28,404
39	"	14,693	339	"	14,056
40	Goods	24,077	340	"	13,424
41	"	27,706		Contractors	58
42	"	24,544			
43	"	29,509		Total mileage	1,733,796

No. 49.

TABULAR ANALYSIS showing WORKING EXPENSES, GROSS EARNINGS, and NET EARNINGS, per Mile open, and per Train Mile.

Mileage.	Miles open— Average.	Train miles.	Miles run, including shunting.
South and West.....	1,345½	5,238,078	6,533,650
North	444½	1,241,187	1,733,738
Total.....	1,790	6,479,265	8,267,388
Heads of Expenditure.	Amount.	Per mile open.	Per train mile.
Locomotive Power and Repairing Engines—	£	£	d.
South and West	358,250	266'26	16'41
North	89,395	201'12	17'29
Total	447,645	250'08	16'58
Carriage and Waggon Repairs—			
South and West	79,408	59'02	3'64
North	17,301	38'92	3'35
Total	96,709	54'03	3'58
Maintenance and Renewal of Way—			
South and West	360,802	268'15	16'53
North	71,569	161'01	13'84
Total.....	432,371	241'55	16'02
Traffic Charges, Coaching, and Merchandise—			
South and West	318,215	236'50	14'58
North	112,286	252'61	21'71
Total.....	430,501	240'50	15'95
Compensation, Personal Injury, &c.—			
South and West	5,827	4'33	0'27
North	846	1'90	0'16
Total.....	6,673	3'73	0'24
Compensation, Damage to, and Loss of Goods—			
South and West	834	0'62	0'04
North	136	0'31	0'02
Total	970	0'54	0'04
Miscellaneous Working Expenses and General Establishment—			
South and West	59,459	44'19	2'72
North	18,604	41'99	3'61
Total.....	78,123	43'64	2'89
Gross Expenditure—			
South and West	1,182,795	879'07	54'19
North	310,197	697'86	59'98
Total	1,492,992	834'07	55'30
Gross Earnings—			
South and West	1,712,362	1,272'66	78'46
North	447,708	1,007'22	86'57
Total.....	2,160,070	1,206'74	80'01
Net Earnings—			
South and West	529,567	393'59	24'27
North	137,511	309'36	26'59
Total.....	667,078	372'67	24'71

No. 50.

TABULAR SYNOPSIS of the TOTAL EARNINGS under the different Heads of Traffic per Mile open and Train Mile for the Year 1886.

Mileage.	Train Miles.		Total Miles run, including shunting.	
	Passenger.	Goods.	Passenger.	Goods.
South and West	2,328,181	2,909,897	2,624,901	3,908,749
North	436,790	804,397	575,947	1,157,791
All Lines	2,764,971	3,714,294	3,200,848	5,066,540
Heads of Traffic.	Miles open for Traffic—average	Earnings.	Per Mile open.	Per Train Mile.
COACHING.				
Passengers, 1st and 2nd Class—				
South and West	1,345½	£ 554,510	£ 412'12	d. 57'16
North	444½	103,751	233'41	57'01
All Lines	1,790	658,261	367'74	57'14
Season Tickets—				
South and West	1,345½	49,363	35'69	5'09
North	444½	2,760	6'21	1'52
All Lines	1,790	52,123	29'12	4'52
Horses, Carriages, Dogs, Parcels, &c.—				
South and West	1,345½	54,508	40'51	5'62
North	444½	16,335	36'75	8'97
All Lines	1,790	70,843	39'58	6'15
Mails—				
South and West	1,345½	37,856	28'14	3'90
North	444½	13,132	29'54	7'21
All Lines	1,790	50,988	28'48	4'43
Miscellaneous—				
South and West	1,345½	11,038	8'20	1'14
North	444½	6,000	13'50	3'30
All Lines	1,790	17,038	9'52	1'48
Total Coaching—				
South and West	1,345½	707,275	525'66	72'91
North	444½	141,978	319'41	78'01
All Lines	1,790	849,253	474'44	73'72
GOODS.				
Live Stock—				
South and West	1,345½	164,792	122'47	13'59
North	444½	24,957	56'15	7'45
All Lines	1,790	189,749	106'01	12'27
Minerals—				
South and West	1,345½	61,752	45'90	5'09
North	444½	78,349	176'26	23'37
All Lines	1,790	140,101	78'26	9'05
Wool—				
South and West	1,345½	122,117	90'76	10'07
North	444½	43,661	98'23	13'03
All Lines	1,790	165,778	92'61	10'71
General Merchandise—				
South and West	1,345½	652,596	485'02	53'82
North	444½	156,674	352'47	46'75
All Lines	1,790	809,270	452'11	52'29
Miscellaneous—				
South and West	1,345½	3,830	2'85	0'32
North	444½	2,089	4'70	0'62
All Lines	1,790	5,919	3'31	0'38
Total Goods—				
South and West	1,345½	1,005,087	747'00	82'89
North	444½	305,730	687'81	91'22
All Lines	1,790	1,310,817	732'30	84'70
Gross Earnings—				
South and West	1,345½	1,712,362	1,272'66	78'46
North	444½	447,708	1,007'22	86'57
All Lines	1,790	2,160,070	1,206'74	80'01

No. 51.

RETURN of the MILEAGE and WEIGHT of PASSENGERS and TONS of GOODS carried during 1886, and the AVERAGE RECEIPTS per mile.

Description.		Southern, Western, and Richmond.	Northern.	Total.
COACHING TRAFFIC.				
Number of 1st and 2nd class passengers	No.	8,317,755	948,651	9,266,406
„ Season Ticket-holders' journeys	„	3,658,476	185,102	3,843,578
„ Workmen's Ticket „	„	1,771,620	.....	1,771,620
Total Passenger „ .....	.....	13,747,851	1,133,753	14,881,604
Total number of miles travelled	Miles.	149,506,578	32,711,530	182,218,108
Average mileage per passenger	„	10'87	28'85	12'24
Gross amounts received from passengers	£	603,873	106,511	710,384
Average receipts per mile per passenger	d.	0'97	0'78	0'94
Tonnage of passengers carried	Tons.	916,523	75,584	992,107
„ horses, carriages, and dogs.....	„	3,993	1,333	5,326
„ mails and parcels.....	„	6,863	3,390	10,253
		927,379	80,307	1,007,686
Total mileage of tons	Miles.	11,264,346	2,551,256	13,815,602
Average mileage per ton	„	12'15	31'77	13'71
Gross amount received for above traffic and miscellaneous receipts	£	707,275	141,978	849,253
Average receipts per ton per mile	d.	15'07	13'36	14'75
GOODS TRAFFIC.				
Total tonnage of goods	Tons.	1,314,142	1,827,819	3,141,961
„ live stock	„	61,641	14,980	76,621
		1,375,783	1,842,799	3,218,582
Total mileage of tons of goods and live stock	Miles.	141,142,678	32,414,865	173,557,543
Average „ „	„	102'59	17'59	53'92
Gross amount received for above traffic and miscellaneous receipts	£	1,005,087	305,730	1,310,817
Average receipts per ton per mile	d.	1'71	2'26	1'81

No. 51a.

CAMDEN TRAMWAY.

RETURN of the MILEAGE and WEIGHT of PASSENGERS and TONS of GOODS carried during 1886, and the AVERAGE RECEIPTS per mile.

Description.		Camden Tramway
COACHING TRAFFIC.		
Number of 1st and 2nd class passengers	No.	24,594
„ season ticket holders' journeys	„	764
Total passengers' journeys	„	25,358
Number of miles travelled.....	Miles.	155,905
Average mileage per passenger.....	„	6'15
Gross amount received from passengers	£	1,221
Average receipts per mile per passenger.....	d.	1'88
Tonnage of passengers carried	Tons.	1,691
„ horses, carriages, and dogs.....	„	48
„ mails and parcels	„	206
		1,945
Total mileage of tons	Miles.	12,126
Average mileage per ton	„	6'23
Gross amount received for above traffic and miscellaneous receipts.....	£	1,847
Average receipts per ton per mile	d.	36'56
GOODS TRAFFIC.		
Total tonnage of goods	Tons.	14,165
„ live stock	„	204
		14,369
Total mileage of tons of goods and live stock.....	Miles.	83,267
Average „ „ „	„	5'80
Gross amount received for above traffic and miscellaneous receipts.....	£	1,886
Average receipts per ton per mile.....	d.	5'44

No. 52.

WEIGHT of Locomotive Engines and Tenders, empty and loaded.

Engine	No. of Engines of same weight.	Engines.								Tenders.							
		Empty.				In Steam.				Empty.				Full.			
		Leading.	Driving.	Trailing.	Total.	Leading.	Driving.	Trailing.	Total.	Leading.	Middle.	Trailing.	Total.	Leading.	Middle.	Trailing.	Total.
GREAT SOUTHERN, WESTERN, AND RICHMOND LINE.																	
1 to 4	4	9 1 2	10 18 0	10 14 2	30 14 0	9 19 2	12 0 0	11 16 2	33 16 0	4 7 0	3 2 1	4 2 3	11 12 0	7 16 0	7 2 0	7 13 0	22 11 0
5	1	7 5 0	5 19 2	3 6 2	16 11 0	7 13 0	6 0 0	4 0 0	17 13 0	3 15 1	.....	3 9 0	7 4 1	6 15 0	.....	6 3 2	12 18 2
10	1	7 2 0	9 6 3	12 0 0	28 8 3	7 19 0	10 18 0	14 17 0	33 14 0	4 9 3	1 11 3	6 3 2	12 5 0	7 18 0	5 0 0	9 12 0	22 10 0
13	1	8 0 1	10 8 0	4 8 1	22 16 2	10 12 0	7 17 0	7 17 2	26 6 2	4 4 1	.....	4 8 3	8 13 0	6 18 0	.....	7 12 3	14 10 3
14 to 16	3	7 3 2	10 19 2	5 3 1	23 6 1	7 19 0	12 0 0	6 6 0	26 5 0	4 8 0	1 12 0	4 13 0	10 13 0	7 9 0	4 13 0	7 6 0	19 8 0
17 to 22	6	7 3 0	11 7 2	8 1 0	26 11 2	8 8 2	12 6 0	6 10 2	30 5 0	4 9 0	2 9 2	4 11 3	11 10 1	6 12 0	6 3 0	7 12 2	20 7 2
23 to 28	6	8 4 0	11 2 2	9 12 3	28 19 1	9 8 2	11 4 1	11 0 0	31 12 3	4 5 0	2 14 0	4 6 0	11 5 0	7 0 0	5 2 0	7 4 0	19 6 0
29 to 31	3	4 17 1	4 15 3	5 5 2	14 18 2	6 1 0	6 6 0	7 5 0	19 12 0	.....	.....	.....	.....	.....	.....	.....	.....
32 to 35	4	8 1 3	10 19 2	10 4 2	29 5 3	9 10 0	12 0 1	11 6 0	32 16 1	4 5 0	2 14 0	4 6 0	11 5 0	7 19 0	5 16 0	8 1 0	21 16 0
36 to 39	4	10 15 0	8 8 3	5 13 2	24 17 1	12 5 0	9 1 0	6 14 0	28 0 0	4 5 2	3 9 2	4 12 0	12 7 0	8 1 2	7 5 0	8 13 2	24 0 0
40 to 43	4	7 7 2	11 12 0	8 10 0	27 9 2	8 9 0	12 12 0	10 2 0	31 3 0	3 4 0	4 6 2	3 10 2	11 1 0	5 4 0	7 11 2	7 5 2	20 1 0
44 to 47	4	9 0 3	8 11 0	9 3 2	26 15 1	9 14 0	10 17 0	10 6 3	30 17 3	3 16 3	4 5 1	4 3 1	12 5 1	7 8 0	7 1 2	7 12 2	22 2 0
48 to 51	4	11 0 0	10 6 2	10 16 1	32 2 3	12 5 0	11 11 3	12 1 2	35 18 1	4 4 0	4 3 3	4 13 2	13 1 1	8 12 2	7 14 0	8 5 0	24 11 2
52	1	9 0 3	8 11 0	9 3 2	26 15 1	9 14 0	10 17 0	10 6 3	30 17 3	3 16 3	4 5 1	4 3 1	12 5 1	7 8 0	7 1 2	7 12 2	22 2 0
53 to 59	7	11 0 0	10 6 2	10 16 1	32 2 3	12 5 0	11 11 3	12 1 2	35 18 1	4 4 0	4 3 3	4 13 2	13 1 1	8 12 2	7 14 0	8 5 0	24 11 2
60 to 65	6	11 6 0	11 4 3	11 6 0	33 16 3	12 2 1	12 5 1	12 18 1	37 5 3	4 9 1	3 19 1	4 8 2	12 17 0	9 0 2	8 8 3	8 9 2	25 18 3
66	1	5 2 1	4 7 0	5 10 0	14 19 1	6 8 0	5 19 2	6 18 0	19 5 2	.....	.....	.....	.....	.....	.....	.....	.....
67 to 74	8	6 3 2	8 4 2	7 8 2	21 16 2	7 5 3	9 6 0	11 8 1	28 0 0	.....	.....	.....	.....	.....	.....	.....	.....
75 to 78	4	8 7 0	12 18 0	4 9 1	25 14 1	10 15 0	13 15 0	5 3 0	29 13 0	4 5 0	2 17 0	4 5 0	11 7 0	8 6 0	5 12 0	8 8 0	22 6 0
79 to 92	14	11 9 3	12 0 0	11 8 3	34 18 2	12 7 3	13 0 0	12 4 0	37 11 3	4 9 2	3 4 2	4 0 2	11 14 2	7 14 0	6 11 0	7 8 3	21 13 3
93 to 102	10	9 1 2	10 18 0	10 14 2	30 14 0	9 19 2	12 0 0	11 16 2	33 16 0	4 7 0	3 2 1	4 2 3	11 12 0	7 16 0	7 2 0	7 13 0	22 11 0
103	1	9 0 3	8 11 0	9 3 2	26 15 1	9 14 0	10 17 0	10 6 3	30 17 3	3 16 3	4 5 1	4 3 1	12 5 1	7 8 0	7 1 2	7 12 2	22 2 0
104	1	9 1 2	10 18 0	10 14 2	30 14 0	9 19 2	12 0 0	11 16 2	33 16 0	4 7 0	3 2 1	4 2 3	11 12 0	7 16 0	7 2 0	7 13 0	22 11 0
105	1	11 1 2	8 11 0	10 7 2	30 0 0	12 8 0	10 12 3	10 16 1	33 17 0	3 16 0	2 4 0	4 9 2	10 9 2	5 17 0	6 14 0	7 17 0	20 8 0
106 to 117	12	9 1 2	10 18 0	10 14 2	30 14 0	9 19 2	12 0 0	11 16 2	33 16 0	4 7 0	3 2 1	4 2 3	11 12 0	7 16 0	7 2 0	7 13 0	22 11 0
118 to 126	9	11 9 3	12 0 0	11 8 3	34 18 2	12 7 3	13 0 0	12 4 0	37 11 3	4 9 2	3 4 2	4 0 2	11 14 2	7 14 0	6 11 0	7 8 3	21 13 3
127 to 129	3	5 19 0	6 2 0	6 2 0	18 3 0	7 9 0	7 12 2	7 14 2	22 16 0	.....	.....	.....	.....	.....	.....	.....	.....
130	1	11 0 2	11 12 0	9 19 0	31 11 2	11 12 3	11 10 0	11 1 2	34 4 1	6 10 1	.....	6 16 0	13 6 1	12 13 0	.....	12 13 0	25 6 0
131 to 141	11	Bogie 6 2 0 Leading 10 3 2	7 17 1 Intermediate 8 0 2	8 10 3	40 14 0	Bogie 6 10 2 Leading 11 1 0	9 13 0 Intermediate 9 13 0	9 7 0	46 4 2	Bogie 2 8 2 2 7 3	.....	Bogie 2 12 2 2 14 2	10 3 1	Bogie 6 1 2 6 0 2	.....	Bogie 6 18 1 6 15 2	25 15 3

No. 52—(continued).—Weight of Locomotive Engines and Tenders, empty and loaded, on 31st December, 1886.

Engine.	No. of Engines of same weight.	Engines.								Tenders.								
		Empty.				In Steam.				Empty.				Full.				
		Leading.	Driving.	Trailing.	Total.	Leading.	Driving.	Trailing.	Total.	Leading.	Middle.	Trailing.	Total.	Leading.	Middle.	Trailing.	Total.	
NORTHERN RAILWAY.																		
1 to 3	3	9 1 0	9 0 0	4 11 0	22 12 0	10 5 0	10 10 0	4 15 0	25 10 0	3 14 3	4 3 2	2 18 3	10 17 0	7 7 2	4 17 0	8 3 2	20 8 0	
4	1	8 0 0	5 17 0	2 10 0	16 7 0	9 10 0	6 3 0	4 2 0	19 15 0	3 15 0	.....	3 9 0	7 4 0	6 15 0	.....	6 3 2	12 18 2
6 and 7	2	9 4 0	9 16 0	11 12 0	30 12 0	10 14 0	12 10 0	11 16 0	35 0 0	.....	.....	.....	.....	.....	.....	.....	.....
9	1	4 5 3	4 4 2	4 14 1	13 4 2	5 16 3	5 5 3	5 15 2	16 18 0	.....	.....	.....	.....	.....	.....	.....	.....
10	1	8 0 1	10 8 0	4 8 1	22 16 2	10 0 2	11 2 0	5 4 0	26 6 2	4 4 1	.....	4 8 3	8 13 0	6 18 0	.....	7 12 3	14 10 3
11 to 13	7	6 13 0	12 7 2	7 11 0	26 11 2	8 18 2	10 2 0	11 4 2	30 5 0	4 9 0	2 9 2	4 11 3	11 10 1	6 12 0	6 3 0	7 12 2	20 7 2	
18 and 19		3	8 7 0	10 6 0	9 0 0	27 13 0	9 0 0	10 15 0	10 0 0	29 15 0	4 12 0	3 4 0	3 12 0	11 8 0	7 3 0	5 14 0	7 7 0	20 4 0
21 and 22		1	10 0 0	10 0 0	10 0 0	30 0 0	10 10 0	12 6 0	12 4 0	35 0 0
14 to 16	3	8 7 0	10 6 0	9 0 0	27 13 0	9 0 0	10 15 0	10 0 0	29 15 0	4 12 0	3 4 0	3 12 0	11 8 0	7 3 0	5 14 0	7 7 0	20 4 0	
20	1	10 0 0	10 0 0	10 0 0	30 0 0	10 10 0	12 6 0	12 4 0	35 0 0	.....	.....	.....	.....	.....	.....	.....	.....
23 to 26	4	9 9 0	9 9 1	9 9 3	28 8 0	10 5 0	10 7 2	10 8 2	31 1 0	4 12 0	3 4 0	3 12 0	11 8 0	7 3 0	5 14 0	7 7 0	20 4 0	
27 to 30	4	11 12 0	11 8 1	11 3 2	34 3 3	12 9 0	12 11 0	12 0 0	37 0 0	4 9 2	3 4 2	4 0 2	11 14 2	7 14 0	6 11 0	7 8 3	21 13 3	
31 to 36	14	9 1 2	10 18 0	10 14 2	30 14 0	9 19 2	12 0 0	11 16 2	33 16 0	4 7 0	3 2 1	4 2 3	11 12 0	7 16 0	7 2 0	7 13 0	22 11 0	
40 to 46 and 291		8	11 9 3	12 0 0	11 8 3	34 18 2	12 7 3	13 0 0	12 4 0	37 11 3	4 9 2	3 4 2	4 0 2	11 14 2	7 14 0	6 11 0	7 8 3	21 13 3
37 to 39 and 47 to 51		17	Bogie 7 5 2	10 9 0	11 17 0	39 7 0	Bogie 7 14 0	11 1 2	13 1 0	42 8 1	4 7 1	4 5 1	4 1 1	12 13 3	8 5 0	8 2 2	7 18 3	24 6 1
221 to 224	9 15 2	Bogie 10 11 3																
231 to 238	4	Bogie 6 7 0	11 16 3	11 4 2	36 3 1	Bogie 6 18 1	13 13 0	11 12 0	38 19 0	4 12 2	4 4 0	4 9 1	13 5 3	8 15 0	7 6 3	8 16 0	24 17 3	
329 to 333		6 15 0				Bogie 6 15 3												
261 to 264	7	Bogie 7 5 3	11 12 2	11 9 3	37 8 3	Bogie 7 19 0	12 2 1	12 9 1	40 1 2	4 3 2	4 14 1	3 19 2	12 17 1	8 4 3	9 5 0	7 13 2	25 3 1	
334 to 340	7 0 3	Bogie 7 11 0																
	77																	

No. 52 (continued).—ABSTRACT of Total and Average Weights of Rolling Stock, empty, 1886.

	Southern and Western.			Northern.		
	No. of each Class.	Total Weight, Empty.	Average Weight.	No. of each Class	Total Weight, Empty.	Average Weight.
		tons cwt. qrs.	tons cwt. qrs.		tons cwt. qrs.	tons cwt. qrs.
PASSENGER STOCK.						
Carriages, Dining	1	25 11 2	25 11 2	.....	.....	.....
Do State	2	27 5 2	13 12 3	.....	.....	.....
Do Sleeping.....	11	207 12 3	18 17 2	3	55 9 2	18 9 3 $\frac{1}{4}$
Do First Class.....	108	1,497 0 0	13 17 1	25	248 0 0	9 18 1 $\frac{1}{2}$
Do Composite	*93	1,164 2 3	12 10 1 $\frac{1}{2}$	34	441 9 1	12 19 2 $\frac{3}{4}$
Do 2nd Class	186	1,593 15 2	8 11 1 $\frac{1}{2}$	81	578 12 2	7 2 3 $\frac{1}{2}$
Brake Vans, Composite	76	903 14 0	11 17 3 $\frac{1}{4}$	24	349 14 2	14 11 1 $\frac{3}{4}$
Mail „	9	63 7 3	7 0 3 $\frac{1}{2}$	9	60 3 0	6 13 2 $\frac{3}{4}$
Prison „	4	32 19 2	8 4 3 $\frac{1}{2}$	3	20 18 2	6 19 2
Workmen's Vans.....	31	169 2 0	5 9 0 $\frac{1}{2}$	.....	.....	.....
Horse Boxes.....	90	540 0 5	6 0 0	47	281 7 3	5 19 3
Carriage Trucks	44	190 15 1	4 6 3	20	83 12 1	4 3 2 $\frac{1}{2}$
Hearse's	6	30 12 1	5 2 0	6	33 16 1	5 12 3
Brake Vans	23	179 5 0	7 15 3 $\frac{1}{2}$	6	34 18 3	5 16 2
Total	684	6,625 5 0	9 13 3	258	2,188 2 1	8 9 2 $\frac{1}{2}$
GOODS STOCK.						
Brake Vans	118	1,389 15 2	11 15 2 $\frac{1}{4}$	53	569 16 1	10 15 0
A Waggons	132	557 12 0	4 4 2	104	445 7 1	4 5 2 $\frac{1}{2}$
B „	156	738 7 0	4 14 2 $\frac{3}{4}$	78	381 14 1	4 17 3 $\frac{1}{2}$
C Vans	230	1,287 4 0	5 11 3 $\frac{3}{4}$	126	690 17 2	5 9 2 $\frac{3}{4}$
D Waggons	3,910	18,086 10 0	4 12 2	1,047	4,729 6 0	4 10 1
E „	228	950 2 3	4 3 1 $\frac{1}{2}$	116	478 13 0	4 2 2
F „	3	22 12 1	7 10 3	8	96 8 2	12 1 0 $\frac{1}{4}$
G „	293	3,471 8 2	11 17 0	.....	.....	.....
Water Trucks	48	340 4 1	7 1 3	6	36 17 3	6 3 0
Loco. Coal Trucks	250	1,187 0 0	4 15 0	.....	.....	.....
Powder Vans	25	142 16 0	5 14 1	15	83 19 0	5 11 3 $\frac{3}{4}$
Sheep „	272	1,833 11 0	6 14 3 $\frac{1}{4}$	160	1,083 2 2	6 15 1 $\frac{1}{2}$
Cattle „	300	1,948 3 1	6 9 3 $\frac{1}{2}$	136	872 14 2	6 8 1
Meat „	10	66 0 0	6 12 0	18	113 11 1	6 6 0 $\frac{3}{4}$
Combination Trucks	15	109 13 0	7 6 1	.....	.....	.....
Refrigerating Car	1	12 1 3	12 1 3	.....	.....	.....
Ballast Waggons	192	874 0 0	4 11 0	106	432 18 3	4 1 2 $\frac{3}{4}$
Dump Cars	201	1,908 12 2	9 9 3 $\frac{3}{4}$	.....	.....	.....
Accident Vans	7	61 5 0	8 15 0	.....	.....	.....
Coal Waggons .....	.....	.....	.....	†2,786	13,255 15 1	4 15 0 $\frac{1}{2}$
Total	6,391	34,986 18 3	5 9 2	4,759	23,271 1 3	4 17 3
Total Vehicles, all Lines	7,075	41,612 3 3	.....	5,017	25,459 4 0	.....

* Including two carriages in use on Camden Tramway. † Private.

No. 52—continued.

WEIGHT of Locomotive Engines and Tenders, and Tonnage carried, on the Great Southern, Western, and Richmond Railways during year 1886.

GREAT SOUTHERN, WESTERN, AND RICHMOND LINES.

No. of Engine.	Weight of Engine and Tender for whole journey.			Total Tons carried.	No. of Engine.	Weight of Engine and Tender for whole journey.			Total Tons carried.		
	t.	c.	q.			t.	c.	q.			
1	52	14	0	18,195	958,877	91	55	18	3	16,170	904,509
2	52	14	0	13,882	731,581	92	55	18	3	22,475	1,257,195
3	52	14	0	18,643	982,486	93	52	14	0	14,856	782,911
4	52	14	0	4,461	232,864	94	52	14	0	27,120	1,429,224
5	28	13	2	12,189	349,520	95	52	14	0	26,996	1,422,689
10	52	15	2	.....	.....	96	52	14	0	13,841	729,421
13	38	18	0	.....	.....	97	52	14	0	18,668	985,385
14	42	14	3	44,148	1,886,775	98	52	14	0	20,798	1,096,055
15	42	14	3	31,190	1,345,804	99	52	14	0	15,710	827,917
16	42	14	3	24,244	1,036,128	100	52	14	0	23,674	1,247,620
17	47	13	2	14,459	689,333	101	52	14	0	33,866	1,784,738
18	47	13	2	17,716	844,610	102	52	14	0	20,435	1,076,925
19	47	13	2	18,221	868,686	103	49	14	1	15,803	785,607
20	47	13	2	11,720	558,751	104	52	14	0	11,637	613,270
21	47	13	2	26,198	1,248,990	105	50	18	0	.....	.....
22	47	13	2	23,082	1,100,434	106	52	14	0	9,330	491,691
23	48	5	0	.....	.....	107	52	14	0	20,974	1,105,330
24	48	5	0	1,429	68,949	108	52	14	0	23,466	1,236,658
25	48	5	0	.....	.....	109	52	14	0	31,806	1,676,176
26	48	5	0	26,670	1,286,828	110	52	14	0	21,787	1,148,175
27	48	5	0	374	18,046	111	52	14	0	31,669	1,668,956
28	48	5	0	24,164	1,165,913	112	52	14	0	9,890	521,203
29	18	0	3	4,153	74,910	113	52	14	0	16,499	869,497
30	18	0	3	4,717	85,083	114	52	14	0	23,716	1,249,833
31	18	0	3	2,574	46,429	115	52	14	0	23,139	1,219,425
32	51	2	0	5,431	277,524	116	52	14	0	21,058	1,109,757
33	51	2	0	9,110	465,521	117	52	14	0	20,142	1,061,483
34	51	2	0	13,599	694,909	118	55	18	3	12,856	719,133
35	51	2	0	23,581	1,204,989	119	55	18	3	20,650	1,155,109
36	48	2	1	14,508	698,016	120	55	18	3	33,465	1,871,948
37	48	2	1	15,669	753,875	121	55	18	3	3,026	169,267
38	48	2	1	19,805	952,868	122	55	18	3	25,150	1,406,828
39	48	2	1	27,647	1,330,166	123	55	18	3	26,204	1,465,786
40	48	4	0	26,805	1,292,001	124	55	18	3	7,975	446,102
41	48	4	0	9,653	465,275	125	55	18	3	24,397	1,364,707
42	48	4	0	17,835	859,647	126	55	18	3	28,178	1,576,207
43	48	4	0	17,917	863,599	127	21	5	0	11,227	238,574
44	49	14	1	9,427	468,640	128	21	5	0	12,150	258,188
45	49	14	1	8,004	397,899	129	21	5	0	15,427	327,824
46	49	14	1	23,639	1,175,154	130	55	10	1	7,248	402,355
47	49	14	1	22,507	1,118,879	131	68	18	3	30,493	2,102,111
48	56	13	0	20,955	1,187,101	132	68	18	3	14,277	984,221
49	56	13	0	14,801	838,477	133	68	18	3	17,293	1,192,136
50	56	13	0	23,999	1,359,543	134	68	18	3	14,689	1,012,623
51	56	13	0	10,033	568,369	135	68	18	3	11,701	806,638
52	49	14	0	11,108	552,068	136	68	18	3	92	6,342
53	56	13	0	17,965	1,017,717	137	68	18	3	13,045	899,290
54	56	13	0	17,771	1,006,727	138	68	18	3	30,468	2,100,388
55	56	13	0	20,406	1,156,000	139	68	18	3	19,062	1,376,130
56	56	13	0	21,850	1,237,803	140	68	18	3	4,667	321,731
57	56	13	0	12,859	728,462	141	68	18	3	22,333	1,539,581
58	56	13	0	15,837	897,166	142	52	14	0	14,681	773,689
59	56	13	0	15,977	905,097	143	55	18	3	9,825	549,586
60	58	17	1	27,787	1,633,612	144	55	18	3	19,636	1,098,389
61	58	17	1	.....	.....	145	55	18	3	7,054	394,583
62	58	17	1	30,800	1,812,965	146	55	18	3	25,736	1,439,608
63	58	17	1	.....	.....	147	55	18	3	21,635	1,210,208
64	58	17	1	6,288	370,127	148	55	18	3	20,769	1,161,766
65	58	17	1	26,659	1,569,215	149	55	18	3	8,542	477,818
66	17	16	3	.....	.....	150	55	18	3	7,605	425,405
67	25	18	3	.....	.....	151	55	18	3	23,633	1,321,971
68	25	18	3	11,238	291,485	152	55	18	3	17,205	962,405
69	25	18	3	16,460	426,931	153	55	18	3	14,069	786,985
70	25	18	3	21,666	561,962	154	55	18	3	6,252	349,721
71	25	18	3	21,096	547,177	155	55	18	3	2,861	160,037
72	25	18	3	13,902	360,583	156	55	18	3	17,048	953,623
73	25	18	3	22,704	588,885	157	55	18	3	25,667	1,435,748
74	25	18	3	15,343	397,959	158	37	16	1	16,991	642,472
75	48	6	0	12,810	618,723	159	37	16	1	15,780	596,681
76	48	6	0	31,230	1,508,409	160	37	16	1	44,250	1,673,203
77	48	6	0	11,780	568,974	161	37	16	1	12,902	487,857
78	48	6	0	32,808	1,584,626	162	37	16	1	28,764	1,087,639
79	55	18	3	30,498	1,705,982	163	37	16	1	22,213	839,929
80	55	18	3	19,276	1,078,251	164	52	14	0	30,482	1,606,401
81	55	18	3	18,453	1,032,215	165	55	18	3	5,800	324,438
82	55	18	3	12,226	683,892	166	55	18	3	4,548	254,404
83	55	18	3	16,280	910,663	167	55	18	3	19,946	1,115,729
84	55	18	3	30,048	1,680,810	168	55	18	3	12,477	697,932
85	55	18	3	17,782	994,681	169	55	18	3	24,147	1,350,723
86	55	18	3	15,696	877,995	170	55	18	3	16,685	933,317
87	55	18	3	9,949	556,522	171	55	18	3	16,087	899,867
88	55	18	3	22,110	1,236,778	172	55	18	3	24,504	1,370,693
89	55	18	3	15,321	857,018	173	55	18	3	23,919	1,337,969
90	55	18	3	26,205	1,465,842	174	55	18	3	15,447	864,067

No. 52—continued.

WEIGHT of Locomotive Engines and Tenders, and Tonnage, &c.—continued.

No. of Engine.	Weight of Engine and Tender for whole journey.	Mileage of each Engine and Tender.	Total Tons carried.	No. of Engine.	Weight of Engine and Tender for whole journey.	Mileage of each Engine and Tender.	Total Tons carried.
GREAT SOUTHERN, WESTERN, AND RICHMOND LINES—continued.							
	t. c. q.				t. c. q.		
175	55 18 3	17,968	1,004,805	275	59 19 2	20,296	1,217,253
176	55 18 3	15,011	839,678	276	59 19 2	27,832	1,669,224
177	55 18 3	11,926	667,111	277	59 19 2	29,762	1,784,976
178	55 18 3	8,775	490,852	278	59 19 2	20,642	1,238,004
179	55 18 3	9,928	555,348	279	59 19 2	33,198	1,991,050
180	55 18 3	32,525	1,819,367	280	59 19 2	27,184	1,630,360
181	55 18 3	14,318	800,913	281	59 19 2	28,317	1,698,312
182	55 18 3	19,154	1,071,427	282	59 19 2	21,657	1,298,879
183	52 14 0	14,812	780,592	283	59 19 2	21,544	1,292,101
184	52 14 0	18,048	951,130	284	59 19 2	26,391	1,582,800
185	52 14 0	27,313	1,439,395	285	32 0 0	36,621	1,171,872
186	52 14 0	23,937	1,261,480	286	32 0 0	17,638	564,416
187	52 14 0	11,223	591,452	287	32 0 0	10,474	335,168
188	52 14 0	22,389	1,179,900	288	32 0 0	33,284	1,065,088
189	52 14 0	20,961	1,104,645	289	32 0 0	21,093	674,976
190	52 14 0	28,159	1,483,979	290	32 0 0	15,049	481,568
191	52 14 0	25,539	1,345,905	292	16 16 3	72	1,212
192	52 14 0	17,245	908,812	293	16 16 3	108	1,818
193	52 14 0	26,080	1,374,416	294	63 5 3	25,154	1,591,934
194	52 14 0	26,748	1,409,620	295	63 5 3	32,281	2,042,984
195	52 14 0	29,166	1,537,048	296	63 5 3	22,192	1,404,476
196	52 14 0	22,009	1,159,874	297	63 5 3	16,437	1,040,257
197	52 14 0	24,312	1,281,242	298	63 5 3	23,314	1,475,485
198	52 14 0	25,144	1,325,089	299	63 5 3	30,528	1,932,041
199	52 14 0	11,942	629,343	300	63 5 3	27,682	1,751,925
200	52 14 0	18,539	977,005	301	63 5 3	33,384	2,112,790
201	52 14 0	21,028	1,108,176	302	63 5 3	15,504	981,209
202	52 14 0	18,101	953,923	303	63 5 3	12,151	769,006
203	52 14 0	26,350	1,388,645	304	64 18 2	29,879	1,939,894
204	52 14 0	23,237	1,224,590	305	64 18 2	29,719	1,929,506
205	62 17 0	22,477	1,412,679	306	64 18 2	27,317	1,733,556
206	62 17 0	11,965	752,000	307	64 18 2	30,140	1,956,840
207	62 17 0	22,580	1,419,153	308	64 18 2	31,533	2,047,280
208	62 17 0	14,463	909,000	309	64 18 2	21,988	1,427,571
209	62 17 0	15,634	982,597	310	64 18 2	22,932	1,488,860
210	62 17 0	18,422	1,157,823	311	64 18 2	14,008	909,469
211	62 17 0	12,120	761,742	312	64 18 2	26,605	1,727,330
212	62 17 0	22,808	1,433,483	313	64 18 2	29,782	1,933,596
213	62 17 0	25,802	1,621,656	314	62 17 0	31,902	2,005,041
214	62 17 0	29,895	1,878,901	315	62 17 0	27,207	1,709,960
215	62 17 0	28,766	1,807,943	316	62 17 0	30,767	1,933,706
216	62 17 0	26,305	1,653,269	317	62 17 0	18,377	1,154,994
217	62 17 0	11,089	696,944	318	62 17 0	26,745	1,680,923
218	62 17 0	9,219	579,414	319	62 17 0	31,814	1,999,510
219	62 17 0	22,986	1,444,670	320	62 17 0	28,447	1,787,894
220	62 17 0	13,496	848,224	321	62 17 0	31,889	2,004,224
225	62 17 0	26,780	1,683,123	322	62 17 0	30,815	1,936,723
226	62 17 0	25,095	1,577,221	323	62 17 0	34,170	2,147,585
227	62 17 0	13,775	865,759	324	62 17 0	26,347	1,655,909
228	62 17 0	21,620	1,358,817	325	62 17 0	34,794	2,186,803
229	62 17 0	23,269	1,462,457	326	62 17 0	28,651	1,800,715
230	62 17 0	20,396	1,281,889	327	62 17 0	32,492	2,042,122
239	62 17 0	24,105	1,514,999	328	62 17 0	30,191	1,897,504
240	62 17 0	21,183	1,331,352	341	60 12 3	36,594	2,218,969
241	62 17 0	22,745	1,429,523	342	60 12 3	37,890	2,297,555
242	62 17 0	31,558	1,985,420	343	60 12 3	36,420	2,208,418
243	62 17 0	30,993	1,947,910	344	60 12 3	36,514	2,214,118
244	62 17 0	24,379	1,532,220	345	90 12 3	32,974	1,999,461
245	62 17 0	7,748	486,962	346	60 12 3	31,945	1,937,065
246	62 17 0	13,852	870,598	347	60 12 3	10,167	616,501
247	62 17 0	22,750	1,429,838	348	60 12 3	13,748	833,644
248	62 17 0	24,866	1,562,828	349	60 12 3	5,310	321,985
249	62 17 0	13,768	865,319	350	60 12 3	25,009	1,516,483
250	62 17 0	26,015	1,635,043	351	36 15 0	4,850	178,238
251	62 17 0	24,351	1,530,460	352	36 15 0	19,963	733,640
252	62 17 0	29,864	1,876,952	353	36 15 0	29,291	1,076,444
253	62 17 0	22,356	1,405,075	354	36 15 0	7,036	258,573
254	62 17 0	19,020	1,195,407	355	36 15 0	15,376	565,068
255	58 5 3	12,099	672,099	356	36 15 0	27,326	1,004,231
256	58 5 3	9,869	575,239	357	36 15 0	14,808	544,194
257	58 5 3	40,012	2,332,199	358	36 15 0	10,191	374,519
258	58 5 3	31,734	1,849,696	359	36 15 0	14,077	517,330
259	58 5 3	36,738	2,141,366	360	36 15 0	4,837	177,760
260	58 5 3	37,508	2,186,248	361	36 15 0	12,159	446,843
265	59 19 2	11,340	680,117	362	36 15 0	12,451	457,574
266	59 19 2	23,118	1,386,502	369	52 14 0	21,574	1,136,950
267	59 19 2	19,890	1,192,903	370	52 14 0	28,195	1,485,877
268	59 19 2	5,983	358,830	371	52 14 0	26,958	1,420,687
269	59 19 2	24,994	1,499,015	372	52 14 0	28,909	1,523,504
270	59 19 2	16,481	988,448				
271	59 19 2	21,754	1,304,696	Total	17,780 1 1	6,533,250	360,426,160
272	59 19 2	21,807	1,307,875				
273	59 19 2	29,952	1,796,371	Average	53 14 1	20,290	1,119,336
274	59 19 2	29,167	1,749,291				

No. 52—continued.

WEIGHT of Locomotive Engines and Tenders, and Tonnage carried during 1886—continued.

No. of Engine.	Weight of Engine and Tender for whole journey.	Mileage of each Engine and Tender.	Total Tons carried.	No. of Engine.	Weight of Engine and Tender for whole journey.	Mileage of each Engine and Tender.	Total Tons carried.
GREAT NORTHERN LINE.							
	t. c. q.				t. c. q.		
1	42 14 1	17,852	762,504	45	52 14 0	30,166	1,589,748
2	42 14 1	29,622	1,265,230	46	55 19 0	19,325	1,018,427
3	42 14 1	9,135	390,179	47	55 19 0	29,379	1,643,755
4	30 15 1	34,503	1,061,399	48	55 19 0	21,985	1,230,061
6	33 10 2	11,895	398,780	49	55 19 0	24,872	1,391,588
7	33 10 2	18,611	623,934	50	55 19 0	14,466	809,373
9	15 13 2	15,107	236,802	51	55 19 0	29,489	1,649,910
10	38 18 0	13,210	513,869	221	60 13 3	20,859	1,265,881
11	47 13 1	20,654	984,421	222	60 13 3	25,490	1,546,924
12	47 13 1	27,958	1,332,548	223	60 13 3	20,723	1,257,627
13	47 13 1	15,059	717,750	224	60 13 3	17,395	1,055,659
14	47 0 1	13,522	635,703	231	60 13 3	20,647	1,253,015
15	47 0 1	14,246	669,740	232	60 13 3	25,434	1,543,526
16	47 0 1	22,120	1,039,916	233	60 13 3	17,868	1,084,364
18	47 13 1	30,281	1,443,268	234	60 13 3	24,087	1,461,780
19	47 13 1	16,253	774,659	235	60 13 3	23,979	1,455,226
20	33 6 2	12,461	415,263	236	60 13 3	21,939	1,331,423
21	47 13 1	25,623	1,221,256	237	60 13 3	23,587	1,431,436
22	47 13 1	22,041	1,050,529	238	60 13 3	20,444	1,240,695
23	48 6 1	12,570	607,288	261	59 19 2	1,893	113,533
24	48 6 1	21,729	1,049,782	262	59 19 2	37,661	2,258,718
25	48 6 1	18,786	907,599	263	59 19 2	11,784	706,745
26	48 6 1	21,997	1,062,730	264	59 19 2	4,988	299,155
27	55 7 1	22,187	1,228,328	291	52 14 0	23,395	1,232,916
28	55 7 1	35,790	1,981,424	329	60 13 3	29,681	1,801,266
29	55 7 1	34,093	1,887,474	330	60 13 3	29,322	1,779,479
30	55 7 1	22,804	1,262,486	331	60 13 3	26,598	1,614,166
31	52 14 0	33,419	1,761,181	332	60 13 3	28,885	1,752,958
32	52 14 0	23,817	1,255,156	333	60 13 3	27,083	1,643,600
33	52 14 0	25,384	1,337,737	334	61 2 3	33,516	2,049,084
34	52 14 0	18,461	972,895	335	61 2 3	29,231	1,787,110
35	52 14 0	17,600	927,520	336	61 2 3	34,706	2,121,838
36	52 14 0	30,359	1,599,919	337	61 2 3	26,789	1,637,812
37	55 19 0	19,426	1,086,885	338	61 2 3	28,404	1,736,550
38	55 19 0	28,615	1,601,009	339	61 2 3	14,056	859,349
39	52 14 0	14,693	822,073	340	61 2 3	13,424	820,710
40	52 14 0	24,077	1,268,858				
41	52 14 0	27,706	1,460,106	Total	4,088 3 2	1,733,738	93,126,316
42	52 14 0	24,544	1,293,469				
43	52 14 0	29,509	1,555,124	Average	53 1 3	22,516	1,209,433
44	52 14 0	22,469	1,184,116				

Contractor's Engines not included—Mileage, 58.

No. 52—continued.

FROM the figures in the foregoing tables the following results are derived :—

		South and West.	North.	Totals.
LOCOMOTIVES.				
Number of engines and tenders—				
Passenger	No.	173	35	208
Goods	"	156	42	198
Total	"	329	77	406
Gross weight of engines and tenders—				
Passenger	tons	8,374	1,508	9,882
Goods	"	9,407	2,580	11,987
Total	"	17,781	4,088	21,869
Mileage of engines and tenders—				
Passenger	miles	2,624,901	575,947	3,200,848
Goods	"	3,908,749	1,157,791	5,066,540
Total	"	6,533,650	1,733,738	8,267,388
Gross tonnage—				
Passenger	tons	144,787,830	30,936,480	175,724,310
Goods	"	215,638,330	62,189,836	277,828,166
Total	"	360,426,160	93,126,316	453,552,476
PASSENGER AND GOODS STOCK.				
Number of vehicles—				
Passenger	No.	684	258	942
* Goods	"	6,391	4,759	11,150
Total	"	7,075	5,017	12,092
Weight of Do.—				
Passenger	tons	6,625	2,188	8,813
* Goods	"	34,987	23,271	58,258
Total	"	41,612	25,459	67,071
* Total mileage of vehicles—				
Passenger	miles	13,169,704	3,672,416	16,842,120
Goods	"	55,300,508	15,229,199	70,529,707
Total	"	68,470,212	18,901,615	87,371,827
Gross dead weight of vehicles—				
Passenger	tons	127,581,507	31,146,677	158,728,184
Goods	"	302,770,282	74,432,710	377,202,992
Total	"	430,351,789	105,579,387	535,931,176

* The mileage does not include ballast waggons, but merely vehicles used for traffic purposes.

No. 52—continued.

		South and West.	North.	Totals.
PASSENGER AND GOODS STOCK—continued.				
Tonnage of load carried in vehicles—				
Passenger.....	No.	927,379	80,307	1,007,686
Goods	"	1,375,783	1,842,799	3,218,582
Total.....	"	2,303,162	1,923,106	4,226,268
Total ton mileage of load—				
Passenger.....	"	11,264,346	2,551,256	13,815,602
Goods	"	141,142,678	32,414,865	173,557,543
Total.....	"	152,407,024	34,966,121	187,373,145
Total tonnage of vehicles empty and loaded—				
Passenger.....	tons	138,845,853	33,697,933	172,543,786
Goods	"	443,912,960	106,847,575	550,760,535
Total.....	"	582,758,813	140,545,508	723,304,321
Total tonnage of engines and vehicles loaded—				
Passenger.....	"	283,633,683	64,634,413	348,268,096
Goods	"	659,551,290	169,037,411	828,588,701
Total.....	"	943,184,973	233,671,824	1,176,856,797
Gross earnings—				
Passenger and Coaching.....	£	707,275	141,978	849,253
Goods	"	1,005,087	305,730	1,310,817
Total.....	"	1,712,362	447,708	2,160,070
Total working expenses	"	1,182,795	310,197	1,492,992
Net earnings .....	...	529,567	137,511	667,078
RESULTS:—				
AVERAGE EARNINGS PER TON PER MILE—				
PASSENGER	d.	'598	'527	'585
GOODS	"	'366	'435	'380
ALL TRAFFIC.				
WORKING EXPENSES PER TON PER MILE	"	'301	'318	'305
NET EARNINGS PER TON PER MILE	"	'135	'141	'136

No. 53.

MERCHANDISE Traffic Rates, showing rates per ton.

Articles of Traffic.	1884. FEBRUARY 1.			1885. OCTOBER 1.			1886.		
	Class.	15 miles.	Exceeding 15 miles.	Class.	15 miles.	Exceeding 15 miles.	Class.	15 miles.	Exceeding 15 miles.
		s. d.	per mile. s. d.		s. d.	per mile. s. d.		s. d.	per mile. s. d.
Acids—Sulphuric				I	6 0	0 4			
Acids—in cases and carboys...	4	12 0	0 9						
Aerated Waters	2	7 0	0 5						
Agricultural Machines . . .	3	9 0	0 7						
Do. Produce—not otherwise specified.	A	...	100 miles and over special truck rates						
Ale and Porter—in bulk	2	7 0	0 5						
Alum and Alum Cake ..	...	...	...	B	3 0	0 2			
Ammunition ...	4	12 0	0 9				A	2 0	0 1½ Two-thirds added.
*Architraves—in bundles ...									
Artificial Manures				A	2 0	0 1¼			
Asphalt—in bags				A	2 0	0 1½			
*Axle grease							B	3 0	0 2
Axes and Wheels—railway or tramway.				2	7 0	0 5			
Bacon ...				I	6 0	0 4			
Bags—new, empty				B	3 0	0 2			
Bark	A	2 0	0 1½ to 75 miles						
Battens ...	A	2 0	0 1½ to 75 miles.	A	2 0	0 1½ to 75 miles.			
		+25%	0 1 over 75 "		+25%	0 1 over 75 "			
			×25%		not exceeding 14 feet in length				
				A	2 0	0 1½ to 75 "			
					+33%	0 1 over 75 "			
					over 14 feet in length				
Bcet root	A	2 0	0 1½ to 75 miles						
Bicycles ...	4	12 0	0 9						
Boards, not exceeding 2 inches	A	2 0	0 1½ to 75 "	A	2 0	0 1½ to 75 miles			
		+50%	0 1 over 75 "		+50%	0 1 over 75 "			
					not more than 11 feet in length				
Do. over 2 inches				A	2 0	0 1½ to 75 miles			
					+60%	0 1 over 75 "			
					more than 11 feet in length				
Boats—80 cubic feet per ton	2	7 0	0 5						
Boilers	2	7 0	0 5						
Do. Plates	2	7 0	0 5						
Bonanzas .....	...	...	...	3	9 0	0 7			
Bones—in quantities of 4 tons	A	2 0	0 1½ to 75 miles	A	2 0	0 1½ to 75 miles			
			0 1 over 75 "		in bags, or loose in quantities no less than 4 tons	0 1 over 75 "			
				B	3 0	0 2			
					loose in quantities under 4 tons				
Do less than 4 tons ...				B	3 0	0 2			
Bottles—empty, in cases or crates.	B	3 0	0 2						
Bran ...	A	2 0	0 1½ to 75 miles						
			0 1 over 75 "						
Bucks—4 ton lots	Mis.	1 6	0 1¼ 15 to 35 "						
			0 1 35 to 150 "						
			0 0¼ 150 to 250 "						
			0 0½ over 250 "						
*Buggies, light, 4-wheeled, and carts, 2-wheeled.									0 4 per mile for 150 miles; 150 to 200, ½; over 200, ¼.
Butter				I	6 0	0 4			
Cabbages...	A	2 0	0 1½ to 75 miles						
			0 1 over 75 "						
Candied Fruit . . .to Sydney and Newcastle.	B	3 0	0 2						

* Not previously specified.

No. 53—continued.

MERCHANDISE Traffic Rates—continued.

Articles of Traffic.	1884. FEBRUARY 1.			1885. OCTOBER 1.			1886.		
	Class.	15 miles.	Exceeding 15 miles.	Class.	15 miles.	Exceeding 15 miles.	Class.	15 miles.	Exceeding 15 miles.
		s. d.	per mile. s. d.		s. d.	per mile. s. d.		s. d.	per mile. s. d.
Carpentry	3	9 0	0 7						
Carrots	A	2 0	0 1½ to 75 miles. 0 1 over 75 "						
Casks—new, empty	B	3 0	0 2						
Cases do.	B	3 0	0 2						
Castings (See Iron)				2	7 0	0 5			
Cement	B	3 0	0 2						
Chaff. (See page 150.)									
Charcoal and coke—in bags...	B	3 0	0 2						
Cheese.....				1	6 0	0 4			
Chicory Root	A	2 0	0 1½ to 75 " 0 1 over 75 "						
Chimney pots				B	3 0	0 2			
Clay—4 ton lots.....	Mis.	1 6	0 1¼ 15 to 35 " 0 1 35 to 150 " 0 ¾ 150 to 250 " 0 ½ over 250 "						
Coal.....	Mis.	1 6	0 1¼ 16 to 35 " 0 1 35 to 150 " 0 ¾ 150 to 250 " 0 ½ over 250 "						
Do. Waggons — new on wheels to collieries.			0 4 per mile each. minimum, 5s						
Coke	B	3 0	0 2						
Do (in owners' trucks)	A	2 0	0 1½ to 75 miles. 0 1 over 75 "						
Condimental Foods, in bags ..				A	2 0	0 1½			
Corrugated Iron (in cases) ...				1	6 0	0 4			
Colonial Wine	B	3 0	0 2						
Copper Ingots	B	3 0	0 2						
Do Ore—4 ton lots.....	Mis.	1 6	0 1¼ 15 to 35 miles 0 1 35 to 150 " 0 ¾ 150 to 250 " 0 ½ over 250 "						
Crude Ores				M	1 6	0 1¼ 15 to 35 miles 0 1 35 to 100 " 0 ¾ 150 to 250 " 0 ½ over 250 "			
Dairy Produce	1	6 0	0 4						
Detonators (explosives). (See Gunpowder.)									
Dobbins (Contractors')				1	6 0	0 4			
Drain Pipes	A	2 0	0 1½ to 75 miles 0 1 over 75 "						
Dynamite (explosives), owners' risk, in casks or cases.			1 0 per ton per mile for quantities exceeding 10 cwt 1 6 per ton per mile for quantities under 10 cwt.; minimum, 5s.						
Earthenware Tiles				A	2 0	0 1½			
Eggs				1	6 0	0 4			
Engravings				4	12 0	0 9			
Fancy Goods				4	12 0	0 9			
Farine							A	2 0	0 1½
* Felloes				A	2 0	0 1½ to 75 miles. 0 1 over 75 "			
Felt Roofing				2	7 0	0 5			
Fireclay Blocks and Bricks ...	A	2 0	0 1½ to 75 miles 0 1 over 75 "						
Fireclay Retorts				B	3 0	0 2			
Firewood (4-ton lots)	Mis.	1 6	0 1¼ 15 to 35 " 0 1 35 to 150 " 0 ¾ 150 to 250 " 0 ½ over 250 "						
Firewood				M	1 6	0 1¼ 15 to 35 miles 0 1 35 to 100 " 0 ¾ 150 to 250 " 0 ½ over 250 "			
Fireworks	4	12 0	0 9						
Fish.....			Not less than 2cwt., 3d. per ton per mile, or 2 c. rates.						
Flour	A	2 0	0 1½ to 75 miles 0 1 over 75 "						
Flower-pots	B	3 0	0 2						
Fodder (green undried)				A	2 0	0 1½			
Frames, Picture				4	12 0	0 9			
Fruit—Orchard (packed) ..	A	2 0	0 1½ to 75 " 0 1 over 75 "						
Do Candied, to Sydney and Newcastle only.				B	3 0	0 2			

* Not previously specified.

No. 53—continued.

MERCHANDISE Traffic Rates—continued.

Articles of Traffic.	1884. FEBRUARY 1.			1885. OCTOBER 1.			1886.		
	Class	15 miles.	Exceeding 15 miles.	Class.	15 miles.	Exceeding 15 miles.	Class	15 miles.	Exceeding 15 miles.
		s. d.	per mile. s. d.					s. d.	per mile. s. d.
Furniture—in cases	3	9 0	0 7						
Do. loose	4	12 0	0 9						
Galvanized Iron Telegraph Poles.	..			2	7 0	0 5			
Do Screws and Washers .. . . .	...	...	...	2	7 0	0 5			
Do Tanks by measurement, 160 cubic feet per ton.	...	...	...	2	7 0	0 5			
Garden Produce—not other- wise specified.	A	2 0	0 1½ to 75 miles. 0 1 over 75 "						
Glue Pieces—dry	B	3 0	0 2						
Glue Pieces—wet	A	2 0	0 1½ to 75 " 0 1 over 75 "						
Grain—all kinds .. . . . . .	...	...	...	A	2 0	0 1½ to 75 miles 0 1 over 75 "			
Green Fodder... .. . . . . .	..	..	..	A	2 0	0 1½ to 75 " 0 1 over 75 "			
Guano and Artificial Manures	...	..	..	A	2 0	0 1½ to 75 " 0 1 over 75 "			
Gunpowder (owner's risk)—in casks. (See page 143)	.....	...	1 0 per ton per mile for quantities exceeding 10 cwt. 1 6 per ton per mile if under 10 cwt.						
Hardware	3	9 0	0 7						
Hareskins	B	3 0	0 2						
Hats—in cases	4	12 0	0 9						
Hay. (See page 150.)	...	...	...	1	6 0	0 4			
Hay Presses .. . . . . .	...	...	...	B	3 0	0 2			
Hemp .. . . . . .	...	...	...			
Hides (wet)	A	2 0	0 1½ to 75 miles 0 1 over 75 "						
„ (dry)	B	3 0	0 2						
Honey..... .. . . . . .	...	...	...	1	6 0	0 4			
Hoofs (not less than 4 tons)	A	2 0	0 1½ to 75 "	A	2 0	0 1½ to 75 miles In bags or loose in lots of 4 tons 0 1 over 75 miles			
				B	3 0	0 2 Loose in quanti- ties less than 4 tons			
Do (less than 4 tons) ... . .	..	...	...	B	3 0	0 2			
Horns (not less than 4 tons)	A	2 0	0 1½ to 75 "	A	2 0	0 1½ to 75 miles In bags or loose in lots of 4 tons 0 1 over 75 miles			
				B	3 0	0 2 Loose in quanti- ties less than 4 tons.			
Do (less than 4 tons).....	...	..	..	B	3 0	0 2			
Instruments — Musical and Scientific	..	..	..	4	12 0	0 9			
Iron—Bar, Rod, Angle, and T	2	7 0	0 5						
Boiler Plate	2	7 0	0 5						
Corrugated—in cases	1	6 0	0 4						
Girders	2	7 0	0 5						
Pig and Scrap—to smelting works. }	Mis.	1 6	0 1¼ to 35 " 0 1 to 150 " 0 ¾ to 250 " 0 ½ over 250 "	...	...	...
Pipes .. . . . . .	..	..	..	2	7 0	0 5			
Nails .. . . . . .	..	..	..	2	7 0	0 5			
Tanks (malt, square, and empty).	..	..	..	3	9 0	0 7			
Iron—Pig and Scrap.....	Mis.	1 6	0 1¼ to 35 " 0 1 to 150 " 0 ¾ to 250 " 0 ½ over 250 "	..	..	..
Do.—Sheet .. . . . . .	...	...	...	2	7 0	0 5			
Do.—Tanks, 160 c. ft. per ton —Galvanized iron.	2	7 0	0 5						
Do.—Rough Castings .. . . .	...	...	...	2	7 0	0 5			
Do.—Wire in bundles	1	6 0	0 4						
Do.—Wheels and Axles— Railway.	2	7 0	0 5						

APPENDIX TO REPORT ON RAILWAYS—1886.

No. 53—continued.

MERCHANDISE Traffic Rates—continued.

Articles of Traffic.	1884. FEBRUARY 1.			1885. OCTOBER 1.			1886.		
	Class.	15 miles.	Exceeding 15 miles.	Class.	15 miles.	Exceeding 15 miles.	Class.	15 miles.	Exceeding 15 miles.
Iron—Rails and Chairs	1	s. d. 6 0	s. d. 0 4		s. d.	per mile. s. d.		s. d.	per mile. s. d.
Do.—Castings	2	7 0	0 5						
Do.—Pig, Pipes, and rough Castings, from the manufactory.	Mis.	1 6	0 1 ¼ to 35 miles 0 1 to 150 " 0 ¾ to 250 " 0 ½ over 250 "	...	...	.....
Do.—Pipes—Galvanized	2	7 0	0 5						
Iron Nails	2	7 0	0 5						
Ironmongery	3	9 0	0 7						
Ironstone	Mis.	1 6	0 1 ¼ to 35 " 0 1 to 150 " 0 ¾ to 250 " 0 ½ over 250 "	...	...	.....
Jams, to Sydney and Newcastle	B	3 0	0 2						
Joinery	3	9 0	0 7						
Kangaroo Skins				B	3 0	0 2			
Kerosene Oil, to Sydney and Newcastle.	1	6 0	0 4						
Lead—Pig or Sheet	2	7 0	0 5						
* Do.—"Old Tea"	...						B	3 0	0 2
Leather, to Sydney and Newcastle.	1	6 0	0 4 in bundles 0 5 loose.						
Do.—Except Patent Morocco	2	7 0	0 5						
Do.—Patent or Morocco	3	9 0	0 7	2	7 0	0 5			
Lamps—Street, Door, or Hall	3	9 0	0 7						
Laths	A	2 0	0 1 ⅛ to 75 miles 0 1 over 75 "						
Lick Blocks	B	3 0	0 2						
Lime—4-ton lots	A	2 0	0 1 ⅛ to 75 " 0 1 over 75 "						
Do.—Muriate of				1	6 0	0 4			
Limestone	Mis.	1 6	0 1 ¼ to 35 " 0 1 to 150 " 0 ¾ to 250 " 0 ½ over 250 "						
Lithofracteur or other explosives—owner's risk—in casks or cases.	...		1 0 per ton per mile if over 10 cwt. 1 6 per ton per mile if under 10 cwt.						
Lucerne—Seed	1	6 0	0 4						
*Luggage	...						3	9 0	0 7
Machinery of all kinds	3	9 0	0 7						
Malt in tanks and bags	1	6 0	0 4						
Malt Tanks—Square & empty	3	9 0	0 7						
Mangold Wurzel	A	2 0	0 1 ⅛ to 75 miles 0 1 over 75 "						
Manure, loose (4-ton lots)	Mis.	1 6	0 1 ¼ to 35 " 0 1 to 150 " 0 ¾ to 250 " 0 ½ over 250 "						
Manure—Artificial	A	2 0	0 1 ⅛ to 75 " 0 1 over 75 "						
Marble—Undressed (4-ton lots).	Mis.	1 6	0 1 ¼ to 35 " 0 1 to 150 " 0 ¾ to 250 " 0 ½ over 250 "						
* Do.—Dust	...						B	3 0	0 2
Meal	A	2 0	0 1 ⅛ to 75 " 0 1 over 75 "						
Measurement Goods, 140 cubic feet to ton, except otherwise mentioned.	3	6 0	0 4	3	9 0	0 7			
Meat—Preserved, to Sydney and Newcastle.				A	2 0	0 1 ⅛			
Metal—road				M } M }	1 6	0 1 ¼ 15 to 35 miles 0 1 35 to 150 " 0 ¾ 150 to 250 " 0 ½ over 250 "			
Do.—Screenings, tarred, 6 tons.									

* Not previously specified

No. 53—continued.

MERCHANDISE Traffic Rates—continued.

Articles of Traffic	1884. FEBRUARY 1.			1885. OCTOBER 1.			1886.		
	Class.	15 miles.	Exceeding 15 miles.	Class.	15 miles.	Exceeding 15 miles.	Class.	15 miles.	Exceeding 15 miles.
Melons.....	A	s. d. 2 0	per mile. s. d. 0 1½ to 75 miles 0 1 over 75 "						
Millet ..		...	.....	I	6 0	0 4			
Millet Seed ..		...	.....	A	2 0	0 1½			
Millinery—in cases	4	12 0	0 9						
Mining Props ..		...	..	M	1 6	0 1¼ 15 to 35 miles 0 1 35 to 150 "			
Mirrors	4	12 0	0 9			0 ½ 150 to 250 " 0 ½ over 250 "			
*Moulding, in bundles .....		...	.....			.....	A	2 0	0 1½
Muriate of Lime ..	I	6 0	0 4					With ¼ added.	
Musical Instruments.....	4	12 0	0 9						
Naphtha ..	4	12 0	0 9						
Offal	Mis.	I 6	0 1¼ to 35 miles 0 1 to 150 " 0 0½ to 250 " 0 0½ over 250 "			.....		
Oil Cake ..	B	3 0	0 2						
Opium ..	4	12 0	0 9						
Opossum Skins ..		...	.....	B	3 0	0 2			
Ores—Crude (4-ton lots) ..	Mis.	I 6	0 1¼ to 35 miles 0 1 to 150 " 0 0½ to 250 " 0 0½ over 250 "			.....		
Ore (Tin or Sulphur) ..	B	3 0	0 2						
Oysters ..		...	0 3 per ton per mile.						
Paintings ..		...	.....	4	12 0	0 9			
Palings ..	A	2 0	0 1½ to 75 miles 0 1 over 75 "						
Paper ..	B	3 0	0 2	B	3 0	0 2			
* Do (wall) ..	under 2 tons	2 7 0	0 5	under 2 tons	2 7 0	0 5			
Do materials for making (not chemicals).		...	.....	A	2 0	0 1½			
Papier-maché Goods ..	3	9 0	0 7						
Perambulators ..	4	12 0	0 9						
Perfumery ..	3	9 0	0 7						
Picture Frames ..	4	12 0	0 9						
Pianos, in cases ..		...	.....	4	12 0	0 9			
Do (owner's risk) ..		...	.....	3	9 0	0 7			
Pier Glasses ..	4	12 0	0 9						
Pitch ..	I	6 0	0 4						
Pipes, drain ..		...	.....	A	2 0	0 1½			
Do iron ..		...	.....	2	7 0	0 5			
Plants (in pots and cases)....	3	9 0	0 7						
*Plasterers' hair ..		...	.....						6 0 0 4
Plaster of Paris ..		...	.....	B	3 0	0 2			
Plated Goods ..	3	9 0	0 7	+50%		.....		
Plate Glass ..	4	12 0	0 9						
Pollard ..	A	2 0	0 1½ to 75 miles 0 1 over 75 "						
Portable Engines ..	3	9 0	0 7						
Posts and Rails ..	A	2 0	0 1½ to 75 " 0 1 over 75 "						
Pottery ..		...	.....	I	6 0	0 4			
Pots, chimney and flower ..		...	.....	B	3 0	0 2			
Potatoes ..	A	2 0	0 1½ to 75 miles 0 1 over 75 "						
Poultry—Living (in crates)	I	6 0	0 4 In flocks, 6d per single- decked truck per mile up to 100, and 4d. for every additional mile; mini- mum charge, 12s.						

* Not previously specified.

No. 53—continued.

MERCHANDISE Traffic Rates—continued.

Articles of Traffic.	1884. FEBRUARY 1.			1885. OCTOBER 1.			1886.		
	Class.	15 miles.	Exceeding 15 miles.	Class.	15 miles.	Exceeding 15 miles.	Class.	15 miles.	Exceeding 15 miles.
		s. d.	per mile. s. d.		s. d.	per mile. s. d.		s. d.	per mile. s. d.
Preserved Meat.....To Sydney and Newcastle.	A	2 0	0 1½ to 75 miles						
Pumpkins	A	2 0	0 1 over 75 "						
*Pyrites, for testing purposes			0 1½ to 75 "				B	3 0	0 2
Do declared under £100 value.			0 1 over 75 "	I	6 0	0 4			
Do undeclared or over £100 value.				3	9 0	0 7			
Quartz. { Ore (Silver declared value under £100) per ton.				I	6 0	0 4			
{ Ore (Silver value undeclared or over £100) per ton.				3	9 0	0 7			
Quicksilver.....	I	6 0	0 4						
Rabbit Skins				B	3 0	0 2			
Railway Wheels and Axles ...				2	7 0	0 5			
Rails and Posts.....				A	2 0	0 1½			
Railway Sleepers				A & ¼	2 0	0 1½ to 75 miles.			
Railway Materials.....	I	6 0	0 4	added.					
Rags and Materials for making paper (not chemicals).	A	2 0	0 1½ to 75 "						
			0 1 over 75 "						
	Mis.	1 6	Not more than 33 per cent. of copper.						
			0 1¼ to 35 miles.						
			0 1 to 150 "						
			0 0¾ to 250 "						
			0 0½ over 250 "						
Regulus (4-ton lots)	A	2 0	Containing over 33 per cent. of copper.						
			0 1½ to 75 miles						
			0 1 over 75 "						
Resin	I	6 0	0 4						
Road Metal	Mis.	9 1	0 1¼ to 35 "						
			0 1 to 150 "						
			0 0¾ to 250 "						
			0 0½ over 250 "						
Rope, to Sydney and Newcastle in 4-ton lots				I	6 0	0 4			
Do				3	9 0	0 7			
Salt—Rock and Calcutta	B	3 0	0 2						
Salt—Dairy and Meat-curing	B	3 0	0 2						
Sand	Mis.	1 6	0 1¼ to 35 miles						
			0 1 to 150 "						
			0 0¾ to 250 "						
			0 0½ over 250 "						
Sawdust	A	2 0	0 1½ to 75 "						
			0 1 over 75 "						
Scientific Instruments	4	12 0	0 9						
Sewing-Machines (packed) ...	3	9 0	0 7						
Do. (unpacked),				3	9 0	0 7	owner's risk.		
owner's risk.									
Seed Grass and Lucerne	I	6 0	0 4						
Do. Garden	3	9 0	0 7						
Do. Millet.....	A	2 0	0 1½ to 75 miles						
			0 1 over 75 "						
			0 1¼ to 35 "						
			0 1 to 150 "						
			0 0¾ to 250 "						
			0 0½ over 250 "						
Shale—Kerosene	Mis.	1 6							
Sheepskins	B	3 0	0 2						
Shingles	A	2 0	0 1½ to 75 "						
			0 1 over 75 "						
Silk Goods	3	9 0	0 7						
Slate Slabs for Billiard Tables	4	12 0	0 9						
Slates	A	2 0	0 1½ to 75 "						
			0 1 over 75 "						
Sleepers—Railway.....				A	2 0	0 1½ to 75 miles.			
				added.					
Soap(except scented and fancy)	I	6 0	0 4						
Soda—Crystals and Caustic, and Silicate.	B	3 0	0 2						
Spokes and Shafts—Undressed	A	2 0	0 1½ to 75 miles						
			0 1 over 75 "						
Stocks undressed	A	2 0	0 1½ to 75 "						
			0 1 over 75 "						

* Not previously specified.

No. 53—continued.

MERCHANDISE Traffic Rates—continued.

Articles of Traffic	1884. FEBRUARY 1.			1885. OCTOBER 1.			1886.		
	Class	15 miles	Exceeding 15 miles.	Class	15 miles	Exceeding 15 miles	Class.	15 miles	Exceeding 15 miles.
Stone undressed.....	Mis.	s. d. 1 6	per mile. s. d. 0 1¼ to 35 miles 0 1 to 150 " 0 0¾ to 250 " 0 0½ over 250 "	..	...	.....	..	...	.....
Do. carved and Gravestones	2 Mis.	7 0	0 5 0 1¼ to 35 " 0 1 to 150 " 0 0¾ to 250 " 0 0½ over 250 "	.....	.....	.....	.....	.....	.....
Do. cut for Building or Grindstones.				1 6	0 1¼ to 35 " 0 1 to 150 " 0 0¾ to 250 " 0 0½ over 250 "
Staves .....	..	.....	.....	A	2 0	0 1½	..	.....	.....
Straw (See page 150).	.....	.....	.....	½ added	6 0	0 4	.....	.....	.....
Sucking pigs in coops or cases	.....	.....	.....	I	6 0	0 4	.....	.....	.....
Sugar	2	7 0	0 5 In truck loads (6 tons), 2s per truck per mile, subject to discounts beyond 100 miles.	.....	.....	.....	.....	.....	.....
Sulphuric Acid	1	6 0	0 4	..	..	.....	.....	.....	.....
*Sulphurate of Iron .....	..	.....	.....	.....	.....	.....	B	3 0	0 2
Sulphure Ore .....	.....	.....	.....	B	3 0	0 2	.....	.....	.....
Sulphur .....	.....	.....	.....	B	3 0	0 2	.....	.....	.....
Tallow.....	B	3 0	0 2	.....	.....	.....	.....	.....	.....
Tar	1	6 0	0 4	.....	.....	.....	.....	.....	.....
Terra-cotta.....	A	2 0	0 1½ to 75 miles 0 1 over 75 "	.....	.....	.....	.....	.....	.....
Threshing Machines	3	9 0	0 7	.....	.....	.....	.....	.....	.....
Tiles—Tesselated and Ornamental.	B	3 0	0 2	.....	.....	.....	.....	.....	.....
Tiles, Earthenware ...	A	2 0	0 1½ to 75 " 0 1 over 75 "	.....	.....	.....	.....	.....	.....
Timber—Undressed in logs	A	2 0	0 1½ to 75 " 0 1 over 75 "	.....	.....	.....	.....	.....	.....
Do. Sawn	A	2 0	0 1½ to 75 " 0 1 over 75 "	.....	.....	.....	.....	.....	.....
Do. Undressed (not over 14 feet in length).	.....	.....	.....	A	2 0	0 1½ to 75 miles. +25% 0 1 over 75 "	.....	.....	.....
Timber—Undressed (exceeding 14 feet in length).	.....	.....	.....	A	2 0	0 1½ to 75 " +33½% 0 1 over 75 "	.....	.....	.....
Timber—Dressed (not over 14 feet in length).	.....	.....	.....	A	2 0	0 1½ to 75 " +50% 0 1 over 75 "	.....	.....	.....
Timber—Dressed (over 14 feet in length).	.....	.....	.....	A	2 0	0 1½ to 75 " +66⅔% 0 1 over 75 "	.....	.....	.....
Tin Ore	B	3 0	0 2	.....	.....	.....	.....	.....	.....
Tin-plates	2	7 0	0 5	.....	.....	.....	.....	.....	.....
Tin Smelted	B	3 0	0 2	.....	.....	.....	.....	.....	.....
Tobacco—Colonial Leaf .....	.....	.....	.....	A	2 0	0 1½	.....	.....	.....
Toys in cases	3	9 0	0 7	.....	.....	.....	.....	.....	.....
Tricycles	4	12 0	0 9	.....	.....	.....	.....	.....	.....
Turnips	A	2 0	0 1½ to 75 miles 0 1 over 75 "	.....	.....	.....	.....	.....	.....
Velocipedes	4	12 0	0 9	.....	.....	.....	.....	.....	.....
Wool .....	.....	.....	.....	I	6 0	0 4	.....	.....	.....
Whiting	B	3 0	0 2	.....	.....	.....	.....	.....	.....
Wire-netting	3	9 0	0 7	.....	.....	.....	.....	.....	.....
Woolpacks (New)	B	3 0	0 2	B	3 0	0 2	.....	.....	.....
*Wire-fencing (in boxes) .....	.....	.....	.....	.....	.....	.....	I	6 0	0 4
Zinc	2	7 0	0 5	.....	.....	.....	.....	.....	.....
Do (scrap) .....	.....	.....	.....	B	3 0	0 2	.....	.....	.....
NOTE—All articles not enumerated above are carried as follows.	.....	.....	.....	3	9 0	0 7	.....	.....	.....
All goods not described or insufficiently described on consignment notes.	.....	.....	.....	4	12 0	0 9	.....	.....	.....

* Not previously specified.

No 53—*continued.*

Live Stock Rates and Conditions—1 February, 1884.

SMALL CONSIGNMENTS

$\frac{1}{4}$ Truck, <i>ie</i> , 4 Cows or Oxen, or 10 Calves, 1 Deck of Sheep, or 30 Pigs	$\frac{1}{2}$ Truck, <i>ie</i> , 2 Cows or Oxen, or 5 Calves, or 20 Sheep, or 15 Pigs	Single Cow or Ox	Sheep or Pigs, when less than $\frac{1}{4}$ Truck	Calves, when less than $\frac{1}{4}$ Truck
6d per mile	4d. per mile	3d per mile	$\frac{1}{2}$ d each per mile	1d each per mile
Minimum, 10s	Minimum, 7s 6d	Min, 7s 6d each	Min, 1s. 6d each	Minimum, 2s each.

When the number of animals or the space occupied exceeds the limit for $\frac{1}{4}$ or $\frac{1}{2}$ truck, each one in excess will be charged at the mileage rates enumerated above for single animals until the $\frac{1}{2}$ or full truck rate, as the case may be, is reached.

In ascertaining what portion of a truck is to be charged for, *ie*, $\frac{1}{4}$, $\frac{1}{2}$, or full truck, regard will be had to the space actually occupied more than to the number of animals, but in no case must the number of animals stated above be exceeded.

Mixed stock will be carried together in the same truck, provided the whole consignment belongs to one person, and the Commissioner is relieved of all responsibility. When mixed stock cannot be loaded together, each kind will be charged for separately, with the following exception—On Thursdays single animals conveyed to Sydney in the same trucks, although belonging to different owners, will be charged at a proportion of $\frac{1}{4}$, $\frac{1}{2}$, or full truck rate, plus 25 per cent, for example, should there be two cows, each owner will be charged half of the $\frac{1}{4}$ truck rate, plus 25 per cent, and should there be three animals, the owners will be charged the $\frac{1}{2}$ truck rate equally between them, plus 25 per cent. It is absolutely necessary that each animal be legibly addressed.

When the charge per head for live stock exceeds that for $\frac{1}{4}$ truck, or when the charge for a part truck exceeds that for a full one, only the lesser amount will be collected.

BULLS.

The charge for bulls is 7d each per mile up to 100 miles, and 4d for every additional mile, plus the charge for 100 miles, if more than one in a truck, 4d each per mile, for $\frac{1}{2}$ truck and upwards, cattle rates. Minimum, 12s 6d.

VALUABLE RAMS AND EWES

If less than $\frac{1}{2}$ a truck load, will be charged 2d each per mile, for $\frac{1}{2}$ a truck and upwards, sheep rates. Minimum, 5s.

HORSES

See full truck rates. No less charge than for a full truck load will be made for any number.

When live stock is returned from Sydney or Homebush to country stations, in those neighbourhoods to which cattle trucks and sheep vans are being sent empty, half the above rates will be charged, provided the owners wait the requirements of the Department, but not otherwise.

Live Stock Rates and Conditions—1st October, 1885.

Herds, Flocks, &c, when in consignments of not less than one full truck load

GREAT SOUTHERN, WESTERN, AND RICHMOND LINES

CATTLE

Will be conveyed from the undermentioned Stations to Homebush, at the following rates per Truck —

Stations	Rate	Stations	Rate
Hay	£ s d 10 5 4	Bungendore	£ s d 5 7 10
Carrathool	9 14 0	Tarago	4 17 10
Dailinton	9 2 8	Goulburn	4 4 0
Whitton	8 19 4	Marulan	3 10 8
Jerilderie	9 11 4	Moss Vale	2 12 0
Colombo	8 16 4	Bowral	2 8 0
Narrandera	8 9 8	Mittagong	2 6 0
Coolaman	7 17 4	Pictou	1 10 0
Old Junee	7 11 0	Bourke	11 4 4
Albury	9 2 8	Byerock	10 5 8
Culcairn	8 12 8	Nyngan	8 19 8
South Wagga	7 17 0	Nevertire	8 7 8
Bomen	7 15 4	Dubbo	7 6 8
Junee Junction	7 9 8	Wellington	6 16 8
Cootamundra	6 18 4	Orange	5 15 4
Wallendbeen	6 14 4	Blayney	5 5 4
Young	6 17 0	Bathurst	4 11 4
Harden	6 10 0	Mudgee	5 14 4
Binalong	6 3 4	Rylstone	4 18 4
Bowning	5 16 4	Capertee	3 19 2
Yass	5 12 10	Wallerawang	3 4 8
Gunning	5 1 10	Mount Victoria	2 6 0
Breadalbane	4 13 10		

Other distances to be charged—For the first 140 miles, 8d per truck per mile, from 140 to 200 miles, 6d per truck per mile, every additional mile, 4d. Minimum charge, 15s per truck.

No. 53—continued.

Live Stock Rates and Conditions—1st October, 1885—continued.

SHEEP

Will be conveyed from the undermentioned Stations to Homebush, at the following rates per truck —

Stations	Rate	Stations	Rate
	£ s d		£ s d.
Hay	8 10 6	Bungendore	4 8 5
Carrathool	8 0 7	Tarago	4 1 9
Darlington	7 10 8	Goulburn	3 13 1
Whitton	7 7 9	Marulan	3 5 7
Jerilderie	7 18 3	Moss Vale	2 12 0
Colombo	7 5 2	Bowral	2 8 0
Narrandera	6 19 3	Mittagong	2 6 0
Coolaman	6 8 6	Picton	1 10 0
Old Junee	6 3 0	Bourke	9 7 2
Albury	7 10 8	Byrock	8 10 10
Culcairn	7 1 11	Nyngan	7 8 1
South Wagga	6 8 3	Nevertars	6 17 7
Bomen	6 6 9	Dubbo	5 19 2
Junee Junction	6 1 10	Wellington	5 10 5
Cootamundra	5 11 11	Orange	4 13 5
Wallendbeen	5 8 5	Blayney	4 6 9
Young	5 10 9	Bathurst	3 17 3
Harden	5 4 7	Mudgee	4 12 9
Binalong	4 18 9	Rylstone	4 2 1
Bowning	4 14 1	Capetee	3 10 6
Yass	4 11 9	Wallerawang	3 1 10
Gunning	4 4 5	Mount Victoria	2 6 0
Breadalbane	3 18 9		

Other distances to be charged—For first 80 miles, 8d per truck per mile, from 80 to 100, 6d, from 100 to 150, 4½d; and from 150 to 200, 4d per mile. Every additional mile, 3½d. Minimum charge, 15s per truck.

When single decked trucks are loaded with sheep two thirds of the above rates will be charged in all cases, but it is optional for senders to wait for sheep vans. When, in order to complete a consignment, a half waggon load is sent, the charge for such will be two thirds of the above rates. For small consignments see page 179.

GREAT NORTHERN LINE.

CATTLE

Will be conveyed between the undermentioned Stations, at the following rates per truck —

From	Newcastle	East Maitland	West Maitland	Farley	Lochnivar
	£ s d	£ s d	£ s d	£ s d.	£ s d.
Glen Innes	8 4 8	7 18 8	7 17 4	6 16 0	6 14 8
Armidale	7 3 4	6 17 4	6 16 8	6 13 4	6 12 0
North-western	Narrabri	6 10 0	6 4 0	6 3 4	6 0 4
	Boggabri	6 1 4	5 12 4	5 11 4	5 8 4
	Gunnedah	5 8 4	4 19 4	4 18 4	4 15 4
Breeza	5 14 4	5 5 4	5 4 4	5 3 4	5 1 4
Tamworth	5 0 10	4 11 4	4 10 0	4 8 8	4 6 0
Werris Creek	4 15 4	4 4 0	4 2 8	4 1 4	3 18 8
Quirindi	4 9 4	3 17 4	3 16 0	3 14 8	3 12 0
Willow-tree	3 4 0	2 12 0	2 10 8	2 9 4	2 6 8
Scone	2 13 4	2 1 4	2 0 0	1 18 8	1 16 0
Muswellbrook					

Other distances to be charged—For the first 140 miles, 8d per truck per mile, from 140 to 200 miles, 6d per truck per mile, every additional mile, 4d. Minimum charge, 15s per truck.

SHEEP

Will be conveyed between the undermentioned Stations, at the following rates per truck —

Stations from	Newcastle	East Maitland	West Maitland	Farley.	Lochnivar.
	£ s d.	£ s d	£ s d.	£ s. d.	£ s. d.
Glen Innes	6 14 11	6 9 8	6 9 1	6 8 6	6 7 4
Armidale	5 16 3	5 11 0	5 10 5	5 9 10	5 8 8
North-western	Narrabri	5 13 11	5 8 8	5 8 1	5 7 6
	Boggabri	5 4 7	4 19 4	4 18 9	4 18 1
	Gunnedah	4 17 5	4 11 5	4 10 9	4 10 1
Breeza	4 8 9	4 2 9	4 2 1	4 1 4	3 19 10
Tamworth	4 12 9	4 6 9	4 6 1	4 5 5	4 4 1
Werris Creek	4 3 9	3 17 3	3 16 6	3 15 9	3 14 3
Quirindi	3 19 10	3 13 1	3 12 4	3 11 7	3 10 1
Willow tree	3 16 1	3 9 4	3 8 7	3 7 10	3 6 4
Scone	3 1 4	2 12 0	2 10 8	2 9 4	2 6 8
Musclebrook	2 13 4	2 1 4	2 0 0	1 18 8	1 16 0

Other distances to be charged—For the first 80 miles, 8d per truck per mile; from 80 to 100 miles, 6d; from 100 to 150 miles, 4½d, from 150 to 200 miles, 4d. Every additional mile, 3½d. Minimum charge, 15s. per truck.

When single-decked trucks are loaded with sheep, two-thirds of the above rates will be charged in all cases, but it is optional for senders to wait for sheep vans. When, in order to complete a consignment, a half waggon load is sent, the charge for such will be two thirds of the above rates. For small consignments, see page 179.

For single decked trucks, same rates to be charged as on page 180

No. 53—*continued.*Live Stock Rates and Conditions—1st October, 1885—*continued.*

GREAT SOUTHERN, WESTERN, AND RICHMOND, AND NORTHERN LINES.

HORSES.

The Commissioner will carry horses in cattle trucks if requested to do so, but only under special contract, relieving him of all responsibility. The charge for horses so carried will be the same as for cattle in full truck loads.

For the rates for horse-boxes see Coaching Rate Pamphlet.

Pigs—same as cattle.

(When a double-decked waggon is occupied, 50 per cent. will be added.)

Minimum, 15s.

GENERAL CONDITIONS AND REGULATIONS.

The Commissioner will not receive live stock for conveyance on Sunday, Good Friday, Christmas Day, or any proclaimed holiday.

Live stock will be conveyed only from and to such stations as have accommodation for loading and unloading (see following page), and herds and flocks only at convenient times to be previously arranged with the Traffic Manager.

The number of animals must be so limited that the gross weight in any one truck shall not exceed 6 tons.

The Commissioner does not guarantee arrival at any particular time or for any particular market.

All orders for conveyance of live stock per stock or goods trains are to be made to the Traffic Manager on the printed form provided for that purpose. Those sent by telegram, letter, or through a station-master or other railway officer, will be subject to the same conditions as if made on the printed form.

Each order must be accompanied with a deposit of 20s. per truck ordered.

An order once lodged with the Department can only be withdrawn or the number of trucks reduced at any time (not being less than four clear days before the date of conveyance) by forfeiting the deposit of 20s. for each truck so withdrawn:

An order cannot be withdrawn or reduced or altered within four days of the date of conveyance.

All trucks ordered and not used on the date and at the station specified in the order will be charged for as if used.

Trucks must be loaded and ready for despatch at a time fixed by the Traffic Manager, which will be ascertained on application at the Traffic Manager's Office, or the station-master at the loading station, two clear days before the stock is to be loaded. If not loaded by the time specified, the Department reserves the right to remove the waggons, and charge full rates.

Sundays are not included in the number of days to be reckoned.

All live stock must be loaded and unloaded by the senders and consignees respectively, by whom also the truck doors must be secured and opened, fastenings attended to, &c.

All live stock must be unloaded within three hours after arrival, otherwise it will be unloaded by the Commissioner, and a charge made of 2s. per truck.

All live stock must be removed from the railway premises immediately after unloaded; or if left, will remain at the owner's risk and expense, and may be sent to agistment or livery, the cost of which shall be paid by the owner, and such cost must be paid on demand as part of the authorized charges; and such stock, if not removed within seven days, may be sold by auction, by order of the Commissioner, within the railway premises, and the proceeds applied in payment of all expenses incurred, and the balance thereof handed over to the owner on demand.

When a truck is only partly occupied by a consignment, the Commissioner will have the right to fill it up to its full carrying capacity with other stock.

One *bond fide* drover will be allowed to accompany each consignment of not less than three full trucks, travelling distances over 60 miles, to give the stock whatever attention may be necessary during transit. He will be furnished with a return free pass, available for three days for distances over 60 and under 200 miles, for four days for distances over 200 and under 350 miles, and for six days for distances over 350 miles, and must ride either in the guard's van or a 2nd class carriage. In cases where the stock is conveyed by more than one train, a pass will be issued for each train. The drover must travel by the same train as the stock, otherwise a pass will not be issued.

The following are the rates at which live stock can be insured:—

NEAT CATTLE (including Bulls).

1 to 50 miles,	2 per cent. on the declared value above £15.
51 to 100 "	3 " " "
101 to 150 "	4 " " "
151 and upwards,	5 " " "

The same percentage charge to be made for Pigs and Sheep (including valuable Rams and Ewes) on the declared value above £2.

Under no circumstances will the Commissioner be responsible for loss or injury to live stock, insured or uninsured, occurring during loading or unloading, whether such services be performed by either the servants of the Department or the owner. Nor will he under any circumstances be responsible for loss of or injury to any live stock during transit, arising from fear or restiveness, or through any of the animals being suffocated or trampled upon.

No 53—continued.

Rates for Carriage of Wool.
GREAT SOUTHERN RAILWAY.

From	To Sydney				From	To Sydney						
	Scoured, per ton		Greasy, per ton			Scoured, per ton		Greasy, per ton				
	£	s	d	£		s	d	£	s	d		
From Jerilderie, and all Stations and Sidings on the Jerilderie Branch	3	18	0	3	7	3	2	19	6	2	8	9
Colombo	3	10	6	2	19	9	2	17	10	2	7	1
Hay	4	5	0	3	14	3	2	17	2	2	6	5
Cairathool	3	19	4	3	8	7	3	0	4	2	9	7
Darlington	3	13	8	3	2	11	3	2	10	2	12	1
Whitton	3	12	0	3	1	3	3	3	3	2	10	9
Narrandera	3	7	2	2	16	5	3	8	9	2	15	0
Coolaman	3	1	0	2	10	3	3	1	3	2	9	0
Devlin's Siding	3	3	10	2	13	1	2	19	6	2	7	9
Albury	3	15	9	3	0	9	2	17	6	2	7	9
Ettamogah	3	14	0	2	19	3	3	1	3	2	9	0
Yambla	3	14	0	2	19	3	3	1	3	2	9	0
Gerogery	3	12	3	2	17	9	2	17	6	2	6	0
Culcarn	3	10	6	2	16	6	2	15	6	2	4	6
Yerong Creek	3	8	6	2	14	9	2	13	6	2	2	9
Sandy Creek and the Rock	3	6	9	2	13	6	2	6	0	1	16	9
Wagga Wagga	3	5	0	2	12	0	1	18	3	1	10	9
Gundagai	3	12	9	2	18	0	1	10	9	1	4	9
Wagga Wagga to Albury	2	13	6	2	2	9	1	3	0	0	18	6
Sandy Creek do	2	13	6	2	2	9	0	19	3	0	15	6
The Rock do	2	13	6	2	2	9	4	1	9	3	5	5
Yerong Creek do	2	6	0	1	16	9	3	5	11	2	12	9
Culcarn do	1	10	9	1	4	9	3	7	7	2	14	1
Gerogery do	0	19	3	0	15	6	3	16	6	3	1	3
Yambla do	0	19	3	0	15	6						
From Marra												
Old Junee												
Junee												
Bethungra												
Cootamundra												
Harden												
Young												
Binalong												
Bowning												
Yass												
Gunning												
Bungendore												
Tarigo												
Goulburn												
Maulan												
Moss Vale												
Mittagong												
Pictou												
Menangle												
Campbelltown												
From Cowra												
From Bomen												
Harefield												
Grong Grong												

From other stations on the up side of Bomen, and on the South western and Jerilderie Lines, the rates will be ascertained by adding 2d per ton per mile on the rates quoted to Albury from Wagga Wagga

GREAT WESTERN RAILWAY.

From	To Sydney				From	To Sydney						
	Scoured, per ton		Greasy, per ton			Scoured, per ton		Greasy, per ton				
	£	s	d	£		s	d	£	s	d		
From Bouke	5	11	6	4	9	3	2	15	6	2	4	6
Coolabah	4	17	6	3	18	0	2	13	6	2	2	9
Byrock	5	0	3	4	0	3	3	8	9	2	15	0
Girilambone	4	15	9	3	16	9	3	3	3	2	10	9
Nyngan	4	11	9	3	13	6	3	3	3	2	10	9
Nevertare	4	8	0	3	10	6	2	19	6	2	7	9
Dubbo	4	0	3	3	4	3	2	15	6	2	4	6
Wellington	3	18	6	3	2	9	2	9	9	1	19	9
Orange	3	8	9	2	15	0	2	7	9	1	18	3
Blayney	3	5	0	2	12	0	0	19	3	0	15	6
Perth	3	1	3	2	9	0	0	19	3	0	15	6
Bathurst	2	17	6	2	7	9	0	19	3	0	15	6
Raglan	2	17	6	2	7	9						
From Bicwongle												
Tarana												
Mudgee												
Rylstone												
Lue												
Ilford												
Capertee												
Wallerawang												
Bowenfels												
Penrith												
Richmond												

GREAT NORTHERN AND NORTH-WESTERN RAILWAY

From	To Newcastle		To Worpeth		From	To Newcastle		To Worpeth				
	Scoured, per ton		Greasy, per ton			Scoured, per ton		Greasy, per ton				
	£	s	d	£		s	d	£	s	d		
N-western Line												
Nariabri	3	16	6	3	12	9	2	15	0	3	5	0
Boggabri	3	10	9	3	7	0	2	12	0	3	1	3
Gunnedah	3	8	9	3	5	0	2	17	6	2	7	9
Breeza	3	5	0	3	1	3	2	13	6	2	2	9
Glen Innes	4	11	9	4	8	0	2	9	9	1	19	9
Glencoe	4	10	0	4	6	0	2	7	9	1	18	3
Ben Lomond	4	8	0	4	4	3	2	4	0	1	15	3
Guyra	4	4	3	4	0	3	2	6	0	1	13	9
Black Mountains	4	2	3	3	18	6	2	11	9	1	4	6
Eversleigh	4	0	3	3	16	6	2	7	9	1	7	6
Armidale	4	0	3	3	16	6	2	6	0	1	10	9
Uralla	3	16	6	3	12	9	1	14	6	1	6	9
Walcha Road	3	10	9	3	7	0	1	6	9	0	19	3
Moonbi												
Timworth												
Werris Creek												
Qurinda												
Murrurundi												
Blandford												
Scone												
Aberdeen												
Musclebrook												
Ravensthorpe												
Singleton												
Bianxton												
Maitland												

A rebate of 25 per cent. will be allowed on all wool from the district from Buckambi Station and all stations below having a frontage to the Darling River on the eastern side, and on the western side, including Marra and the whole district south and south-west thereof, and stations lying wholly to the west of the Paroo River

Scoured wool properly dumped will be allowed a rebate of 10 per cent off scoured wool rate

From stations not enumerated in the Schedule a charge at the rate of 3d per ton per mile will be made in addition the rate from the nearest station, shown on the up side, but in no case will the charge be in excess of the rate from the station immediately beyond that from which a rate is quoted

No. 53—continued.

Rates for Carriage of Wool—continued.

TO AND FROM WOOLWASHING ESTABLISHMENTS.

To and from Sydney and Newcastle :—	To Washing Establishments.		From Washing Establishments	
	s.	d.	s.	d.
Not over 15 miles	4	5 per ton.	8	0 per ton.
Over 15 but not over 22 „	5	9 „	10	0 „
„ 22 „ 26 „	7	0 „	12	0 „
„ 26 „ 30 „	7	11 „	13	4 „
„ 30 „ 35 „	8	9 „	14	8 „
„ 35 „ 40 „	9	8 „	16	0 „

Wool from up-country stations consigned to woolwashing establishments within 25 miles of Sydney and Newcastle will be charged Sydney and Newcastle rates respectively.

To all other stations for woolwashing purposes, 1st class rates.

The Wool delivery will commence at 6 a.m., and close at 4:30 p.m., at Redfern Wool Shed ; and all Wool not accepted within fifteen minutes after same has been tendered at Consignee's Stores or Offices by the Commissioner, will be stored at Owner's risk and expense, and will be liable to charges for re-cartage in addition. The place for delivery must be stated on delivery order.

Rates for Carriage of Coal.

SOUTH AND WEST LINES.	NORTHERN LINE.																																																			
<p>3 February, 1881. <i>Owners' Trucks.</i> Under 50 miles, 1d. per ton per mile. Minimum charge, 2/- Over 50 „ ¾d. „ „ with a terminal charge of 3d. per ton. Minimum charge, 4/3. Lots under 5 tons to be charged as 5 tons, or First-class rates.</p> <p><i>Commissioner's Trucks.</i> First 50 miles, 1½d. per ton per mile. 50 to 150 „ 1d. „ „ 150 „ 250 „ ¾d. „ „ Over 250 „ ½d. „ „</p> <p>4 October, 1882. No alteration except the following :— <i>Commissioner's Trucks.</i> First 15 miles, 1s. 6d. per ton. 15 to 35 „ 1½d. „ per mile. 35 „ 150 „ 1d. „ „ 150 „ 250 „ ¾d. „ „ Over 250 „ ½d. „ „</p> <p>3 February, 1881. <i>Owner's Trucks.</i> Under 7 miles..... -/10 Over 7 to 10 miles 1/- 10 „ 15 „ 1/3 15 „ 25 „ 1/10 25 „ 35 „ 2/4 35 „ 50 „ { 1d. per ton per mile. For distances of 50 miles, ¾d. per ton per mile, with a terminal charge of 3d. a ton. Minimum charge, 4/3.</p>	<p>After the first three days a charge of 3d. per waggon per day will be made for standing accommodation on the Coal Sidings at Newcastle. The above rates include the use of cranes and staiths for shipment at Newcastle.</p> <p><i>Commissioner's Trucks.</i> Same as South and West.</p> <p>4 October, 1882. No alteration except in Commissioner's Trucks, as on South and West.</p> <p>10 October, 1885. No alteration.</p> <p>1886. <i>In Owner's Trucks—Great Northern Railway.</i></p> <table border="1"> <thead> <tr> <th></th> <th>per s.</th> <th>n. d.</th> </tr> </thead> <tbody> <tr> <td>For distances not exceeding 1 mile</td> <td>0</td> <td>6</td> </tr> <tr> <td>Over 1 mile and not exceeding 7 miles</td> <td>0</td> <td>10</td> </tr> <tr> <td>„ 7 „ „ 10 „ „</td> <td>1</td> <td>0</td> </tr> <tr> <td>„ 10 „ „ 12 „ „</td> <td>1</td> <td>1</td> </tr> <tr> <td>„ 12 „ „ 14 „ „</td> <td>1</td> <td>2</td> </tr> <tr> <td>„ 14 „ „ 16 „ „</td> <td>1</td> <td>3</td> </tr> <tr> <td>„ 16 „ „ 18 „ „</td> <td>1</td> <td>4</td> </tr> <tr> <td>„ 18 „ „ 20 „ „</td> <td>1</td> <td>5</td> </tr> <tr> <td>„ 20 „ „ 22 „ „</td> <td>1</td> <td>6</td> </tr> <tr> <td>„ 22 „ „ 24 „ „</td> <td>1</td> <td>7</td> </tr> <tr> <td>„ 24 „ „ 26 „ „</td> <td>1</td> <td>8</td> </tr> <tr> <td>„ 26 „ „ 28 „ „</td> <td>1</td> <td>9</td> </tr> <tr> <td>„ 28 „ „ 30 „ „</td> <td>1</td> <td>10</td> </tr> <tr> <td>„ 30 „ „ 32 „ „</td> <td>2</td> <td>0</td> </tr> <tr> <td>„ 32 „ „ 34 „ „</td> <td>2</td> <td>2</td> </tr> <tr> <td>„ 34 „ „ 36 „ „</td> <td>2</td> <td>4</td> </tr> </tbody> </table> <p>For distances exceeding 36 miles, and not exceeding 50 miles, 1d. per ton per mile.</p>		per s.	n. d.	For distances not exceeding 1 mile	0	6	Over 1 mile and not exceeding 7 miles	0	10	„ 7 „ „ 10 „ „	1	0	„ 10 „ „ 12 „ „	1	1	„ 12 „ „ 14 „ „	1	2	„ 14 „ „ 16 „ „	1	3	„ 16 „ „ 18 „ „	1	4	„ 18 „ „ 20 „ „	1	5	„ 20 „ „ 22 „ „	1	6	„ 22 „ „ 24 „ „	1	7	„ 24 „ „ 26 „ „	1	8	„ 26 „ „ 28 „ „	1	9	„ 28 „ „ 30 „ „	1	10	„ 30 „ „ 32 „ „	2	0	„ 32 „ „ 34 „ „	2	2	„ 34 „ „ 36 „ „	2	4
	per s.	n. d.																																																		
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Over 1 mile and not exceeding 7 miles	0	10																																																		
„ 7 „ „ 10 „ „	1	0																																																		
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„ 26 „ „ 28 „ „	1	9																																																		
„ 28 „ „ 30 „ „	1	10																																																		
„ 30 „ „ 32 „ „	2	0																																																		
„ 32 „ „ 34 „ „	2	2																																																		
„ 34 „ „ 36 „ „	2	4																																																		

No. 53—continued.

Hay, Straw, and Chaff per Truck—4-wheeled.

4 OCTOBER, 1882—(Unaltered, 1 October, 1885.)

Hay			Straw and Chaff			Hay			Straw and Chaff		
Not exceeding—	£	s d	Not exceeding—	£	s d	Not exceeding—	£	s d	Not exceeding—	£	s d
16 miles	0	10 0	215 miles	2	17 2	365 miles	4	1 7	365 miles	3	12 1
26 "	0	14 0	220 "	2	18 0	370 "	4	2 4	375 "	3	13 7
35 "	0	17 0	225 "	2	18 10	375 "	4	3 2	380 "	3	14 4
41 "	0	19 6	230 "	2	19 7	380 "	4	4 0	385 "	3	15 0
46 "	1	1 6	235 "	3	0 5	385 "	4	4 10	390 "	3	15 9
54 "	1	4 0	240 "	3	1 3	390 "	4	5 7	395 "	3	16 6
60 "	1	5 6	245 "	3	2 1	395 "	4	6 5	400 "	3	17 2
70 "	1	7 0	250 "	3	2 10	400 "	4	7 3	405 "	3	17 11
80 "	1	8 6	255 "	3	3 8	405 "	4	8 1	410 "	3	18 7
90 "	1	10 0	260 "	3	4 6	410 "	4	8 10	415 "	3	19 4
100 "	1	11 9	265 "	3	5 4	415 "	4	9 8	420 "	4	0 1
110 "	1	14 2	270 "	3	6 1	420 "	4	10 6	425 "	4	0 9
120 "	1	16 7	275 "	3	6 11	425 "	4	11 4	430 "	4	1 6
130 "	1	19 0	280 "	3	7 9	430 "	4	12 1	435 "	4	2 2
135 "	2	0 1	285 "	3	8 7	435 "	4	12 11	440 "	4	2 11
140 "	2	1 6	290 "	3	9 4	440 "	4	13 9	445 "	4	3 8
145 "	2	2 7	295 "	3	10 2	445 "	4	14 7	450 "	4	4 4
150 "	2	3 11	300 "	3	11 0	450 "	4	15 4	455 "	4	5 1
155 "	2	5 0	305 "	3	11 10	455 "	4	16 2	460 "	4	5 10
160 "	2	6 1	310 "	3	12 7	460 "	4	17 0	465 "	4	6 7
165 "	2	7 2	315 "	3	13 5	465 "	4	17 10	470 "	4	7 3
170 "	2	8 3	320 "	3	14 3	470 "	4	18 7	475 "	4	8 0
175 "	2	9 4	325 "	3	15 1	475 "	4	19 5	480 "	4	8 8
180 "	2	10 5	330 "	3	15 10	480 "	5	0 3	485 "	4	9 4
185 "	2	11 6	335 "	3	16 8	485 "	5	1 1	490 "	4	10 1
190 "	2	12 7	340 "	3	17 6	490 "	5	1 10	495 "	4	10 10
195 "	2	13 8	345 "	3	18 4	495 "	5	2 8	500 "	4	11 7
200 "	2	14 9	350 "	3	19 1	500 "	5	3 6	505 "	4	12 3
205 "	2	15 7	355 "	3	19 11	505 "	5	4 4			
210 "	2	16 4	360 "	4	0 9						

Smaller quantities charged actual weight at First-class rates.

The charge per truck for distances not shown in this table will be one-fifth of the difference in rate between every 5 miles.

A pro rata charge will be made for distances not shown above, and six or eight-wheeled trucks will be charged for as two ordinary trucks.

If consigned at Commissioner's risk the charge for Insurance will be 5 per cent. upon the trainage rate—minimum, 9d. per truck.

Special Class A Traffic.

In Truck Loads (not exceeding 6 Tons).

4 OCTOBER, 1882—(Unaltered, 1 October, 1885)

Rate per Truck		Rate per Truck		Rate per Truck		Rate per Truck	
£	s d	£	s d	£	s d	£	s d
100 miles	2 18 6	205 miles	4 8 10	310 miles	5 15 0	415 miles	6 17 0
105 "	2 0 0	210 "	4 10 3	315 "	5 16 2	420 "	6 18 0
110 "	3 1 5	215 "	4 11 8	320 "	5 17 3	425 "	6 19 0
115 "	3 2 10	220 "	4 13 1	325 "	5 18 5	430 "	7 0 0
120 "	3 4 3	225 "	4 14 5	330 "	5 19 6	435 "	7 1 0
125 "	3 5 8	230 "	4 15 11	335 "	6 0 8	440 "	7 2 0
130 "	3 7 2	235 "	4 17 4	340 "	6 1 9	445 "	7 3 0
135 "	3 8 7	240 "	4 18 9	345 "	6 2 11	450 "	7 4 0
140 "	3 10 0	245 "	5 0 2	350 "	6 4 0	455 "	7 5 0
145 "	3 11 5	250 "	5 1 6	355 "	6 5 0	460 "	7 6 0
150 "	3 13 0	255 "	5 2 8	360 "	6 6 0	465 "	7 7 0
155 "	3 14 6	260 "	5 3 9	365 "	6 7 0	470 "	7 8 0
160 "	3 15 11	265 "	5 4 11	370 "	6 8 0	475 "	7 9 0
165 "	3 17 4	270 "	5 6 0	375 "	6 9 0	480 "	7 10 0
170 "	3 18 9	275 "	5 7 2	380 "	6 10 0	485 "	7 11 0
175 "	4 0 2	280 "	5 8 3	385 "	6 11 0	490 "	7 12 0
180 "	4 1 8	285 "	5 9 5	390 "	6 12 0	495 "	7 13 0
185 "	4 3 1	290 "	5 10 6	395 "	6 13 0	500 "	7 14 0
190 "	4 4 6	295 "	5 11 8	400 "	6 14 0	505 "	*7 15 0
195 "	4 5 11	300 "	5 12 9	405 "	6 15 0		
200 "	4 7 4	305 "	5 13 11	410 "	6 16 0		

Any quantity over 6 tons in one truck will be charged pro rata.

The charge per truck for distances not shown in this table will be one-fifth of the distance in rate between every 5 miles.

25 per cent. will be added to above rates for sawn timber (including battens) and 50 per cent. for boards not exceeding 2 inches in thickness, and not exceeding 14 feet in length and two thirds, when over that length (added 1 October, 1885.)

No. 53—continued.

Miscellaneous in Truck Loads.

(Not exceeding 6 Tons.)

4 OCTOBER, 1882—(Unaltered, 1 October, 1885.)

Rate per Truck.		Rate per Truck.		Rate per Truck.		Rate per Truck.	
£ s. d.		£ s. d.		£ s. d.		£ s. d.	
120 miles	2 17 10	220 miles	4 3 10	320 miles	5 5 7	420 miles	6 4 3
125 "	2 19 2	225 "	4 5 0	325 "	5 6 7	425 "	6 5 2
130 "	3 0 6	230 "	4 6 4	330 "	5 7 7	430 "	6 6 0
135 "	3 1 9	235 "	4 7 8	335 "	5 8 7	435 "	6 6 11
140 "	3 3 0	240 "	4 8 11	340 "	5 9 7	440 "	6 7 10
145 "	3 4 4	245 "	4 10 2	345 "	5 10 8	445 "	6 8 9
150 "	3 5 9	250 "	4 11 5	350 "	5 11 8	450 "	6 9 8
155 "	3 7 1	255 "	4 12 5	355 "	5 12 7	455 "	6 10 7
160 "	3 8 4	260 "	4 13 5	360 "	5 13 5	460 "	6 11 5
165 "	3 9 8	265 "	4 14 5	365 "	5 14 4	465 "	6 12 4
170 "	3 10 11	270 "	4 15 5	370 "	5 15 3	470 "	6 13 3
175 "	3 12 2	275 "	4 16 6	375 "	5 16 2	475 "	6 14 2
180 "	3 13 6	280 "	4 17 6	380 "	5 17 0	480 "	6 15 0
185 "	3 14 10	285 "	4 18 6	385 "	5 17 11	485 "	6 15 11
190 "	3 16 1	290 "	4 19 6	390 "	5 18 10	490 "	6 16 10
195 "	3 17 4	295 "	5 0 6	395 "	5 19 9	495 "	6 17 9
200 "	3 18 8	300 "	5 1 6	400 "	6 0 8	500 "	6 18 8
205 "	4 0 0	305 "	5 2 6	405 "	6 1 7	505 "	*6 19 8
210 "	4 1 3	310 "	5 3 6	410 "	6 2 5		
215 "	4 2 6	315 "	5 4 6	415 "	6 3 4		

* Added 1 October, 1885.

Any quantity over 6 tons in one truck will be charged *pro rata*.

The charge per truck for distances not shown in this table will be one-fifth of the difference in rate between every 5 miles.

Parcels Rates.

Miles.	3 lb. and under.	Over 3 lb. to 7 lb.	Over 7 lb. to 14 lb.	Over 14 lb. to 28 lb.	Over 28 lb. to 56 lb.	Over 56 lb. to 84 lb.	Over 84 lb. to 112 lb.	Every 28 lb. or part thereof.
Distances not over—	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
15	0 3	0 4	0 6	0 8	0 10	1 0	1 2	0 3
30	0 3	0 5	0 7	0 9	0 11	1 2	1 4	0 3
45	0 3	0 6	0 9	1 0	1 3	1 6	1 9	0 4
60	0 4	0 8	0 11	1 3	1 7	1 11	2 2	0 6
75	0 5	0 9	1 2	1 6	1 11	2 3	2 8	0 7
90	0 6	0 11	1 4	1 9	2 2	2 8	3 5	0 8
105	0 6	1 0	1 6	2 0	2 6	3 0	4 0	0 10
120	0 7	1 2	1 8	2 3	2 10	3 5	4 6	1 0
135	0 8	1 3	1 11	2 6	3 2	3 9	5 0	1 3
150	0 9	1 5	2 1	2 9	3 5	4 2	5 6	1 5
165	0 9	1 6	2 3	3 0	3 9	4 6	6 0	1 6
180	0 10	1 8	2 5	3 3	4 1	4 11	6 5	1 7
195	0 11	1 9	2 8	3 6	4 5	5 3	6 10	1 8
210	1 0	1 11	2 10	3 9	4 8	5 8	7 3	1 9
225	1 0	2 0	3 0	4 0	5 0	6 0	7 6	1 10
240	1 1	2 2	3 2	4 3	5 4	6 5	8 0	2 0
255	1 2	2 4	3 4	4 6	5 8	6 10	8 5	2 1
270	1 3	2 6	3 6	4 9	6 0	7 3	8 10	2 2
285	1 4	2 8	3 8	5 0	6 4	7 8	9 3	2 3
300	1 5	2 10	3 10	5 3	6 8	8 1	9 8	2 4
315	1 6	3 0	4 0	5 6	7 0	8 6	10 1	2 5
And respectively for every additional, or part of additional, 50 miles	0 1	0 2	0 2	0 3	0 4	0 5	0 5	0 1

See General Regulations relating to insured parcels.

Fresh meat, fish, poultry (dead), dairy produce, eggs, fruit, vegetables, and game, under 1 cwt., 25 per cent. reduction on parcel rates; minimum charge, 3d.

Bread, half parcels rates.

Musical instruments, packed in cases, 25 per cent. added to above rates.

Pictures in frames, packed or unpacked, double rates. Mirrors, double rates.

Furniture and sewing-machines, packed in cases, ordinary rates, but when unpacked double rates will be charged.

Bath chairs, perambulators, velocipedes, and bicycles, requiring a carriage truck for their conveyance, will be charged as for a two-wheeled carriage (see page). Bath chairs and perambulators (adults) carried in Break Vans will be charged double the rate for children's perambulators.

Corpses, 1s. per mile; minimum charge, 5s.

Newspaper parcels, one-quarter parcels rates; minimum charge, 3d.

Passengers' excess luggage, parcels rates.

Commercial travellers' excess luggage, parcels rates on down journey and free on up journey, on production of Railway receipts certifying that full trainage has been paid on down journey.

Gunpowder and other explosives will not be conveyed by Passenger Trains.

The maximum rates for the conveyance of parcels between Sydney and any Station on the Southern and South-western Lines are as follows:—

3 lb. and under.	Over 3 lb. to 7 lb.	Over 7 lb. to 14 lb.	Over 14 lb. to 28 lb.	Over 28 lb. to 56 lb.	Over 56 lb. to 84 lb.	Over 84 lb. to 112 lb.	Every additional 28 lb. or part thereof.
s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
1 6	3 0	4 0	5 6	7 0	8 6	10 1	2 5

Perambulators

No. 53—*continued.***Parcels Rates—*continued.***

Perambulators (children's) and velocipedes will be conveyed in Guard's Vans, at the following rates:—

When conveyed as passengers' luggage—

		s. d.			s. d.
Not exceeding 15 miles		0 9	Not exceeding 125 miles		3 0
30 "		1 0	150 "		3 6
50 "		1 6	200 "		4 0
75 "		2 0	250 "		4 6
100 "		2 6	300 "		5 0

When conveyed as parcels 50 per cent. additional will be charged.

Ice will be conveyed by Passenger Trains as under:—

Miles.	10 lb. and under.	For each additional 10lb.	Miles.	10 lb. and under.	For each additional 10lb.
Distance not over—	s. d.	s. d.	Distance not over—	s. d.	s. d.
100.....	0 2	0 1	300.....	0 6	0 3
150.....	0 3	0 1½	350.....	0 7	0 3½
200.....	0 4	0 2	400.....	0 8	0 4
250.....	0 5	0 2½			

Exchange of Parcels, &c., Traffic between New South Wales and Victorian Lines.

Parcels, excess luggage, and commercial travellers' samples are booked through between New South Wales and Victorian Stations at the undermentioned rates:—

For those parcels booked through between Sydney and Melbourne the rates are—

		s. d.
Over 3 but	Not exceeding 3 lb	2 0
" 7 "	" 7 "	3 0
" 14 "	" 14 "	4 6
" 28 "	" 28 "	6 0
" 56 "	" 56 "	10 0
" 84 "	" 84 "	12 0
" 112 "	" 112 "	14 6

and 2s. 6d. for every additional 28 lbs. or part thereof.

All other parcels, &c, from New South Wales Stations to Victorian Stations are booked to Wodonga, and those from Victorian to New South Wales Stations are booked to Albury at the rates named below.

Between Albury and Victorian Stations the ordinary Victorian rates are charged (189 miles from Melbourne), and, in addition, the following charges for the New South Wales Department are added:—

		s. d.
Over 3 "	Not exceeding 3 lb	0 3
" 7 "	" 7 "	0 4
" 14 "	" 14 "	0 6
" 28 "	" 28 "	0 8
" 56 "	" 56 "	0 10
" 84 "	" 84 "	1 0
" 112 "	" 112 "	1 2

and 3d. for every additional 28lb. or part thereof, and for the purposes of charging parcels, &c., from New South Wales Stations to Wodonga, the latter station is regarded as 388 miles from Sydney, and the charges calculated accordingly, *plus the rates named above.*

Parcels between Albury and Wodonga are charged double the above rates.

Press parcels are charged one-fourth the above rates—minimum, New South Wales Line, 3d.

Packed parcels in hampers, crates, bags, cases, or other packages are charged quadruple the above rates, and the onus of proving that parcels are not packed rests with the consignors or consignees.

When two or more parcels are consigned to one person the above rates are charged on each parcel separately.

Bicycles, feathers, furniture, glass, hats, bonnet or hat boxes, cases of millinery, straw bonnets, mirrors (loose), musical instruments, perambulators, sulkies in pieces, pictures, sewing-machines, wicker-work, wire cages (loose), or other articles light or fragile, are considered admeasurement goods, and are charged 50 per cent. additional on the above rates. Parcels containing articles and property of a description not mentioned or specified in the following clause, such articles and property being over £10 in value, are, in addition to the amount chargeable by the foregoing scale of rates, charged a further sum equal to 1 per centum upon the declared value thereof.

Parcels containing any of the following articles are charged the following increased rates, viz. :—Over £10 and under £50 in value, double, and over £50 in value, quadruple, parcel rates, viz. :—Gold or silver coin of this realm, or of any part of Her Majesty's dominions, or of any foreign state, or any gold or silver in a manufactured or unmanufactured state, or any precious stones, jewellery, watches, clocks, or time-pieces of any description, trinkets, bills, notes of any banks in Her Majesty's dominions, or of any foreign bank, order, notes, or securities for payment of money, whether foreign or otherwise, stamps, maps, writings, title-deeds, paintings, engravings, pictures, gold or silver plate, or plated articles, glass, China, silk in a manufactured or unmanufactured state, and whether wrought up or not wrought up with other materials, furs or lace or any of them contained in any parcel or package.

The trainage on all parcels conveyed under bond must be prepaid.

Horses, carriages, and dogs from New South Wales to Victorian stations are booked to Wodonga at Albury rates, and from Victorian Stations to Albury at Wodonga rates, plus the following charges:—

	s. d.
One horse	2 0
Two horses	3 0
Three horses belonging to same owner	4 0
Carriages, gigs, dog-carts, and vehicles of a similar description	4 0
Dogs	0 6

Corpses are booked in a similar manner, with 4s. added for conveyance between Albury and Wodonga.

Rates for conveyance of Library Exchanges.

Books forwarded for exchange to and from subscribers to recognized Circulating Libraries only will be carried at one-fourth parcels rates, under the following conditions, viz. :—

1. The sender's name must be legibly inscribed on each parcel.
2. Each parcel must be open at both ends.
3. Each parcel must be declared on the consignment-note to contain books only.

Gold

No. 53—*continued.*Parcels Rates—*continued.*

Gold Dust and Bullion, and Gold and Silver Coin.

The Commissioner for Railways will not be responsible for the safe conveyance of Gold Dust and Bullion, Bank-notes and Bills, Orders, Notes, and Securities for the payment of Money, and Gold and Silver Coin, or any of the other articles mentioned above, as the following charges are made, and the Gold Dust and Bullion and Coin carried, on condition of its being in charge of owners and at their risk.

	Distance not over 55 miles.	Distance not over 100 miles.	Distance not over 150 miles.	Distance not over 200 miles.	Distance not over 250 miles.	Distance not over 350 miles.	Distance over 350 miles.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Gold Dust and Bullion, per 100 ozs.....	2 0	3 6	4 3	5 0	5 6	6 0	6 6
Gold Coin, per £100	0 6	0 10	1 3	1 8	2 0	2 3	2 6
Silver Coin, per £100.....	1 0	1 9	2 6	3 3	3 6	3 9	4 0

Fractions over 100 and under 50 will not be charged, but fractions of 50 and over will be charged as 100.

If conveyed at Commissioner's risk the following Insurance Rates will be charged in addition :—

1 to 100 miles.....	1s. 6d. per cent. on declared value.
101 to 200 do.....	1s. 9d. do.
201 to 300 do.....	2s. 0d. do.
301 to 400 do.....	2s. 3d. do.
401 to 500 do.....	2s. 6d. do.

Rates for Milk.

In quantities of not less than 300 gallons.

15 miles and under.....	¼d. per gallon.
40 " "	½d. "
90 " "	¾d. "
Beyond 90 miles ..	1d. "

Minimum charge, 3d.

Less than 300 gallons, double rates.

RETURNED EMPTIES.

Returned empty milk cans will be conveyed free; all other returned empties double goods rates, except otherwise arranged. Only small empties will be accepted for conveyance by Passenger Train.

COMPARATIVE STATEMENT of the RATES charged for Goods in New South Wales, Victoria, Queensland, and South Australia, 31st December, 1886.

Articles of Traffic.	New South Wales.			Victoria.			Queensland.			South Australia.		
	Class.	50 miles.	150 miles.	Class.	50 miles.	150 miles.	Class.	50 miles.	150 miles.	Class.	50 miles.	150 miles.
Acids (in cases and carboys)	4	s. d. 38 3	s. d. 109 6	Double rate 4	s. d. 58 0	s. d. 175 0	{ Gunpowder rate Cases Carboys dbl. rate	s. d. 45 10 91 8	s. d. 125 0 250 0	4	s. d. 39 6	s. d. 112 8
Aerated Waters	2	21 7	61 2	A	7 6	17 8	1	29 2	75 0	A	8 4	17 9
Agricultural Machines.....	3	29 5	84 10	{ 2 3	21 0 25 0	62 6 75 0	1	29 2	75 0	{ ½d. to 1s. 4d. per mile according to kind of machine.		
Ale and Porter (in bulk).....	2	21 7	61 2	{ Miscellaneous In cases 3	13 6 25 0	38 6 75 0	1	29 2	75 0	1	14 6	38 11
Ammunition	4	38 3	109 6	4	29 0	87 6	Gunpowder Rate	45 10	125 0	Double 3	54 0	151 6
Bags (new, empty)	B	8 10	24 8	1	16 6	50 0	1	29 2	75 0	{ Bales A Bundles 1 Bales A Loose 2 5-ton lots	8 4 14 6 8 4 20 9	17 9 38 11 17 9 57 4
Bark (in sheets, bundles, or bags).....	A	5 4	13 6	{ in truck loads, A in less than truckloads. Miscellaneous.	7 6 13 6	17 8 38 6	Agricultural 1	10 10	27 6	1	14 6	38 11
Battens (not exceeding 14 feet in length)	A plus 25 %	6 8	16 11	Soft wood 1	16 6	50 0	Timber Rates	8 4	25 0			
Do. (exceeding do.)	A „ 33½%	7 2	18 0									
Beet-root	A	5 4	13 6	Agricultural	5 6	15 0	Agricultural 2	10 10	27 6	2	20 9	57 4
Bicycles	4	38 3	109 6	{ Complete, packed in cases, rate and a half Complete, loose, double rate Packed in pieces 4	43 6 58 0 29 0	131 3 175 0 87 6	2	41 8	112 6	4	39 6	112 8
Boards (not exceeding 14 feet in length)	A plus 50 %	8 0	20 3	1	16 6	50 0	Timber rates	8 4	25 0	1	14 6	38 11
Do. (exceeding do.)	A „ 66½%	8 11	22 6									
Boats (by measurement, 80 cubic feet to ton)	2	21 7	61 2	3	25 0	75 0	2	41 8	112 6	1 60 cub. ft.	14 6	38 11
Boilers	2	21 7	61 2	3	25 0	75 0	{ 1 Three cwt. or over.	29 2	75 0	{ not ex. 2 tons 1 ex. 2 tons 2	14 6 20 9	38 11 57 4
Bones (in bags or loose, not less than 4 tons)	A	5 4	13 6	Agricultural	5 6	15 0	Excep.	8 4	23 4	{ A In truck loads of not less than 2½ tons	8 4	17 9
Do (loose, not less than 4 tons).....	B	8 10	24 8									
Bottles (empty, in cases and crates)	B	8 10	24 8	{ Druggists 3 Loose M	25 0 13 6	75 0 38 6	1	29 2	75 0	B	10 5	30 9
Bran	A	5 4	13 6	Agricultural	5 6	15 0	Agricultural 2	10 10	27 6	A	8 4	17 9
Bricks	M	4 10	12 6	Excep. A	4 0	17 8	Excep.	8 4	23 4	1½d. per ton per mile, special		
Cabbages	A	5 4	13 6	A	7 6	17 8	Agricultural 2	10 10	27 6	A	8 4	17 9
Candied Fruits.....	(To Sydney and Newcastle) B	8 10	24 8	3	25 0	75 0	2	41 8	112 6	2	20 9	57 4
Carpentry	3	29 5	84 10	3	25 0	75 0	2	41 8	112 6	2	20 9	57 4
Carrots	A	5 4	13 6	Agricultural	5 6	15 0	Agricultural 2	10 10	27 6	A	8 4	17 9
Cases (new, empty)	B	8 10	24 8	Not mentioned	.....	.....	2	41 8	112 6	3	27 0	75 9
Casks do.	B	8 10	24 8	Not mentioned	.....	.....	2	41 8	112 6	3	27 0	75 9
Cement	B	8 10	24 8	1	16 6	50 0	Special	20 10	50 0	1	14 6	38 11
Chaff (pressed)	See page 152	.....	.....	Special A	7 6	17 8	{ In bags 1 Agricultural 2	29 0 10 10	75 0 27 6	{ B not less than 3 ton and not exceeding 4 ton truckloads	.....	.....

Charcoal (in bags)	B	8 10	24 8	A	7 6	17 8	1	29 2	75 0	2	20 9	57
Chicory Root	A	5 4	13 6	{ Manufactured, case or bags, 3 Dried M }	25 0	75 0	Agricultural 2	10 10	27 6	A	8 4	17 9
Clay	Miscellaneous	4 10	12 6	Not mentioned	4 2	11 3	Excep.	8 4	23 4	Excep. (5-ton lots)	6 3	18 9
Coal	{ Commisnr's Trucks Owner's Trucks }	4 10 4 2	12 6 9 8	Excep. A.	4 2	12 6	{ Government Trucks Owner's Trucks }	4 2 3 2	10 5 7 4	B	10 5	30 9
Coke	B	8 10	24 8	Misc. in bags ...	13 6	38 6	1	29 2	75 0	1	14 6	38 11
Do. (in owner's trucks)	A	5 4	13 6	Quantities not less than 5 tons A	7 6	17 8	Excep.	8 4	23 4	Not mentioned		
Colonial Wine	B	8 10	24 8	{ Bulk A Cases up 2 }	7 6 21 0	17 8 62 6	2	41 8	112 6	Special	10 5	30 9
Copper ore	Miscellaneous	4 10	12 6	A	7 6	17 8	Excep.	8 4	23 4	Excep.	9 0	18 4
Do. (Smelted)	B	8 10	24 8	Up journey misc.	13 6	38 6	.....	.....	.....	1	14 6	38 11
Drain Pipes	A	5 4	13 6	A	7 6	17 8	Excep. & R	8 4	23 4	B	10 5	30 9
Dairy produce	1	17 8	49 4	{ Cheese in cases 1 Butter, &c. 2 ... }	16 6 21 0	50 0 62 6	Agricultural 1	10 10	27 6	1	14 6	38 11
Dynamite	Excep.	50 0	150 0	4	29 0	87 6	Gunpowder rate	45 10	125 0	Double 3	54 0	151 6
Feathers	3	29 5	84 10	4	29 0	87 6	2	41 8	112 6	Double rate 4	79 0	225 4
Felloes—undressed	A	5 4	13 6	1	16 6	50 0	Timber rates	8 4	25 0	1	14 6	38 11
Fireclay Blocks	A	5 4	13 6	1	16 6	50 0	Excep.	8 4	23 4	B	10 5	30 9
Firewood	Miscellaneous	4 10	12 6	Firewood, per truck of 5 tons.	4 2	11 3	Timber rates	8 4	25 0	{ B (Between 1 April and 31 Oct., per truck) }	10 5 29 8	30 9 88 0
Fireworks	4	38 3	109 6	4	29 0	87 6	Gunpowder dbl. rate	91 8	250 0	Fresh B	10 5	30 9
Fish—fresh or shell	Excep. or 2	12 6	37 6	{ Excep. 3 2 }	16 8 25 0 21 0	45 10 75 0 62 6	Fresh Dried In brine	8 4 29 2 41 8	23 4 75 0 112 6	Preserved 1	14 6	38 11
Flour	A	5 4	13 6	Agricultural	5 6	15 0	{ From Col. wheat. From Imported }	10 10 20 10	27 6 50 0	Dried 2	20 9	57 4
Flower-pots	B	8 10	24 8	Miscellaneous	13 6	38 6	2	41 8	112 6	A	8 4	17 9
Fruit	A	5 4	13 6	Miscellaneous	13 6	38 6	Agricultural 1	10 10	27 6	3	27 0	75 9
Furniture (loose)	4	38 3	109 6	4	29 0	87 6	2	41 8	112 6	A	8 4	17 9
Do. (in cases)	3	29 5	84 10	4	29 0	87 6	2	41 8	112 6	4	39 6	112 8
Garden Produce	A	5 4	13 6	Not mentioned	.....	.....	Agricultural 2	10 10	27 6	3	27 0	75 9
Glue-pieces	B	8 10	24 8	2	21 0	62 6	2	41 8	112 6	A	8 4	17 9
Do. (wet)	A	5 4	13 6	2	21 0	62 6	2	41 8	112 6	1	27 0	75 9
Grain	A	5 4	13 6	Agricultural	5 6	15 0	Agricultural 2	10 10	27 6	Not mentioned		
Green Fodder	A	5 4	13 6	Not mentioned	.....	.....	Agricultural 2	10 10	27 6	A	8 4	17 9
Guano and Artificial Manures	A	5 4	13 6	Artificial Manures (Col.) Agricultural.	5 6	15 0	Excep.	8 4	23 4	Not mentioned		
Gunpowder (in casks)	Excep.	50 0	150 0	4	29 0	87 6	Gunpowder rate	45 10	125 0	Excep. 1	6 3	18 9
Hardware	3	29 5	84 10	3	25 0	75 0	2	41 8	112 6	Double 3	54 0	151 6
Hats	4	38 3	109 6	4	29 0	87 6	2	41 8	112 6	3	27 0	75 9
										Double rate 4	79 0	225 4

Articles of Traffic.	New South Wales.			Victoria.			Queensland.			South Australia.								
	Class.	50 miles.	150 miles.	Class.	50 miles.	150 miles.	Class.	50 miles.	150 miles.	Class.	50 miles.	150 miles.						
Hay		s. d.	s. d.	Per Truck.	s. d.	s. d.	Agricultural 2	s. d.	s. d.	Special B	s. d.	s. d.						
		See page 152.			32 6	67 11		10 10	27 6		10 5	30 9						
Hides—(Green and Wet Salted)	A	5 4	13 6	} Miscellaneous	13 6	38 6	Loose 1	29 2	75 0	{ Bales A	8 4	17 9						
Do. Dry.....	B	8 10	24 8										Tied Special	20 10	50 0	Loose 1	14 6	38 11
Hoofs (in bags, or loose, not less than 4 tons).....	A	5 4	13 6	} Miscellaneous	13 6	38 6	Excep.	8 4	23 4	{ in bags A	8 4	17 9						
Do. (loose, in quantities under 4 tons).....	B	8 10	24 8										Loose 1	14 6	38 11			
Horns (in bags, or loose, not less than 4 tons) ...	A	5 4	13 6	} Miscellaneous	13 6	38 6	Excep.	8 4	23 4	{ in bags A	8 4	17 9						
Do. (loose, in quantities under 4 tons)	B	8 10	24 8										Loose 1	14 6	38 11			
Iron—Bar, Rod, Angle, and T	2	} 21 7	} 61 2	{ Miscellaneous	13 6	38 6	{ 1	29 2	75 0	{ 1	14 6	38 11						
Do. Boiler-plate or Sheet													Sheet 2	21 0	62 6	1	14 6	38 11
Do. Castings (if over 3 tons, owner's risk only)..	2												Plate Miscell.	13 6	38 6	1	14 6	38 11
Do. Corrugated (in cases)	1												3	25 0	75 0	Heavy, 3 cwt. & over	43 9	112 6
Do. Girders	} 2	} 21 7	} 61 2	{ 1	16 6	50 0	{ 1	29 2	75 0	{ Polished and turned 2	14 6	38 11						
Do. Tanks—Galvanized (160 cubic feet to ton) }													{ 4	29 0	87 6	Over 12 feet, rate and half.	43 9	112 6
Do. Tanks (Malt, Square, and Empty)	3	29 5	84 10	4	29 0	87 6	{ 2	41 8	112 6	{ in cases 1	14 6	38 11						
Do. Wire (in bundles)	} 1	} 17 8	} 49 4	{ 1	16 6	50 0	{ 1	29 2	75 0	{ 1	14 6	38 11						
Do. Tanks—Galvanized (160 cubic feet to ton) }													{ 4	29 0	87 6	Gal. iron, double rate.	41 8	112 6
Do. Tanks (Malt, Square, and Empty)													3	29 5	84 10	4	29 0	87 6	{ 2	41 8	112 6	{ Loose 2	20 9	57 4
Do. Wire (in bundles)	} 2	} 21 7	} 61 2	{ 1	16 6	50 0	{ 1	29 2	75 0	{ 1	14 6	38 11						
Do. Wheels and Axles (Railway or Tramway)...													{ 4	29 0	87 6	Gal. iron, double rate.	41 8	112 6
Do. Nails													3	29 5	84 10	4	29 0	87 6	{ 2	41 8	112 6	{ Loose 3	27 0	75 9
Do. Pig and Scrap	M	4 10	12 6	A	7 6	17 8	Special	20 10	50 0	Special B	10 5	30 9						
Ironmongery.....	3	29 5	84 10	Not mentioned	.....	.....	2	41 8	112 6	{ Wheels 2	20 9	57 4				
Ironstone	Miscellaneous	4 10	12 6	A	7 6	17 8	Excep.	8 4	23 4	{ Axles 1	14 6	38 11						
Jams	(To Sydney and Newcastle only) B	8 10	24 8	B & 3	9 6	23 9	2	41 8	112 6	1	14 6	38 11						
Joinery	3	29 5	84 10	3	25 0	75 0	2	41 8	112 6	Fig 1 Special B	10 5	30 9						
Kerosene Oil.....	(To Sydney and Newcastle only) 1	17 8	49 4	3	25 0	75 0	2	41 8	112 6	Scrap ex., 1½d. per ton per mile 5-ton truck loads.	6 3	18 9						
Lamps—(Street, Door, or Hall).....	3	29 5	84 10	{ Loose dble. rate in cases 4	58 0	175 0	2	41 8	112 6	Cases 1	14 6	38 11						
Laths	A	5 4	13 6	2	21 0	62 6	Timber	8 4	25 0	Loose 3	27 0	75 9						
Lead (Pig)	} 2	} 21 7	} 61 2	{ M	13 6	38 6	Special	20 10	50 0	Pig or sheet 1	14 6	38 11						
Do. (Sheet)													{ 3	25 0	75 0	1	29 2	75 0	Piping 3	27 0	75 9
Leather (in bales or secured bundles)	(To Sydney and Newcastle only) 1	17 8	49 4	{ Fancy 4	29 0	87 6	2	41 8	112 6	In bales 1	14 6	38 11						
Do. (except patent and morocco)	2	21 7	61 2	{ Miscellaneous	13 6	38 6	2	41 8	112 6	Not mentioned.								

Lime (4 tons and over)	A	5 4	13 6	{ A For manure, ag.	7 6 5 6	17 8 15 0	Excep.	8 4	23 4	A	8 4	17 9
Limestone	Mis.	4 10	12 6	Not	named.		Excep.	8 4	23 4	Special B	10 5	30 9
Lithofracteur	Except	50 0	150 0	4	29 0	87 6	Gunpowder	45 10	125 0	Double 3	54 0	151 6
Lucerne Seeds	1	17 8	49 4	2	21 0	62 6	Agric. 1	10 10	27 6	Not mentioned	14 6	38 11
Machinery (of all kinds)	3	29 5	84 10	heavy 2	21 0	62 6	3 cwt. and over 1	29 2	75 0	{ 1, not Agric. 2, light or fragile }	20 9	57 4
Malt (in bags and tanks)	1	17 8	49 4	B	9 6	22 9	1	29 2	75 0	Special B	10 5	30 9
Mangold Wurzel	A	5 4	13 6	Agric.	5 6	15 0	Agric. 2	10 10	27 6	A	8 4	17 9
Manure (loose)	Mis.	4 10	12 6	Agric.	5 6	15 0	Excep.	8 4	23 4	Excep.	6 3	18 9
Do. (artificial)	A	5 4	13 6	Agric.	5 6	15 0	Excep.	8 4	23 4	Excep.	6 3	18 9
Marble (undressed)	Mis.	4 10	12 6	2	21 0	62 6	Special	20 10	50 0	Cases 2	20 9	57 4
Meal	A	5 4	13 6	Oat, A	7 6	17 8	Agric. 2	10 10	27 6	A	8 4	17 9
Measurement Goods, except otherwise mentioned, 140 cub. feet to ton	3	29 5	84 10	Not	named.		Not	named.		Not	named.	
Millinery	4	38 3	109 6	4	29 0	87 6	2	41 8	112 6	4	39 6	112 8
Muriate of Lime	1	17 8	49 4	Not	named.		2	41 8	112 6	1	14 6	38 11
Musical Instruments	4	38 3	109 6	4	29 0	87 6	2	41 8	112 6	4	39 6	112 8
Naphtha	4	38 3	109 6	4	29 0	87 6	Gunpowder dbl. rate	91 8	250 0	Not	named.	
Offal	Mis.	4 10	12 6	Not	named.		Excep.	8 4	23 4	Excep.	6 3	18 9
Oil-cake	B	8 10	24 8	M	13 6	38 6	2	41 8	112 6	1	14 6	38 11
Opium	4	38 3	109 6	Double rate 4	58 0	175 0	2	41 8	112 6	4	39 6	112 8
Ores (crude)	Mis.	4 10	12 6	B	9 6	23 9	Excep.	8 4	23 4	Excep.	9 0	18 4
Paintings and Engravings	4	38 3	109 6	{ loose Double rate in cases 4 Not mentioned.	58 0 29 0	175 0 87 6	2	41 8	112 6	4	39 6	112 8
Palings (undressed)	A	5 4	13 6	2	21 0	62 6	Timber	8 4	25 0	1	14 6	38 11
Paper and paper bags (in large quantities) Do. (under 1 ton)	B 2	8 10	24 8	4	29 0	87 6	2	41 8	112 6	{ Bales 2 Bags 3	20 9 27 0	57 4 75 9
Papier Mâché Goods	3	29 5	84 10	4	29 0	87 6	2	41 8	112 6	4	39 6	112 8
Perambulators	4	38 3	109 6	4	29 0	87 6	2	41 8	112 6	4	39 6	112 8
Perfumery	3	29 5	84 10	4	29 0	87 6	2	41 8	112 6	4	39 6	112 8
Picture-frames	4	38 3	109 6	double rate 4	58 0	175 0	2	41 8	112 6	Double rate 4	79 0	225 4
Pier Glasses and Mirrors	4	38 3	109 6	{ 3 4	25 0 38 0	75 0 cases 75 0 loose	2	41 8	112 6	4	39 6	112 8
Pipes (Iron)	2	21 7	61 2	1	16 6	50 0	2	41 8	112 6	1	14 6	38 11
Pitch	1	17 8	49 4	M	13 6	38 6	2	41 8	112 6	1	14 6	38 11
Plants (in pots and cases)	3	29 5	84 10	3	25 0	75 0	1	29 2	75 0	4	39 6	112 8
Plate-glass (in cases)	4	38 3	109 6	4	29 0	87 6	2	41 8	112 6	{ Window 3 Plate 4	27 0 39 6	75 9 112 8
Plated Goods	3	29 5	84 10	4	29 0	87 6	2	41 8	112 6	4	39 6	112 8
Pollard	A	5 4	13 6	Agric.	5 6	15 0	Agric. 2	10 10	27 6	A	8 4	17 9
Portable Engines	3	29 5	84 10	Not mentioned.			1	29 2	75 0	2	20 9	57 4
Posts and Rails (undressed)	A	5 4	13 6	Firewood	4 2	11 3	Timber	8 4	25 0	Special	10 5	30 9
Potatoes	A	5 4	13 6	Agric.	5 6	15 0	Agric. 2	10 10	27 6	A	8 4	17 9

Articles of Traffic.	New South Wales.			Victoria.			Queensland.			South Australia.		
	Class.	50 miles.	150 miles.	Class.	50 miles.	150 miles.	Class.	50 miles.	150 miles.	Class.	50 miles.	150 miles.
Poultry (living) in crates	1	s. d. 17 8	s. d. 49 4	4	s. d. 29 0	s. d. 87 6	1	s. d. 29 2	s. d. 75 0	4	s. d. 39 6	s. d. 112 8
Do (in flocks) per truck	Excep.	25 0	66 8	4	29 0	87 6	Not named.					
Preserved Meat.....	(To Sydney and Newcastle) A	5 4	13 6	Miscellaneous	13 6	38 6	2	41 8	112 6	1	14 6	38 11
Quicksilver	1	17 8	49 4	3	25 0	75 0	2	41 8	112 6	3	27 0	75 9
Rags and Materials for making Paper (not chemical)	A	5 4	13 6	{ Rags—Miscel. Rope—A	13 6 7 6	38 6 17 8	Excep.	8 4	23 4	1	14 6	38 11
Railway Materials	1	17 8	49 4	Miscellaneous	13 6	38 6	Excep.	8 4	23 4	1	14 6	38 11
Regulus (with more than 33 per cent. of copper) Do. (with not more than 33 per cent. of copper)	A Miscellaneous	5 4 4 10	13 6 12 6	{ B	9 6	23 9	Excep.	8 4	23 4	Excep.	9 0	18 4
Resin	1	17 8	49 4	1	16 6	50 0	2	41 8	112 6	1	14 6	38 11
Road Metal	Miscellaneous	4 10	12 6	A	7 6	17 8	Excep.	8 4	23 4	Excep.	6 3	18 9
Salt—Rock and Calcutta—Lick Blocks.....	B	8 10	24 8	B	9 6	23 9	Special	20 10	50 0	A	8 4	17 9
Do. Dairy and Meat-curing	B	8 10	24 8	B	9 6	23 9	Special	20 10	50 0	A	8 4	17 9
Sand	Miscellaneous	4 10	12 6	Per truck	4 2	11 3	Excep.	8 4	23 4	Excep.	6 3	18 9
Sawdust.....	A	5 4	13 6	{ Miscellaneous In trucks	13 6 4 2	38 6 11 3	Excep.	8 4	23 4			Not mentioned
Scientific Instruments	4	38 3	109 6	4	29 0	87 6	2	41 8	112 6	4	39 6	112 8
Seed—Grass	1	17 8	49 4	2	21 0	62 6	Agric. 1	10 10	27 6	{ Flower 4	20 9 39 6	57 4 112 8
Sewing-machines (unpacked at owner's risk) Do. (packed)	3 3	29 5	84 10	{ 4 3	29 0 25 0	87 6 loose 75 0 boxed	1	29 2	75 0	Packed 3	27 0	75 9
Shale—Kerosene	Miscellaneous	4 10	12 6	A	7 6	17 8	Excep.	8 4	23 4			Not named.
Sheepskins	B	8 10	24 8	Miscellaneous	13 6	38 6	{ (Tied) Special (Loose) 1	20 10 29 2	50 0 75 0	A 1	8 4 14 6	17 9 38 11
Shingles.....	A	5 4	13 6	Firewood	4 2	11 3	Timber	8 4	25 0	{ (Loose) 1 (Bundles) A	14 6 8 4	38 11 17 9
Silk Goods.....	3	29 5	84 10	2	21 0	62 6	2	41 8	112 6	4	39 6	112 8
Slate Slabs for Billiard Tables	4	38 3	109 6	2	21 0	62 6	2	41 8	112 6	3	27 0	75 9
Slates	A	5 4	13 6	B	9 6	23 9	Excep.	8 4	23 4	Special B	10 5	30 9
Sleepers (Railway)	{ A plus 25 % }	6 8	16 11	Firewood	4 2	11 3	Timber	8 4	25 0	1	14 6	38 11
Soap (except scented and fancy).....	1	17 8	49 4	M	13 6	38 6	1	29 2	75 0	{ Fancy 1 4	14 6 39 6	38 11 112 8
Soda (Crystals).....	B	8 10	24 8	1	16 6	50 0	1	29 2	75 0	1	14 6	38 11
Do. (Caustic)	B	8 10	24 8	1	16 6	50 0	2	41 8	112 6	2	20 9	57 4

Spokes and Shafts (undressed)	A	5 4	13 6	Firewood	4 2	11 3	Timber	8 4	25 0	1	14 6	38 11	
Stone (cut for building or grindstones)	Mis.	4 10	12 6	Building 2	21 0	62 6	{ Excep. 2	8 4	23 4	1	14 6	38 11	
Do. (carved, and gravestones)	2	21 7	61 2	2	21 0	62 6	{	41 8	112 6	Special B	10 5	30 9	
Do. (finished)				4	29 0	87 6							
Do. (undressed)	Mis.	4 10	12 6	Not mentioned	.....	.....	Excep.	8 4	23 4	Excep. 1½d. per ton per mile not less than 5-ton truck loads.	6 3	18 9
Stocks (undressed)	A	5 4	13 6	Firewood	4 2	11 3	Timber	8 4	25 0	1	14 6	38 11	
Straw	See page			Per truck	30 0	65 5	Agricultural 2	10 10	27 6	Special	10 5	30 9	
Sugar	*2	21 7	61 2	2	21 0	62 6	{ Imported 1 Colonial excep.	8 4	23 4	1	14 6	38 11	
													2	41 8	112 6	Loaf, loose 4	39 6	112 8
Sulphuric Acid	1	17 8	49 4	4	29 0	87 6	Special	20 10	50 0	4	39 6	112 8	
Tallow	B	8 10	24 8	Miscellaneous	13 6	38 6	Special	20 10	50 0	1	14 6	38 11	
Tar	1	17 8	49 4	Mis.	13 6	38 6	1	29 2	75 0	1	14 6	38 11	
Terra-cotta	A	5 4	13 6	Not mentioned	.....	.....	2	41 8	112 6	Not mentioned.		
Threshing Machines	3	29 5	84 10	2	21 0	62 6	1	29 2	75 0	2	20 9	57 4	
Tiles—Earthenware	A	5 4	13 6	Mis.	13 6	38 6	Excep.	8 4	23 4	Special B	10 5	30 9	
Do. Tessellated and Ornamental.....	B	8 10	24 8	3	.....	.....	Excep.	8 4	23 4	2	20 9	57 4
Timber {	Board, not exceeding 2 inches in thick- ness and 14 feet in length.	A + 50 %	8 0	20 3	.....	25 0	75 0	.....	.....	1	14 6	38 11
	Board exceeding 2 inches in thickness and 14 feet in length.	A + 66½%	8 11	22 6	.....	.....	.....	.....	.....	1	14 6	38 11
	Hardwood in logs, 30 c. ft. to ton .....				.....	.....	.....	.....	.....	1	14 6	38 11
	Other than Hardwood, 40 do.	A	5 4	13 6	Timber (sawn)	6d. per	truck per mile.	Timber	8 4	25 0	1	14 6	38 11
	Undressed	Timber	8 4	25 0	1	14 6	38 11
Sawn, over 2 inches in thickness and not exceeding 14 feet in length.	A + 25 %	6 8	16 11	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sawn, over 2 inches in thickness and exceeding 14 feet in length.	A + % 33½	7 2	18 0	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tin (smelted)	B	8 10	24 8	2	21 0	62 6	Special	20 10	50 0	1	14 6	38 11	
Tin Plates	2	21 7	61 2	2	21 0	62 6	Special	20 10	50 0	1	14 6	38 11	
Tin Ore.....	B	8 10	24 8	B	9 6	23 9	Exceptional	8 4	25 0	Excep.	9 0	18 4	
Tobacco—Colonial leaf	A	5 4	13 6	A	7 6	17 8	Agricultural 1	10 10	27 6	1	14 6	38 11	
Toys, in cases	3	29 5	84 10	4	29 0	87 6	2	41 8	112 6	3	27 0	75 9	
Tricycles	4	38 3	109 6	double rate 4	58 0	175 0	2	41 8	112 6	4	39 6	112 8	
Turnips	A	5 4	13 6	Agr.	5 6	15 0	Agricultural 2	10 10	27 6	A	8 4	17 9	
Velocipedes	4	38 3	109 6	double rate 4	58 0	175 0	2	41 8	112 6	4	39 6	112 8	
Whiting.....	B	8 10	24 8	1	16 6	50 0	Special	20 10	50 0	1	14 6	38 11	
Wire Netting	3	29 5	84 10	Not mentioned	.....	.....	Special	20 10	50 0	1 two-ton lots	14 6	38 11
Woolpacks.....	B	8 10	24 8	1	16 6	50 0	1	29 2	75 0	1	14 6	38 11	
Wool.....	See page 150.			See page 190.			See page 190.			See page 190.			
Zinc	2 +3	21 7 29 5	61 2 84 10	2	21 0	62 6	1	29 2	75 0	1	14 6	38 11	

* When carried in truck loads not exceeding six tons, 2s. per truck per mile subject to the following discount:—10% on every mile from 100 to 150; 20% on every mile from 150 to 200; 40% on every mile exceeding 200. Minimum 42s. per truck.
† For all articles not enumerated above. A terminal charge of 1s. per ton is included in Special and Miscellaneous Rates.

NEW SOUTH WALES.				VICTORIA.		QUEENSLAND.		SOUTH AUSTRALIA.	
Wool.				Wool.		Wool.		Wool.	
				Rates per bale, not over 4 cwt.		Per ton.		Per bale not over 4 cwt.	
<i>Southern Line</i> :—				20 miles and under..... 1s.		From Roma to Brisbane, 317 miles..... 92/4		Any distance not exceeding 15 miles..... 1 0	
From Campbelltown to Sydney, 34 miles.....				26 " " 1s. 3d.		From Miles to Brisbane, 230 miles..... 76/-		*Over 15 miles, and not exceeding 65, every 10 miles, or part of 10 miles..... 0 6	
" Albury " 386 "				35 " " 1s. 8d.		From Ipswich to Brisbane, 224 miles..... 9/7		*Over 65 miles, for every 10 miles, or part of 10 miles..... 0 4	
" Hay " 454 "				45 " " 2s.		Dumped wool will be allowed a rebate of 10 % on ordinary rates.		Each bale over 4 cwt. will be charged 25 per cent. per bale additional upon the rate for a 4-cwt. bale upon every cwt. or portion of a cwt. in excess.	
<i>Western Line</i> :—				* Over 45 and up to 60 miles 4d.				An allowance will be made upon wool dumped or otherwise reduced to 18 cubic feet of 6d. per bale if carried more than 50 miles by rail, and 9d. per bale if carried more than 100 miles.	
From Richmond to Sydney, 38 miles				" 60 " 100 " 3d.				An allowance of 6d. per bale will be made on bales weighing not more than 300lb. if carried more than 50 miles by rail; but this allowance will in no case be made at the same time as that mentioned above.	
" Bourke to " 503 "				" 100 " 160 " 2d.				The following exceptional rates are in force, subject to the foregoing conditions :—	
<i>Northern Line</i> :—				" 160 " 1d.				Adelaide and Port—7d. per bale.	
From Tenterfield to Newcastle				* Per bale for every 5 miles or part of miles cumulative in each instance on preceding rate. An allowance of 15 % is made on above rates for all wool properly dumped.				Goolwa and Victor Harbor—9d. per bale.	
From Maitland to Newcastle, 20 miles								Morgan to Adelaide or Port Adelaide—4s. 6d. per bale, and a drawback of 6d. per bale to a consignee of 2,000 bales or over of riverborne wool in one season.	
" Narrabri to Morpeth, 238 miles								All wool is carried at owners' risk as to condition and will be signed for accordingly.	
To Newcastle, 252 miles								* In each case cumulative on the preceding rate.	
TO AND FROM WOOLWASHING ESTABLISHMENTS.									
				GREASY : TO WASHING ESTABLISHMENTS.		SCoured : FROM WASHING ESTABLISHMENTS.			
To and from Sydney and Newcastle :—				s. d.		s. d.			
Not over 15 miles				4 5 per ton.		8 0 per ton.			
Over 15 but not over 22 " ..				5 9 "		10 0 "			
" 22 " 26 " ..				7 0 "		12 0 "			
Live Stock.				Live Stock.		Live Stock.		Live Stock.	
<i>Herd, Flocks, &c., when in consignments of not less than one full Truck load.</i>				<i>CATTLE.</i>		<i>CATTLE.</i>		<i>CATTLE.</i>	
CATTLE.				Pigs or Cattle (in Goods Truck) :—		Six-wheeled Trucks.		SHEEP.	
Per Truck.				Per Truck.		Per Truck.		Per large van.	
100 miles £3 6 8				100 miles £3 15 9		Roma, 317 miles 216/6		100 miles..... s. d.	
200 " 6 3 4				150 " 4 8 0		Stanthorpe, 206 miles 167/-		200 " 91 8	
300 " 7 16 8				200 " 5 16 8		Toowoomba, 100 miles 89/-		300 " 220 2	
400 " 9 10 0				300 " 8 15 0				Min.....10s.	
1 to 140 miles, -/8 per truck per mile.				Single cattle the same as horses, and one or more bulls same rate as a truck-load of cattle, or as entire horses, if sent in horse-boxes, but no terminal for single animals.		HORSES.		SHEEP.	
140 " 200 " -/6 " "				Over three goats or pigs and up to ten, not exceeding 100lb. each, half-truck; and over ten, or over 100lb. each, full truck rates; goats and calves at cattle rates.		Six-wheeled Trucks.		Per head.	
Over 200 " -/4 " "				Single pigs, sheep, calves, or goats in crates or cases, by goods trains, fourth class goods' rates; minimum as for 2½ cwt. per package.		Roma, 317 miles 31/11		200 " 21/5	
Minimum 15/- per truck.				SHEEP.		Stanthorpe, 206 miles 21/5		300 " 220 2	
						Toowoomba, 100 miles 13/3			
HORSES.						SHEEP.		CATTLE.	
The Commissioner will carry horses in cattle trucks if requested to do so, but only under special contract, relieving him of all responsibility. The charge for horses so carried will be the same as for cattle in full truck loads.									
SHEEP.									
Per Truck.				Per Truck.		Per Truck.		Per Truck.	
100 miles £3 3 4				100 miles £3 15 9		100 miles 84/-		100 miles..... 74 9	
200 " 4 18 9				150 " 4 8 0		200 " 132/-		200 " 142 11	
300 " 6 7 11				200 " 5 16 8		300 " 170/6		300 " 192 10	
400 " 7 17 1				300 " 8 15 0				Min..... 6s.	
1 to 80 miles, -/8 per truck per mile.									
80 " 100 " -/6 " "									
100 " 150 " -/4½ " "									
150 " 200 " -/4 " "									
Every additional mile, -/3½.									
Minimum 15/- per truck.									
Single-decked trucks two-thirds above rates.									

PIGS.

Same rates per truck as cattle. Minimum, 15s.

Under the foregoing rates for cattle, sheep, horses, and pigs, no less charge than for one full truck will be made for each and every truck used.

SMALL CONSIGNMENTS.

$\frac{3}{4}$ Truck, i.e., 4 Cows or Oxen, or 10 Calves, or 1 deck of Sheep, or 30 Pigs.	$\frac{1}{2}$ Truck, i.e., 2 Cows or Oxen, or 5 Calves, or 20 Sheep, or 15 Pigs.	Single Cow or Ox.	Sheep or Pigs, when less than $\frac{1}{4}$ Truck.	Calves when less than $\frac{1}{4}$ Truck.
6d. per mile	4d. per mile	3d. per mile.	$\frac{1}{2}$ d. each per mile.	1d. each per mile.
Minimum, 10s.....	Minimum, 7s. 6d.....	Min., 7s. 6d. each.	Min., 1s. 6d. each.	Min., 2s. each.

Bulls.

The charge for bulls is 7d. per mile up to 100 miles, over 100 miles 4d. per mile. Minimum, 12s. 6d.

Valuable Rams and Ewes.

If less than half a truck-load, will be charged 2d. each per mile; for half a truck and upwards, sheep rates. Minimum, 5s.

When live stock is returned from Sydney or Homebush to Country Stations in those neighbourhoods to which cattle trucks and sheep vans are being sent empty, half the foregoing rates will be charged, provided the owners wait the requirements of the Department, but not otherwise.

Rates for Fresh Meat in van loads.

To be loaded and unloaded by Owners.

In the case of beef, the van-load will be limited to 12 carcasses, but this number may be increased provided that a van-load shall not be held to consist of a greater total weight than 4 tons. Where a consignment of beef does not amount to 4 tons, senders will be allowed to make up the van-load with carcasses of mutton, pork, or veal. Any weight above 4 tons, whether the number of carcasses be more or less than 12, will be charged for at the rate of $\frac{3}{4}$ d. per cwt. per mile.

Distance.	Beef, Pork, or Veal.	Mutton.	Distance.	Beef, Pork, or Veal.	Mutton.
15 miles and under ...	s. d. 10 0	s. d. 10 0	85 miles and under...	s. d. 56 8	s. d. 42 6
25 " " " ...	16 8	12 6	95 " " " ...	63 4	47 6
30 " " " ...	20 0	15 0	105 " " " ...	66 2	49 7
35 " " " ...	23 4	17 6	115 " " " ...	69 0	51 9
45 " " " ...	30 0	22 6	125 " " " ...	75 0	56 3
55 " " " ...	36 8	27 6	135 " " " ...	81 0	60 9
65 " " " ...	43 4	32 6	150 " " " ...	90 0	67 6
75 " " " ...	50 0	37 6	Every mile over 150...	0 6	0 5

Smaller quantities properly packed charged actual weight at 3rd class rates. Minimum charge for use of van, 10s.

Goods Trucks.

100 miles	£2 10 6
150 "	3 2 9
200 "	4 3 4
300 "	6 5 0

In the event of the Commissioner not being able to supply sheep trucks they do not undertake to provide goods trucks for carriage of sheep.

Every sheep or lamb, up to 3, carried any distance not exceeding 24 miles, by goods trains only

And for each mile beyond that distance.....

Over 3 and up to 10 sheep or lambs, half sheep truck rate; over 10 animals, full truck rate.

Minimum Charge:—Sheep truck, 40/-; goods truck, or half-truck, 20/-; exclusive of a terminal charge of 2/- per truck for sheep trucks, and 1/- per truck for goods trucks.

Store sheep in lots of not less than two truck loads, to be carried from Newmarket to country stations at $\frac{2}{3}$ published rates, and store cattle in lots of not less than two truck loads at $\frac{1}{2}$ published rates, full terminal, provided the trucks are required to load again from the Line to which such store cattle and sheep are consigned.

Fresh Meat.

Class 2	50 miles	150 miles
	per ton ...21/-	62/6.
Large quantities per truck...	37/6	88/-.

RATES FOR ONE PIG, OR CALF, OR SHEEP.

50 miles and under...	1/6
51 " to 100	2/-
101 " to 150	3/-
151 " to 200	3/6
201 " to 250	4/-
251 " to 276	4/6
277 " to 300	5/-
301 " to 350	5/6
351 " to 400	6/-
401 " to 450	6/6

Pigs and calves in 4-wheeled trucks -/6 per waggon per mile; minimum, 5/-

Pigs in 6-wheeled trucks -/10 per truck per mile; minimum, 5/-

Mixed consignments -/7 per truck per mile; minimum, 5/-

Fresh Meat.

Class 1.....	50 miles.	150 miles.
	29/2	75/-.

Fresh Meat.

Class 2	50 miles	150 miles
	per ton.	per ton.
	20/9.....	57/4.

Calves per head	-/2.
Goats "	-/1.
Pigs "	-/1.

NEW SOUTH WALES.	VICTORIA.	QUEENSLAND.	SOUTH AUSTRALIA.																																																																																																																																																																																																																																																																																																													
<p style="text-align: center;">Live Stock for Agricultural Shows.</p> <p>To the Show, ordinary rates; and the same from the Show, if sold. Unsold exhibits will be returned to the Stations whence they came, free of charge, on production of a certificate from the Secretary of the Agricultural Society to the effect that they are unsold. To be loaded and unloaded by owners, and when carried free the Commissioner to be relieved from all responsibility in regard to either loss or injury. Live stock conveyed to and from Agricultural Shows will be subject in all respects to the General Conditions and Regulations of the Department, except that, when carried free, it will be entirely at the owner's risk.</p> <p style="text-align: center;">Contractor's Plant.</p> <p>Waggons on wheels, 4d. per mile each; minimum charge, 5s. Locomotive engines in steam, owner's risk only, 2s. 6d. per mile each, in addition to wages of driver, fireman, and guard, and cost of fuel; minimum, £1 17s. 6d. Locomotive engines on wheels, but not in steam, first-class rates, at owner's risk only.</p> <p style="text-align: center;">Hay, Straw, and Chaff—per Truck.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2"></th> <th colspan="2">Hay.</th> <th colspan="2">Straw & Chaff.</th> <th rowspan="2"></th> <th colspan="2">Hay.</th> <th colspan="2">Straw & Chaff.</th> </tr> <tr> <th>£</th> <th>s. d.</th> <th>£</th> <th>s. d.</th> <th>£</th> <th>s. d.</th> <th>£</th> <th>s. d.</th> </tr> </thead> <tbody> <tr> <td>Not exceeding 16 miles.....</td> <td>0</td> <td>10</td> <td>0</td> <td>0</td> <td>Not exceeding 200 miles....</td> <td>2</td> <td>14</td> <td>9</td> <td>2</td> <td>8</td> <td>5</td> </tr> <tr> <td>" " 35 ".....</td> <td>0</td> <td>17</td> <td>0</td> <td>0</td> <td>" " 250 ".....</td> <td>3</td> <td>2</td> <td>10</td> <td>2</td> <td>15</td> <td>7</td> </tr> <tr> <td>" " 54 ".....</td> <td>1</td> <td>4</td> <td>0</td> <td>0</td> <td>" " 300 ".....</td> <td>3</td> <td>11</td> <td>0</td> <td>3</td> <td>2</td> <td>11</td> </tr> <tr> <td>" " 100 ".....</td> <td>1</td> <td>11</td> <td>9</td> <td>1</td> <td>" " 400 ".....</td> <td>4</td> <td>7</td> <td>3</td> <td>3</td> <td>17</td> <td>2</td> </tr> <tr> <td>" " 150 ".....</td> <td>2</td> <td>3</td> <td>11</td> <td>1</td> <td>" " 450 ".....</td> <td>4</td> <td>15</td> <td>4</td> <td>4</td> <td>4</td> <td>4</td> </tr> </tbody> </table> <p style="text-align: center;">Smaller quantities charged actual weight at first-class rates.</p> <p style="text-align: center;">Returned Empties. Freight must be prepaid.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2"></th> <th colspan="8">Not exceeding—</th> </tr> <tr> <th>50 Miles.</th> <th>100 Miles.</th> <th>200 Miles.</th> <th>300 Miles.</th> <th>400 Miles.</th> <th>500 Miles.</th> <th>600 Miles.</th> <th></th> </tr> </thead> <tbody> <tr> <td>* Bags, in bundles, or bales (minimum charge 1 cwt. per package).... per cwt.</td> <td>s. d.</td> <td>s. d.</td> <td>s. d.</td> <td>s. d.</td> <td>s. d.</td> <td>s. d.</td> <td>s. d.</td> <td>s. d.</td> </tr> <tr> <td>Baskets and coops measuring not more than 8 cubic feet..... each</td> <td>0</td> <td>3</td> <td>0</td> <td>6</td> <td>0</td> <td>9</td> <td>0</td> <td>11</td> </tr> <tr> <td>Do. do. and cases over 8 and under 15 cubic feet..... each</td> <td>0</td> <td>2</td> <td>0</td> <td>3</td> <td>0</td> <td>4</td> <td>0</td> <td>5</td> </tr> <tr> <td>Do. do. over 15 and under 25 cubic feet ..</td> <td>0</td> <td>3</td> <td>0</td> <td>6</td> <td>0</td> <td>9</td> <td>1</td> <td>0</td> </tr> <tr> <td>Do. do. over 25 cubic feet ..</td> <td>0</td> <td>6</td> <td>1</td> <td>0</td> <td>1</td> <td>6</td> <td>1</td> <td>10</td> </tr> <tr> <td>Hogsheads ..</td> <td>0</td> <td>9</td> <td>1</td> <td>6</td> <td>2</td> <td>3</td> <td>2</td> <td>9</td> </tr> <tr> <td>Pipes ..</td> <td>0</td> <td>6</td> <td>1</td> <td>0</td> <td>1</td> <td>9</td> <td>2</td> <td>3</td> </tr> <tr> <td>Quarter-casks and half-hogsheads ..</td> <td>0</td> <td>6</td> <td>1</td> <td>0</td> <td>1</td> <td>9</td> <td>2</td> <td>3</td> </tr> <tr> <td>Tierces ..</td> <td>1</td> <td>0</td> <td>2</td> <td>0</td> <td>3</td> <td>0</td> <td>3</td> <td>6</td> </tr> </tbody> </table> <p style="text-align: center;">All other returned empties as may be agreed upon. Empty cases measuring not more than 8 cubic feet will be carried free. * Empty bags must be so made up in bundles or bales as to leave all ends exposed.</p>		Hay.		Straw & Chaff.			Hay.		Straw & Chaff.		£	s. d.	£	s. d.	£	s. d.	£	s. d.	Not exceeding 16 miles.....	0	10	0	0	Not exceeding 200 miles....	2	14	9	2	8	5	" " 35 ".....	0	17	0	0	" " 250 ".....	3	2	10	2	15	7	" " 54 ".....	1	4	0	0	" " 300 ".....	3	11	0	3	2	11	" " 100 ".....	1	11	9	1	" " 400 ".....	4	7	3	3	17	2	" " 150 ".....	2	3	11	1	" " 450 ".....	4	15	4	4	4	4		Not exceeding—								50 Miles.	100 Miles.	200 Miles.	300 Miles.	400 Miles.	500 Miles.	600 Miles.		* Bags, in bundles, or bales (minimum charge 1 cwt. per package).... per cwt.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	Baskets and coops measuring not more than 8 cubic feet..... each	0	3	0	6	0	9	0	11	Do. do. and cases over 8 and under 15 cubic feet..... each	0	2	0	3	0	4	0	5	Do. do. over 15 and under 25 cubic feet ..	0	3	0	6	0	9	1	0	Do. do. over 25 cubic feet ..	0	6	1	0	1	6	1	10	Hogsheads ..	0	9	1	6	2	3	2	9	Pipes ..	0	6	1	0	1	9	2	3	Quarter-casks and half-hogsheads ..	0	6	1	0	1	9	2	3	Tierces ..	1	0	2	0	3	0	3	6	<p style="text-align: center;">Live Stock, &c., for Agricultural Shows.</p> <p>Implements to the Show, ordinary rates; and the same from the Show, if sold. Unsold exhibits will be returned free, and half of amount of the freight paid for conveyance of same to the Show refunded on production of certificate from the Secretary of the Society to the effect that they are unsold. Live stock and produce will be returned free and a refund made of one-half the freight paid to the Show if exhibits are not sold. The above regulations are only to apply if the exhibits are conveyed in cattle waggons and by goods trains, and no reduction in the ordinary rates will be made if conveyed in horse-boxes or by passenger trains. Poultry and dogs will be charged full rates both ways.</p> <p style="text-align: center;">Contractor's Plant.</p> <p>Waggons -/6 per truck per mile. Train of 10 waggons, contractor's engines and men, or haulage of engine of wheels, but not in steam, 2/6 per mile; minimum, 50/-. When Department finds engine and men, for empty trucks 5/- per mile; minimum, 50/-; for full trucks, 7/6 per mile; other plant 10/- per truck per mile; minimum, 20/-</p> <p style="text-align: center;">Hay and Straw—Loose—per Truck.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2"></th> <th rowspan="2">miles</th> <th colspan="2">Hay.</th> <th colspan="2">Straw.</th> </tr> <tr> <th>£</th> <th>s. d.</th> <th>£</th> <th>s. d.</th> </tr> </thead> <tbody> <tr> <td>Not exceeding</td> <td>20</td> <td>0</td> <td>17</td> <td>6</td> <td>0</td> <td>15</td> <td>0</td> </tr> <tr> <td>" "</td> <td>30</td> <td>1</td> <td>2</td> <td>6</td> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>" "</td> <td>50</td> <td>1</td> <td>12</td> <td>6</td> <td>1</td> <td>10</td> <td>0</td> </tr> <tr> <td>" "</td> <td>100</td> <td>2</td> <td>19</td> <td>9</td> <td>2</td> <td>11</td> <td>1</td> </tr> <tr> <td>" "</td> <td>150</td> <td>3</td> <td>16</td> <td>3</td> <td>3</td> <td>13</td> <td>9</td> </tr> <tr> <td>" "</td> <td>200</td> <td>4</td> <td>12</td> <td>11</td> <td>4</td> <td>10</td> <td>5</td> </tr> <tr> <td>" "</td> <td>250</td> <td>5</td> <td>19</td> <td>7</td> <td>5</td> <td>7</td> <td>1</td> </tr> </tbody> </table> <p>Part of a truck to be charged as a full truck.</p> <p style="text-align: center;">Returned Empties.*</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2"></th> <th colspan="2">50 miles.</th> <th colspan="2">150 miles.</th> </tr> <tr> <th>each.....</th> <th>2/-</th> <th>4/-</th> <th></th> </tr> </thead> <tbody> <tr> <td>Crates }</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Pipes }</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Tallow puncheons.....</td> <td>1/-</td> <td></td> <td>2/-</td> <td></td> </tr> <tr> <td>Hogsheads.....</td> <td>-/9</td> <td></td> <td>1/6</td> <td></td> </tr> <tr> <td>Butter and egg boxes ..</td> <td>-/3</td> <td></td> <td>-/3</td> <td></td> </tr> <tr> <td>Quarter-casks & barrels... </td> <td>-/6</td> <td></td> <td>1/-</td> <td></td> </tr> <tr> <td>Kegs, tub, and demijohns</td> <td>-/6</td> <td></td> <td>-/9</td> <td></td> </tr> </tbody> </table> <p style="text-align: center;">Minimum, -/6d.</p> <p>Cases, drums, cans, carboys, crates (in pieces, tied), butter boxes, and fowl coops, miscell. rate, 50 miles, 13/6 per ton; 150 miles, 38/6 per ton: min. -/6.</p> <p>Fruit cases, special, 50 miles, 7/6 per ton; 150 miles, 17/-8 per ton; min., -/6.</p> <p>Returned empty bags, agricultural produce rate; min. -/6.</p> <p>* Second class rates when less than this rate.</p>		miles	Hay.		Straw.		£	s. d.	£	s. d.	Not exceeding	20	0	17	6	0	15	0	" "	30	1	2	6	1	0	0	" "	50	1	12	6	1	10	0	" "	100	2	19	9	2	11	1	" "	150	3	16	3	3	13	9	" "	200	4	12	11	4	10	5	" "	250	5	19	7	5	7	1		50 miles.		150 miles.		each.....	2/-	4/-		Crates }					Pipes }					Tallow puncheons.....	1/-		2/-		Hogsheads.....	-/9		1/6		Butter and egg boxes ..	-/3		-/3		Quarter-casks & barrels...	-/6		1/-		Kegs, tub, and demijohns	-/6		-/9		<p style="text-align: center;">Live Stock, &c., for Agricultural Shows.</p> <p>Not named.</p> <p style="text-align: center;">Contractor's Plant.</p> <p>Not named.</p> <p style="text-align: center;">Hay and Straw—Loose.</p> <p>To Brisbane only— Warwick—166 miles, 18/2 per ton. Toowoomba 100 " 13/9 " Hay, straw and chaff, pressed (generally.) Agriculture 2—50 miles 10/10 per ton. 150 " 27/-6 "</p> <p style="text-align: center;">Returned Empties.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>50 miles.</th> <th>175 miles.</th> </tr> </thead> <tbody> <tr> <td>Pipes and tierces and large cases</td> <td>1/-</td> <td>2/-</td> </tr> <tr> <td>Hogsheads, half hogsheads, barrels, quarter-casks, ale and porter cases (4 doz.), and ice cases</td> <td>-/6</td> <td>1/-</td> </tr> <tr> <td>Kilderkins, ferkins, kegs, and small cases, 100 m.</td> <td>-/3</td> <td>-/6</td> </tr> <tr> <td>Bundles of grain bags and coal sacks (not more than 2 cwt. each)</td> <td>1/-</td> <td>2/-</td> </tr> </tbody> </table>		50 miles.	175 miles.	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Horses.

IN BOXES.—Full horse-box (3 horses, one owner), 1s. per mile; minimum charge, 15s.; one horse, 6d. per mile; two horses, 9d. per mile; minimum charge, 7s. 6d. each; stud horses, 1s. per mile each; two horses, one owner, 10d. per mile; one horse, 8d. per mile; minimum charge, 15s. Mares, with foal at foot, rate and a half.

A reduction of 20 per cent. on the above charges will be made on every mile beyond 150 and up to 200, and over 200 miles, 33½ per cent. per mile will be allowed.

FOR AGRICULTURAL SHOWS.

To the Show, ordinary rates, and the same from the Show if sold. Unsold exhibits returned free.

FOR RACE MEETINGS.

To the Races, ordinary rates, and the same from the Races if sold. If unsold they will be returned free of charge.

HUNTING HORSES AND DOGS.

Horses going to the Chase, single fare for the double journey. Dogs, ½d. per mile each to 50 miles, and 4d. additional for every 30 miles or part of 30 miles thereafter; minimum charge, 6d.

Carriages.

Carriages, gigs, and dog-carts, 6d. per mile, each; two vehicles, one owner, if on one truck, 9d. per mile; 4-wheeled waggons and bullock drays (empty), 8d. per mile; minimum charge, 7s. 6d.

A reduction of 20 per cent. on the above charges will be made for every mile beyond 150 and up to 200; and over 200 miles, 33½ per cent. per mile will be allowed.

Dogs.

50 miles, 2/1; 150 miles, 3/5.

Gold Dust and Bullion, and Gold and Silver Coin.

The Commissioner for Railways will not be responsible for the safe conveyance of gold dust and bullion, or gold and silver coin, &c., as the following charges are made, and the gold dust and bullion and coin carried, on condition of its being in charge of owners and at their risk.

	Distance not over 55 miles.	Distance not over 100 miles.	Distance not over 150 miles.	Distance not over 200 miles.	Distance not over 250 miles.	Distance not over 350 miles.	Distance not over 500 miles.
Gold dust and bullion, £ 100 ozs.	2/-	3/6	4/3	5/-	5/6	6/-	6/6
Gold coin, £ 100	.. -/6	.. -/10	.. 1/3	.. 1/8	.. 2/-	.. 2/3	.. 2/6
Silver coin, £ 100	.. 1/-	.. 1/9	.. 2/6	.. 3/3	.. 3/6	.. 3/3	.. 4/-

Fractions over 100 and under 50 will not be charged, but fractions of 50 and over will be charged as 100.

Milk.

In quantities of not less than 300 gallons, less than 300 gallons double rates.

15 miles and under	½d. per gallon.
40 " "	¾d. "
90 " "	1d. "
Beyond 90 miles	1d. "
Empty cases returned free.	

Horses.

Each mare, gelding, or filly, or entire under 2 years, 6d. per mile; min. 20/- each. Each entire horse, 2 years or over, 1/- per mile; minimum 20/- " Horse-box (three horses), 1/3 per mile; minimum 40/-

In goods trucks and by goods trains on either up or down journey, cattle rates. By passenger trains, 1/6 per truck per mile.

Carriages.

Carriages, gigs, dog-carts, and vehicles, of a similar description will be charged for at the rate of -/6 per mile, subject however that the sum of 20/- shall be the minimum charge in any case. Two vehicles, one owner on same truck, if owner accepts all risks, -/9; three vehicles, 1/- per truck per mile, minimum 20/-; vehicles for repair, return tickets will be issued at 50 per cent. addition on above rates.

Dogs.

50 miles, 2/1; 150 miles, 6/3; minimum charge, -/6.

Milk.

Misc. 50 miles. 150 miles.
13/6 ... 38/6

Horses—in Boxes.

	One horse	Two or more horses each.
100 miles	33/6	25/-
200 miles	58/6	42/-
300 miles	75/-	50/-
Minimum charges, 5s.		

Entire Horses.

	One horse	Two or more each.
100 miles	50/-	42/-
200 miles	92/-	75/-
300 miles	125/-	100/-

Carriages.

100 miles	41/6 each.
200 miles	75/- "
300 miles	100/- "
Minimum charge, 10s. each.	

Dogs.

Dogs, 50 miles, 2/-; 150 miles, 3/-; minimum, -/6 each.

Gold and Gold Dust, and Gold and Silver Coin.

	50 miles.	150 miles.
Gold & gold dust, £ 100 ozs.	8/-	11/-
Gold coin, £ 100	2/6	5/6
Silver coin, £ 100	4/6	8/-

Milk.

In Cans of not less than 6 gallons.
25 miles and under -/1 per gallon.
Over 25 miles -/1½ " "
Cans returned free.

Horses—in Boxes.

	Per mile.	Min. charge.
For one entire horse ...	9d.	15s.
For one mare, gelding, or filly, or entire, under 2 years of age	6d.	
For two do do (broad gauge only)	10d.	

For hire of a horse-box 1s.* 20s. Mares with foal not exceeding 6 months old at foot, rate and a half.

NOTE.—Trucks for the conveyance of unshod horses may be hired at the same rate as charged for cattle, and for shod horses at 1s. per mile with a minimum of 20s.

* On narrow-gauge lines, 10d.

Carriages.

Gigs, dog-carts, and light drays (empty) weighing not more than 10 cwt., -/3, per mile; minimum charge, 3/-.
Carriages, and waggons, and drays weighing not more than 25 cwt. (empty), -/4 per mile; minimum charge, 4/-.
Ditto, ditto, over 25 cwt. (empty), -/6 per mile; minimum charge, 6/-.

Dogs.

50 miles, 2/-; 150 miles, 3/-.

Milk.

Not mentioned.

No. 54—continued.

SOUTH AUSTRALIA.												
Parcels under £10 value.												
Any distance not exceeding 100 miles.	Weight not exceeding					For each additional 14 lb. thereof	s	d	s	d	s	d
	7 lb.	14 lb.	28 lb.	56 lb.	112 lb.							
10	s	d	s	d	s	d	s	d	s	d	s	d
20	0	6	0	6	0	6	0	6	0	6	0	6
40	0	6	0	6	0	6	0	6	0	6	0	6
60	0	6	0	6	0	6	0	6	0	6	0	6
80	0	6	0	6	0	6	0	6	0	6	0	6
100	0	6	0	6	0	6	0	6	0	6	0	6
140	0	6	0	6	0	6	0	6	0	6	0	6
180	0	6	0	6	0	6	0	6	0	6	0	6
220	0	6	0	6	0	6	0	6	0	6	0	6
260	0	6	0	6	0	6	0	6	0	6	0	6
300	0	6	0	6	0	6	0	6	0	6	0	6
For each additional 14 lb. or part thereof 0 1 0 2 0 4 0 6 0 8 0 10 0 12 0 14 0 16 0 18 0 20 0 22 0 24 0 26 0 28 0 30 0 32 0 34 0 36 0 38 0 40 0 42 0 44 0 46 0 48 0 50 0 52 0 54 0 56 0 58 0 60 0 62 0 64 0 66 0 68 0 70 0 72 0 74 0 76 0 78 0 80 0 82 0 84 0 86 0 88 0 90 0 92 0 94 0 96 0 98 0 100												
Double rates charged on furniture, musical instruments, and fragile articles and larger packages weighing less than 10 lb to each cubic foot												

QUEENSLAND.						
Stamped Parcels Rates.						
Miles	3 lb and under	7 lb and under.	14 lb and under	28 lb and under	Parcels over 28 lbs in weight to be charged for each extra lb as under	
1 to 25	s	d	s	d	s	d
26 to 50	0	6	0	6	0	6
51 to 100	0	6	0	6	0	6
101 to 150	1	0	1	0	1	0
151 to 200	1	3	1	3	1	3
201 to 250	1	6	1	6	1	6
251 to 300	1	9	1	9	1	9
301 to 350	2	0	2	0	2	0
351 to 400	2	3	2	3	2	3
401 to 500	2	6	2	6	2	6

25 per cent extra to be charged if parcels are to be booked
 Opium, double rates
 Parcels over £10 value and under £50, double rate, and over £50, quadruple rate
 Although these rates are charged, and the value of parcels declared, the Commissioner will not hold himself responsible for contents
 Newspaper parcels and despatches, half rates; minimum charge, 6d.
 Hats, millinery, and bonnet boxes charged double rate
 Packed parcels, quadruple rates. Corpses, 1s per mile, minimum, 10s

Fractions of a penny in all cases to be charged as one penny

VICTORIA.												
Ordinary Parcels Rates.												
Miles	At the risk of the Owner, Stamped					At the risk of the Carrier, not stamped, and under £10 in value						
	Not over					For every 28 lbs or portion thereof, addl	Not over					For every 28 lb or portion thereof, addl
	14 lb	28 lb	56 lb	84 lb	112 lb		14 lb	28 lb	56 lb	84 lb	112 lb	
Not over 25 miles	s	d	s	d	s	d	s	d	s	d	s	d
Not over 50 miles	0	3	0	3	0	3	0	3	0	3	0	3
Not over 75 miles	0	6	0	6	0	6	0	6	0	6	0	6
Not over 101 miles	0	9	0	9	0	9	0	9	0	9	0	9
For every additional 25 miles or part thereof	0	3	0	3	0	3	0	3	0	3	0	3

Packed parcels in hampers, cases, &c., to be charged quadruple the above rates
 Penshables, including fish, fruit, butter, eggs, poultry, &c., to be charged the above rates or 4th class goods rates (except fish, carried 100 miles, 4d per ton per mile, 100 to 200, 3d, over 200 miles, 2d per ton per mile and 1d per ton terminal added)
 Bicycles, feathers, furniture, glass, hat boxes, millinery, mirrors (loose), musical instruments, or other articles light and fragile, will be charged 50 per cent additional on the above rates
 Corpses, under 40 miles, 20s each, above 40 miles, 6d per mile
 Books (Library) returned free
 Commercial travellers' samples over 1½ cwt carried at 50 per cent reduction on rates

NEW SOUTH WALES.												
Parcel Rates.												
Miles	3 lb and under	Over 3 lb to 7 lb	Over 7 lb to 14 lb	Over 14 lb to 28 lb	Over 28 lb to 56 lb	Over 56 lb to 84 lb	Over 84 lb to 112 lb	Over 112 lb to 140 lb	Over 140 lb to 168 lb	Over 168 lb to 196 lb	Over 196 lb to 224 lb	
	Distance not over—	s	d	s	d	s	d	s	d	s	d	s	d
15	0	3	0	3	0	3	0	3	0	3	0	3
30	0	6	0	6	0	6	0	6	0	6	0	6
45	0	9	0	9	0	9	0	9	0	9	0	9
60	0	9	0	9	0	9	0	9	0	9	0	9
75	0	9	0	9	0	9	0	9	0	9	0	9
90	1	0	1	0	1	0	1	0	1	0	1	0
105	1	0	1	0	1	0	1	0	1	0	1	0
120	1	0	1	0	1	0	1	0	1	0	1	0
135	1	0	1	0	1	0	1	0	1	0	1	0
150	1	0	1	0	1	0	1	0	1	0	1	0
165	1	0	1	0	1	0	1	0	1	0	1	0
180	1	0	1	0	1	0	1	0	1	0	1	0
195	1	0	1	0	1	0	1	0	1	0	1	0
210	1	0	1	0	1	0	1	0	1	0	1	0
225	1	0	1	0	1	0	1	0	1	0	1	0
240	1	0	1	0	1	0	1	0	1	0	1	0
255	1	0	1	0	1	0	1	0	1	0	1	0
270	1	0	1	0	1	0	1	0	1	0	1	0
285	1	0	1	0	1	0	1	0	1	0	1	0
300	1	0	1	0	1	0	1	0	1	0	1	0
315	1	0	1	0	1	0	1	0	1	0	1	0
330	1	0	1	0	1	0	1	0	1	0	1	0
345	1	0	1	0	1	0	1	0	1	0	1	0
360	1	0	1	0	1	0	1	0	1	0	1	0
375	1	0	1	0	1	0	1	0	1	0	1	0
390	1	0	1	0	1	0	1	0	1	0	1	0
405	1	0	1	0	1	0	1	0	1	0	1	0
420	1	0	1	0	1	0	1	0	1	0	1	0
435	1	0	1	0	1	0	1	0	1	0	1	0
450	1	0	1	0	1	0	1	0	1	0	1	0
465	1	0	1	0	1	0	1	0	1	0	1	0
480	1	0	1	0	1	0	1	0	1	0	1	0
495	1	0	1	0	1	0	1	0	1	0	1	0
510	1	0	1	0	1	0	1	0	1	0	1	0
525	1	0	1	0	1	0	1	0	1	0	1	0
540	1	0	1	0	1	0	1	0	1	0	1	0
555	1	0	1	0	1	0	1	0	1	0	1	0
570	1	0	1	0	1	0	1	0	1	0	1	0
585	1	0	1	0	1	0	1	0	1	0	1	0
600	1	0	1	0	1	0	1	0	1	0	1	0
615	1	0	1	0	1	0	1	0	1	0	1	0
630	1	0	1	0	1	0	1	0	1	0	1	0
645	1	0	1	0	1	0	1	0	1	0	1	0
660	1	0	1	0	1	0	1	0	1	0	1	0
675	1	0	1	0	1	0	1	0	1	0	1	0
690	1	0	1	0	1	0	1	0	1	0	1	0
705	1	0	1	0	1	0	1	0	1	0	1	0
720	1	0	1	0	1	0	1	0	1	0	1	0
735	1	0	1	0	1	0	1	0	1	0	1	0
750	1	0	1	0	1	0	1	0	1	0	1	0
765	1	0	1	0	1	0	1	0	1	0	1	0
780	1	0	1	0	1	0	1	0	1	0	1	0
795	1	0	1	0	1	0	1	0	1	0	1	0
810	1	0	1	0	1	0	1	0	1	0	1	0
825	1	0	1	0	1	0	1	0	1	0	1	0
840	1	0	1	0	1	0	1	0	1	0	1	0
855	1	0	1	0	1	0	1	0	1	0	1	0
870	1	0	1	0	1	0	1	0	1	0	1	0
885	1	0	1	0	1	0	1	0	1	0	1	0
900	1	0	1	0	1	0	1	0	1	0	1	0
915	1	0	1	0	1	0	1	0	1	0	1	0
930	1	0	1	0	1	0	1	0	1	0	1	0
945	1	0	1	0	1	0	1	0	1	0	1	0
960	1	0	1	0	1	0	1	0	1	0	1	0
975	1	0	1	0	1	0	1	0	1	0	1	0
990	1	0	1	0	1	0	1	0	1	0	1	0
1000	1	0	1	0	1	0	1	0	1	0	1	0

When conveyed as Passenger's luggage—
 Not exceeding 15 miles s d 3 0
 30 " " 1 6 3 6
 50 " " 2 0 4 6
 75 " " 2 6 5 0
 100 " " 3 0 5 0

When conveyed as Parcels 50 per cent additional will be charged
 100 miles s d 2 4 2 8
 200 " " 4 4 5 2
 300 " " 6 6 7 6

Books from and to recognised Circulating Libraries, one fourth parcels rates

No. 55.

RETURN of the number and nature of the ACCIDENTS, and the INJURIES to LIFE and LIMB, which have occurred on the Great Southern, Western, Northern, and Branch Lines, from 1st January to 31st December, 1886.

Date of Accident.	Line.	Passengers killed or injured.				Servants of the Department or of Contractors killed or injured.				Trespassers.		Nature or Causes of Accidents.
		Causes beyond their own control.		Their own misconduct or want of caution.		Causes beyond their own control.		Their own misconduct or want of caution.		Their own want of caution.		
		Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	
2 Jan. ...	Western ...	...	...	...	...	...	...	...	...	1	...	Run over at Westmead.
4 " ...	Suburban ...	...	...	...	...	...	...	...	...	1	...	Found dead on line between Croydon and Burwood.
4 " ...	Northern ...	...	...	...	...	...	...	...	...	...	1	Arm cut off at shoulder, at Hamilton.
15 " ...	" ...	...	...	...	...	...	...	...	...	1	...	Gate-keeper at Tamworth—leg cut off.
24 " ...	" ...	...	...	...	...	...	...	...	...	...	...	Porter at Glen Innes—head crushed.
27 " ...	" ...	...	...	...	...	...	...	1	...	...	...	Ganger—killed while asleep on line near Wingen.
28 " ...	Illawarra ...	...	...	...	...	...	...	1	...	...	...	Contractor's employé struck at Sutherland by wagon.
4 Feb. ...	Northern ...	...	...	...	...	...	...	...	...	...	1	Girl run over near Newcastle.
16 " ...	" ...	...	...	...	...	...	...	...	...	1	...	Gatekeeper's legs crushed.
17 " ...	Western ...	...	1	...	...	...	...	...	...	...	...	Thrown out of brake-van through the jerking of train, at Wentworth Falls.
25 " ...	Suburban ...	...	...	...	...	...	...	...	...	1	...	Run over at Wells-street bridge.
4 Mar. ...	Western ...	...	...	...	1	...	...	...	...	...	...	Leaving train in motion at Esk Bank.
5 " ...	Suburban ...	...	...	...	...	...	...	...	...	...	1	Knocked down by train at Burwood.
10 " ...	" ...	...	...	...	...	...	...	...	...	1	...	Porter—injured at Ashfield while performing his duties.
18 " ...	Western ...	...	...	1	...	...	...	...	...	...	...	Fell between platform and carriages at Bowenfels.
22 " ...	" ...	...	15	...	...	...	...	...	...	...	...	Injured through train running into buffers at the Zig-zag.
24 " ...	Northern ...	...	...	...	...	...	...	...	...	1	...	Porter—fell off carriage at West Maitland.
24 " ...	" ...	...	...	...	...	...	...	...	...	...	1	Child of fettle—knocked down.
29 " ...	" ...	...	...	...	...	...	...	...	1	...	...	Porter—getting on train in motion at West Maitland.
31 " ...	Western ...	...	...	...	...	...	...	...	1	...	...	Fettler—knocked down and run over by train at Rooty Hill.
31 " ...	" ...	...	...	...	...	...	...	...	...	1	...	Fireman—injured through coming into contact with water-crane at Lawson.
31 " ...	Suburban ...	...	...	...	1	...	...	...	...	...	...	Jumped off train in motion.
24 " ...	.....	...	1	...	...	...	...	...	...	...	...	Passenger's rib broken through violent jerk of train at Bowenfels.
27 " ...	Richmond ...	...	...	...	...	...	...	...	...	...	1	Fell off platform at Riverstone.
5 May ...	Suburban ...	...	...	...	...	...	...	1	...	...	...	Assistant-guard—killed at Ashfield while shunting.
8 " ...	Southern ...	...	12	...	...	...	...	...	...	...	...	Collision at Bowral.
14 " ...	Northern ...	...	...	...	...	...	...	...	...	1	...	Fettler—knocked down by passing train at Quirindi.
22 " ...	Darling Harb'r.	...	...	...	...	...	...	...	...	1	...	Shunter—run over by a truck; foot crushed.
22 " ...	Western ...	...	...	...	1	...	...	...	...	...	...	Man—fell over telegraph-wire at Huntley.
24 " ...	Illawarra ...	...	...	...	...	...	...	...	...	...	1	Woman—run over at Marrickville.
28 " ...	Suburban ...	...	...	...	...	...	...	1	...	...	...	Labourer—injured by rails falling on him at Granville.
28 " ...	Southern ...	...	...	1	...	...	...	...	...	...	...	Passenger from Gunning to Fish River; opened carriage door and climbed on to bridge; fell 40 feet and injured spine.
9 June ...	Suburban ...	...	...	...	...	...	...	...	...	1	...	Run over at Granville.
19 " ...	Western ...	...	...	...	...	...	...	...	...	1	...	Guard—hand crushed while shunting train at Seven Hills.
19 " ...	" ...	...	...	...	...	...	...	...	...	1	...	Porter—jammed between buffers at Dubbo.
24 " ...	" ...	...	...	...	1	...	...	...	...	...	...	Leaving train in motion at Byrock.
25 " ...	Northern ...	...	...	...	...	...	...	...	...	1	...	Shunter at Newcastle—fractured leg.
25 " ...	" ...	...	...	...	...	...	...	2	...	...	...	Injured through being struck by iron thrown out of passing train.
27 " ...	Suburban ...	...	...	...	...	...	...	1	...	...	...	Porter—killed at Croydon while crossing Railway line.
28 " ...	Illawarra ...	...	...	...	...	...	...	...	...	1	...	Porter—injured coupling trucks at Waterfalls.
6 July ...	Suburban ...	...	...	...	...	...	...	...	...	1	...	Porter's leg injured while shunting at Homebush.
17 " ...	Southern ...	...	...	...	1	...	...	...	...	...	...	Leaving train in motion at Canley Vale.
21 " ...	Illawarra ...	...	...	...	...	...	...	...	...	1	...	Knocked down by engine crossing the line at Kogarah.
27 " ...	Suburban ...	...	...	...	...	...	...	...	...	1	...	Killed by train at Parramatta.
31 " ...	Northern ...	...	...	...	1	...	...	...	...	...	...	Entering train in motion.
3 Sept. ...	Western ...	...	...	...	...	...	...	...	...	...	1	Found on line at Dubbo.
9 " ...	" ...	...	...	...	...	...	...	...	...	1	...	Porter—elbow crushed at Dubbo.
10 " ...	Illawarra ...	...	...	...	1	...	...	...	...	...	...	Jumping on train in motion at the National Park.
15 " ...	Southern ...	...	...	...	...	...	...	...	...	1	...	Found dead on the line at Canley Vale.
21 " ...	" ...	...	...	...	...	...	...	...	...	1	...	Porter's finger taken off at the points, Bargo.
23 " ...	Western ...	...	...	...	...	...	...	...	...	1	...	Fireman—run over while crossing the line.
25 " ...	Suburban ...	...	...	...	...	...	...	...	...	1	...	Found dead on the line at Homebush.
25 " ...	Western ...	...	...	...	...	...	...	...	...	1	...	Killed by the train at Blacktown.
5 Oct. ...	Southern ...	...	...	...	...	...	...	...	...	1	...	Cut to pieces near Young.
6 " ...	" ...	...	...	...	1	...	...	...	...	...	...	Man's arm broken by door of brake-van of passing train.

No. 55—continued.

Date of Accident.	Line.	Passengers killed or injured.				Servants of the Department or of the Contractors, killed or injured.				Trespassers.		Nature or Causes of Accidents.
		Causes beyond their own control.		Their own misconduct or want of caution.		Causes beyond their own control.		Their own misconduct or want of caution.		Their own want of caution.		
		Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	
9 Oct. ...	Northern ...	...	...	...	1	...	...	...	...	...	...	Leaving train in motion.
23 " ...	" ...	...	...	...	...	...	...	...	...	1	...	Run over at Burwood Junction, near Newcastle.
6 Nov. ...	" ...	...	...	...	...	...	...	...	...	1	...	Child of ganger run over at Victoria-street.
9 " ...	" ...	...	...	...	...	...	...	...	...	1	...	Knocked down by train at Wolfe-street, Newcastle.
16 " ...	Western ...	...	...	1	...	...	...	...	...	...	...	Woman—fell between platform and carriages at Dubbo.
19 " ...	Illawarra ...	...	...	...	...	...	1	...	...	...	...	Porter—crushed between trucks at National Park while removing firewood.
20 " ...	" ...	...	...	...	1	...	...	...	...	...	...	Man's arm broken by door of passenger train.
20 " ...	Northern ...	...	...	...	...	...	1	...	...	...	...	Porter—crushed between buffers at West Tamworth.
4 Dec. ...	Redfern ...	...	...	...	1	...	...	...	...	...	...	Fell between platform and carriage at Redfern.
6 " ...	Suburban ...	...	...	...	...	...	1	...	...	...	...	Foreman carpenter—struck by buffer of engine at Necropolis.
6 " ...	Western ...	...	...	...	...	...	...	...	1	...	...	Man knocked down by passenger train while attempting to cross line at Katoomba.
21 " ...	" ...	...	...	...	...	...	...	1	...	...	...	Porter—knocked down by engine at Blayney.
24 " ...	" ...	...	...	...	...	...	...	1	...	...	...	Truck examiner—knocked down by engine at Esk Bank.
	Total ...	...	29	3	11	...	1	12	17	15	5	

No. 56.

RETURN of the number and nature of ACCIDENTS, and the INJURIES to LIFE and LIMB, which occurred on the TRAMWAYS, during the year 1886.

Date.	Servants of the Department.		Passengers.		Other persons.		Remarks.
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	
14 January	1	.....	Man knocked off horse, and killed.
28 "	1	.....	.....	.....	.....	Flagman knocked down by runaway buggy.
1 February	1	.....	.....	.....	.....	Points-cleaner slipped off tram.
2 "	1	Man knocked down by tram.
5 "	1	.....	.....	.....	.....	Conductor knocked off tram.
5 March	1	Man thrown out of cart, which had collided with a tram.
19 "	1	.....	.....	.....	Man fell off platform of car.
27 "	1	Man thrown out of a dray that collided with tram.
3 April	2	Woman and child knocked down.
19 "	1	.....	.....	Man fell off car.
22 "	2	Tram collided with omnibus; its driver and a lady passenger injured.
24 "	1	.....	Man run over at Bent-street.
27 "	1	Man knocked down by a motor, near Market-street.
29 "	1	.....	.....	.....	.....	Conductor knocked down.
30 "	1	Man knocked down by a Botany tram.
13 May	1	.....	.....	Boy fell off car.
18 "	1	.....	Man run over near Randwick sheds.
18 "	1	Man knocked down.
27 "	1	Man knocked down.
29 "	1	Dray collided with motor; driver of dray injured on head.
6 June	1	Boy struck by motor.
11 "	1	.....	.....	.....	.....	Conductor injured by cart backing into tram.
21 "	1	.....	.....	.....	.....	Milk-cart collided with motor; fireman injured.
16 July	1	.....	.....	Policeman jumping off tram in motion.
24 "	1	.....	.....	.....	.....	Fireman injured.
25 "	1	Boy run over near Riley-street.
19 August	1	.....	.....	Man fell off tram.
29 "	1	.....	.....	Getting on tram in motion.
30 "	1	.....	.....	Man fell off tram.
6 September	1	.....	.....	.....	Boy fell or jumped from tram.
11 "	1	Tram collided with cart; driver thrown out; face and arm injured.
15 "	1	.....	Man knocked down by motor.
20 "	1	.....	.....	Man fell off a Botany tram in motion.
23 "	1	.....	.....	.....	.....	Conductor knocked off tram by a passing van.
25 "	1	Child knocked down by a motor.
14 October	1	Man struck by a motor.
1 November.	1	.....	.....	.....	Man struck by a motor.
8 "	1	.....	.....	.....	.....	Car-cleaner's foot crushed.
29 "	1	.....	.....	Knocked down by a tram.
Total	9	3	8	4	17	

No. 57.

RETURN of the Number of Passengers, Tonnage of Goods, Earnings and Working Expenses Total and per Train Mile, percentage of Working Expenses to Gross Earnings, net Earnings, Capital Invested on Lines Open, and Interest on Capital each Year, from 1855 to 1886, inclusive.

Year.	Length of Line. 31 December.	Number of Passengers.	Tonnage of Goods.	Earnings from Coaching Traffic.	Earnings from Goods traffic.	Total Earnings.	Working Expenses.	Earnings per Train Mile.	Working Expenses per Train Mile.	Percentage of Working Expenses to Gross Earnings.	Net Earnings.	Capital expended on Lines open.	Interest on Capital.
	Miles.	No.	Tons.	£	£	£	£	d.	d.	Ψ cent.	£	£	Ψ cent.
1855	14	98,846	140	9,093	156	9,249	5,959	157'34	101'37	64'43	3,290	515,347	·638
1856	23	350,724	2,469	29,526	2,757	32,283	21,788	113'32	76'48	67'49	10,495	683,217	1'536
1857	40	329,019	20,847	34,970	8,417	43,387	31,338	96'58	69'75	72'23	12,050	1,023,838	1'176
1858	55	376,492	33,385	45,858	16,451	62,309	43,928	105'69	74'51	70'50	18,381	1,231,867	1'492
1859	55	425,877	43,020	46,502	15,258	61,760	47,598	100'41	77'38	77'07	14,162	1,278,416	1'107
1860	70	551,044	55,394	45,428	16,841	62,269	50,427	83'37	67'52	80'98	11,841	1,422,672	·832
1861	73	595,591	101,130	49,637	25,367	75,004	61,187	83'77	68'34	81'58	13,817	1,536,032	·899
1862	97	642,431	205,139	62,096	41,775	103,871	68,725	90'79	60'07	66'16	35,146	1,907,807	1'842
1863	124	627,164	218,535	71,297	52,644	123,941	96,867	94'38	73'76	78'16	27,073	2,466,950	1'097
1864	143	693,174	379,661	81,487	66,167	147,653	103,715	85'30	59'92	70'24	43,938	2,631,790	1'669
1865	143	751,587	416,707	92,984	73,048	166,032	108,926	82'42	54'07	65'60	57,106	2,746,373	2'079
1866	143	668,330	500,937	85,636	82,899	168,535	106,230	82'49	51'99	63'64	62,305	2,786,094	2'236
1867	204	616,375	517,022	87,564	101,508	189,072	117,324	82'02	46'87	62'08	71,748	3,282,320	2'185
1868	247	714,563	596,514	99,408	124,951	224,359	144,201	70'06	45'03	64'29	80,158	4,060,950	1'973
1869	318	759,635	714,113	109,427	155,548	264,975	176,362	71'17	47'37	66'57	88,613	4,681,329	1'892
1870	339	776,707	766,523	117,854	189,288	307,142	206,003	81'81	54'86	67'08	101,139	5,566,092	1'817
1871	358	759,062	741,986	129,496	225,826	355,322	197,065	91'57	50'79	55'46	158,257	5,887,258	2'688
1872	398	753,910	825,360	164,862	260,127	424,989	207,918	98'43	48'15	48'92	217,071	6,388,727	3'397
1873	403	875,602	923,788	178,216	306,020	484,236	238,035	104'71	51'47	49'16	246,201	6,739,918	3'653
1874	403	1,085,501	1,070,938	188,595	347,980	536,575	257,703	103'09	49'51	48'03	278,872	6,844,546	4'074
1875	473	1,288,225	1,171,354	205,941	408,707	614,648	296,174	100'20	48'28	48'18	318,474	7,245,379	4'396
1876	509	1,727,730	1,244,131	233,870	459,355	693,225	339,406	98'50	48'22	48'96	353,819	7,990,601	4'428
1877	598	2,957,144	1,430,041	271,588	544,332	815,920	418,985	92'95	47'73	51'35	396,935	8,883,177	4'468
1878	688	3,705,733	1,625,886	306,308	596,681	902,989	536,988	81'62	48'54	59'47	366,001	9,784,645	3'741
1879	734	4,317,864	1,720,815	319,950	632,416	952,366	604,721	77'94	49'49	63'49	347,645	10,406,495	3'341
1880	849	5,440,138	1,712,971	390,149	770,868	1,161,017	647,719	86'02	47'99	55'79	513,298	11,778,819	4'358
1881	995	6,907,312	2,033,850	488,675	955,551	1,444,226	738,334	88'33	45'16	51'12	705,892	13,301,597	5'307
1882	1268	8,984,313	2,619,427	587,825	1,111,038	1,698,863	934,635	84'05	46'24	55'02	764,228	15,843,616	5'135
1883	1320	10,272,037	2,864,566	661,751	1,269,713	1,931,464	1,177,788	78'07	47'61	60'97	753,676	16,905,014	4'484
1884	1618	11,253,109	3,124,425	745,665	1,340,572	2,086,237	1,301,259	78'19	48'77	62'37	784,978	20,080,138	4'201
1885	1732	13,506,346	3,273,004	830,904	1,343,464	2,174,368	1,458,153	78'61	52'72	67'06	716,215	21,831,276	3'370
1886	1889	14,881,604	3,218,582	849,253	1,310,817	2,160,070	1,492,992	80'01	55'30	69'12	667,078	24,071,454	2'90

8-2 F

No. 58.

STATEMENT of the Number and Classification of Persons employed on the Railways and Tramways of New South Wales during 1886.

No.	Position.	Rates of Pay—lowest and highest.
HEAD OFFICE.		
1	Commissioner	£1,250 per annum.
1	Secretary	£750 „
1	Assistant Secretary	£650 „
1	Chief Clerk	£500 „
1	Land Valuer	£600 „
1	Accountant	£600 „
1	Assistant Accountant	£520 „
1	Paymaster	£490 „
1	Cashier	£440 „
1	Examiner of Accounts	£415 „
1	Assistant Examiner of Accounts	£315 „
1	Principal Book-keeper	£390 „
1	Assistant „	£340 „
1	Surveyor and Draftsman	£440 „
2	Draftsmen	£340 and £240 per annum.
74	Clerks	£52 to £390 „
4	Conveyancing Clerks (Crown Solicitor's Office)	£100 to £300 „
7	Messengers	20s. per week to £135 per annum.
3	Housekeepers	£30 to £60 per annum.
104	Total.	
AUDIT OFFICE.		
1	Traffic Auditor	£490 per annum.
1	Assistant do.	£415 „
1	Chief Clerk	£390 „
5	Inspectors of Station Accounts (Travelling)	£275 to £320 per annum.
49	Clerks (27 Audit, 17 Statistical, and 5 Tramways)	£50 to £320 „
1	Office Cleaner	3s. per diem—£25 per annum in lieu of quarters.
58	Total.	
STORES.		
1	Superintendent	£490 per annum.
5	Storekeepers	£215 to £340 per annum.
35	Clerks	£52 to £290 „
2	Foremen	£220 per annum.
1	Assistant Foreman	£205 „
4	Watchmen	6s. 6d. to 7s. 6d. per diem.
56	Issuers, Assistants, Gangers, Talley-men, Storemen, Labourers, &c.	7s. to 10s. per diem.
1	Inspector of Weighing Machines, &c.	14s. per diem.
1	Tent Maker	7s. „
106	Total.	

No. 58—*continued.*STATEMENT of the Number and Classification of Persons employed on the Railways and Tramways—*continued.*

No.	Position.	Rates of Pay—lowest and highest.
ENGINEER FOR EXISTING LINES OF RAILWAYS AND TRAMWAYS.		
OFFICE STAFF.		
1	Engineer for Existing Lines.....	£1,060 per annum.
1	Deputy Engineer	£600 "
1	Chief Clerk.....	£440 "
1	Architect	£425 "
1	Assistant Architect	£320 "
1	Signal Engineer.....	£400 "
1	Resident Engineer.....	£350 "
1	Assistant Engineer	£240 "
1	Surveyor	£250 "
7	Draftsmen	£120 to £230 per annum.
11	Cadets	£2 per month to £130 per annum.
7	Clerks	£120 to £320 per annum.
1	Custodian of Plans.....	£60 per annum.
1	Messenger	£100 "
1	Office Boy	£30 "
37	Total.	
LOCOMOTIVE ENGINEER'S BRANCH.		
OFFICE STAFF.		
1	Locomotive Engineer	£800 per annum.
1	Assistant Locomotive Engineer	£650 "
1	Chief Clerk.....	£520 "
6	Draftsmen	£196 to £350 per annum.
1	Draftsman	£3 10s. per week.
17	Clerks	£90 to £335 "
1	Clerk	10s. per diem.
7	Cadets	£50 to £130 per annum.
1	Messenger	6s. 6d. per diem.
36	Total.	
ENGINEER-IN-CHIEF'S BRANCH.		
OFFICE STAFF.		
1	Engineer-in-Chief	£1,800 per annum.
1	Assistant Engineer	£750 "
1	Inspecting Engineer	£625 "
1	Assistant Engineer for Trial Surveys.....	£750 "
39	Draftsmen and Assistants	£75 to £465 per annum.
1	Chief Clerk.....	£550 per annum.
9	Clerks	£92 to £290 per annum.
12	Cadets.....	£52 per annum to 7s. per diem.
3	Messengers	10s. per week to £110 per annum.
68	Total.	
FIELD STAFF.		
12	District Engineers.....	£350 to £600 per annum.
10	Assistants to District Engineers	£150 to £300 "
26	Surveyors	£150 to £400 "
66	Inspectors, &c.	8s. 6d. to 18s. per diem.
142	Chainmen, &c.	6s. to 8s. "
256	Total.	

No. 58—*continued.*

STATEMENT of the Number and Classification of Persons employed in the Traffic Branch, Tramways, for the year ending 31st December, 1886.

Statement of Rate.	Superintendent	Clerks	Traffic Foremen	Traffic Foremen's Clerk.	Timekeeper	Timekeeper's Clerk	Inspector	Ticket Clerks.	Messenger.	Waiting-room Attendant	Conductors.	Special Conductors	Staffmen.	Pointsmen.	Shunters.	Point cleaners.	Car cleaners	Flagmen.	Lamp trimmers.	Office Messenger.	Housekeeper	Total.	
£550 per annum	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
£290 "	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
£220 "	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
£170 "	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
£150 "	1
£135 "	2
£120 "	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
£105 "	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
£90 "	1
£50 "	1
£39 "	1
4/- per week	1
15/- "	1
12/- per diem	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
11/- "	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
10/- "	1
9/6 "	5
9/- "	84
8/6 "	21
8/- "	33
7/6 "	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11
7/- "	58
	1	8	4	1	1	1	1	4	1	1	118	4	12	14	3	6	30	18	4	1	1	235	

No. 58—continued.

STATEMENT of the Number and Classification of Persons employed in the Permanent Way Branch of the Tramway Department, at 31st December, 1886.

	Sub-Inspectors	Clerks.	Weigh Clerk.	Gangers.	Labourers.	Gangers— Flying Gangs	Labourers— Flying Gangs.	Blacksmiths.	Guards.	Horse-drivers.	Boys.	Total.
£260 per annum ...	1	...	...	...	...	...	...	...	...	...	...	1
£230 ,,	1	...	...	...	...	...	...	...	...	...	...	1
£165 ,,	2	...	...	...	...	...	...	...	...	...	...	2
15/- per diem	1	...	...	...	...	...	...	...	...	...	...	1
12/- ,,	2	...	...	...	...	1	...	...	...	35	...	38
11/- ,, .....	...	...	...	1	...	...	...	...	...	...	...	1
10/- ,, .....	...	...	...	...	...	1	...	1	...	...	...	2
9/- ,, .....	...	...	...	16	...	2	...	...	...	...	...	18
8/6 ,, .....	...	...	1	...	...	...	...	1	2	...	...	4
7/6 ,, .....	...	...	...	...	39	...	99	...	...	...	...	138
5/6 ,, .....	...	...	...	...	...	...	...	...	...	...	1	1
5/- ,, .....	...	...	...	...	...	...	...	...	...	...	3	3
4/9 ,, .....	...	...	...	...	...	...	...	...	...	...	1	1
4/6 ,, .....	...	...	...	...	...	...	...	...	...	...	2	2
4/- ,, .....	...	...	...	...	...	...	...	...	...	...	1	1
	5	2	1	17	39	4	99	2	2	35	8	214

STATEMENT showing number and classification of persons employed on North Shore Tramway, 31st December, 1886.

	* Stationery Engine Drivers.	Gripmen.	Conductors	Oilers.	Watchman.	Messenger.	Total.
11/- per day ...	1	...	...	...	...	...	1
10/- ,,	1	...	...	...	...	...	1
8/- ,, .....	...	7	6	...	...	...	13
7/6 ,, .....	...	1	1	...	...	...	2
7/- ,, .....	...	...	...	2	1	...	3
2/6 ,, .....	...	...	...	...	...	1	1
Total	2	8	7	2	1	1	21

SUMMARY.

Head Office ...	No.	No.
Engineer-in-Chief's Branch—		268
Office Staff ...	68	
Field Staff ...	256	
		324
Engineer for Existing Lines Branch—		
Office Staff ...	37	
Permanent-way ...	3,466	
		3,503
Locomotive Engineer's Branch—		
Office Staff ...	36	
Locomotive Staff ...	2,768	
		2,804
Traffic Branch ...		2,857
Total, Railways ...		9,756
Tramway Branch—		
Rolling Stock Staff ...	618	
Permanent-way Staff ...	214	
Traffic Staff ...	244	
		1,076

No. 59.

RETURN of the Total Amount paid for Wages on the different Branches of the Railway and Tramway, 1885-86.

Branch.	South and West.		North.		Total.	
	£	s. d.	£	s. d.	£	s. d.
Locomotive—						
1885	305,754	9 9	66,009	2 0	371,763	11 9
1886	335,084	8 9	66,819	0 5	401,903	9 2
Permanent Way—						
1885	351,768	7 11	69,629	17 4	421,398	5 3
1886	362,606	8 8	64,717	8 11	427,323	17 7
Traffic—						
1885	174,764	10 5	52,946	10 4	227,710	0 9
1886	170,938	2 10	51,703	13 2	222,641	16 0
Total all Branches—						
1885	832,287	8 1	188,585	9 8	1,020,872	17 9
1886	868,629	0 3	183,240	2 6	1,051,869	2 9
Tramway—						
1885	145,846	11 1	.....		145,846	11 1
1886	145,474	16 4	.....		145,474	16 4

No. 60.

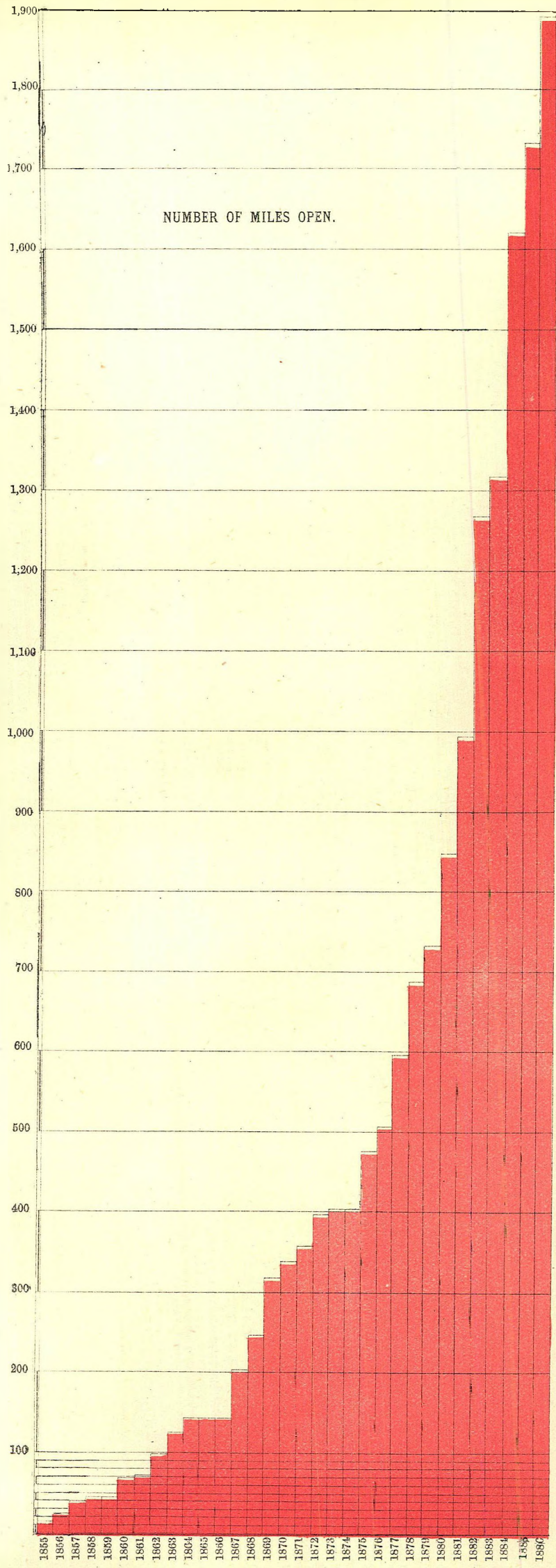
RETURN of Free Passes issued during 1886, specifying the different services.

Why granted.	No. issued.
Visitors of distinction	213
Press purposes	12
Indian and Colonial Exhibition	6
Judges on Circuit	25
Volunteers on duty	7,250
Immigrants	705
Unemployed	4,270
Officers and Seamen, H.M. War Ships	407
Charitable purposes	161
Fire Brigades' Demonstrations	579
Brookside Convalescent Home	24
Military officers	7
Aborigines	3
Miscellaneous	57
New Guinea Expedition	3
" Special Commissioner	2
Explorers	4
Consuls' passes	12
Inspectors of Stock	7
Rifle Teams	15
Jubilee festivities (Mayoral)	451
Total	14,213

No. issued in 1885 14,807

[Diagrams and Maps.]

Miles





TONS.

TONNAGE OF GOODS.

3,200,000
3,100,000
3,000,000
2,900,000
2,800,000
2,700,000
2,600,000
2,500,000
2,400,000
2,300,000
2,200,000
2,100,000
2,000,000
1,900,000
1,800,000
1,700,000
1,600,000
1,500,000
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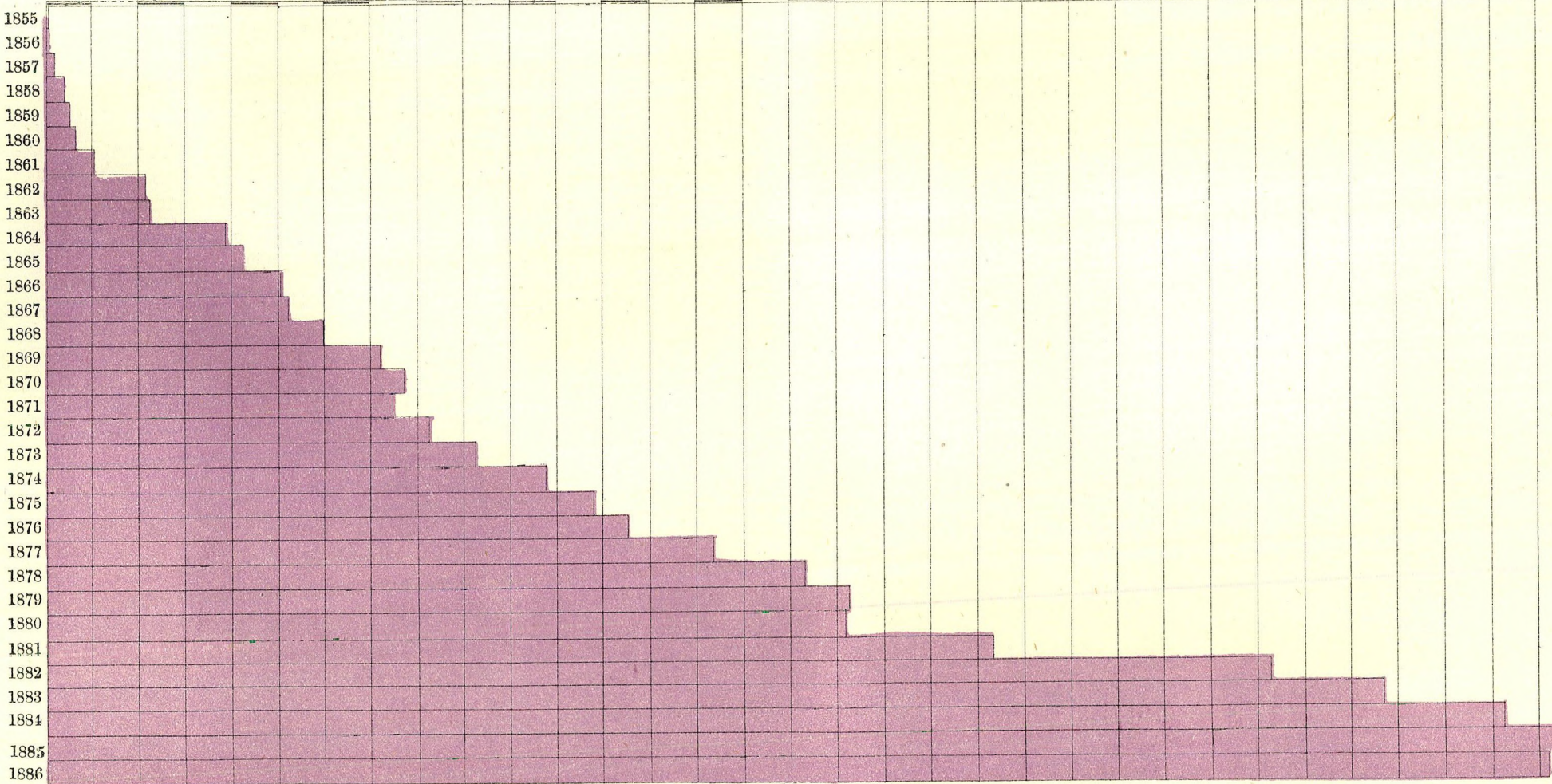
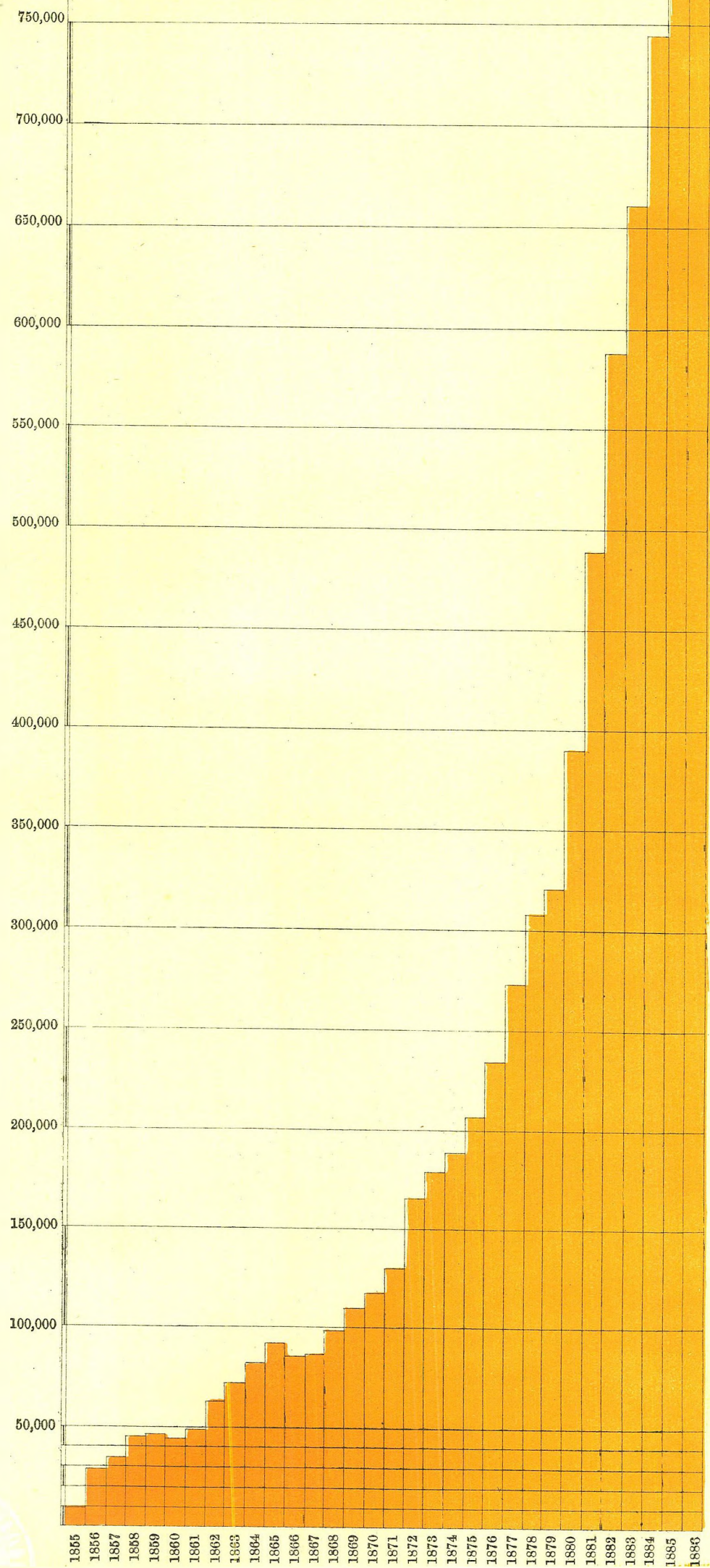


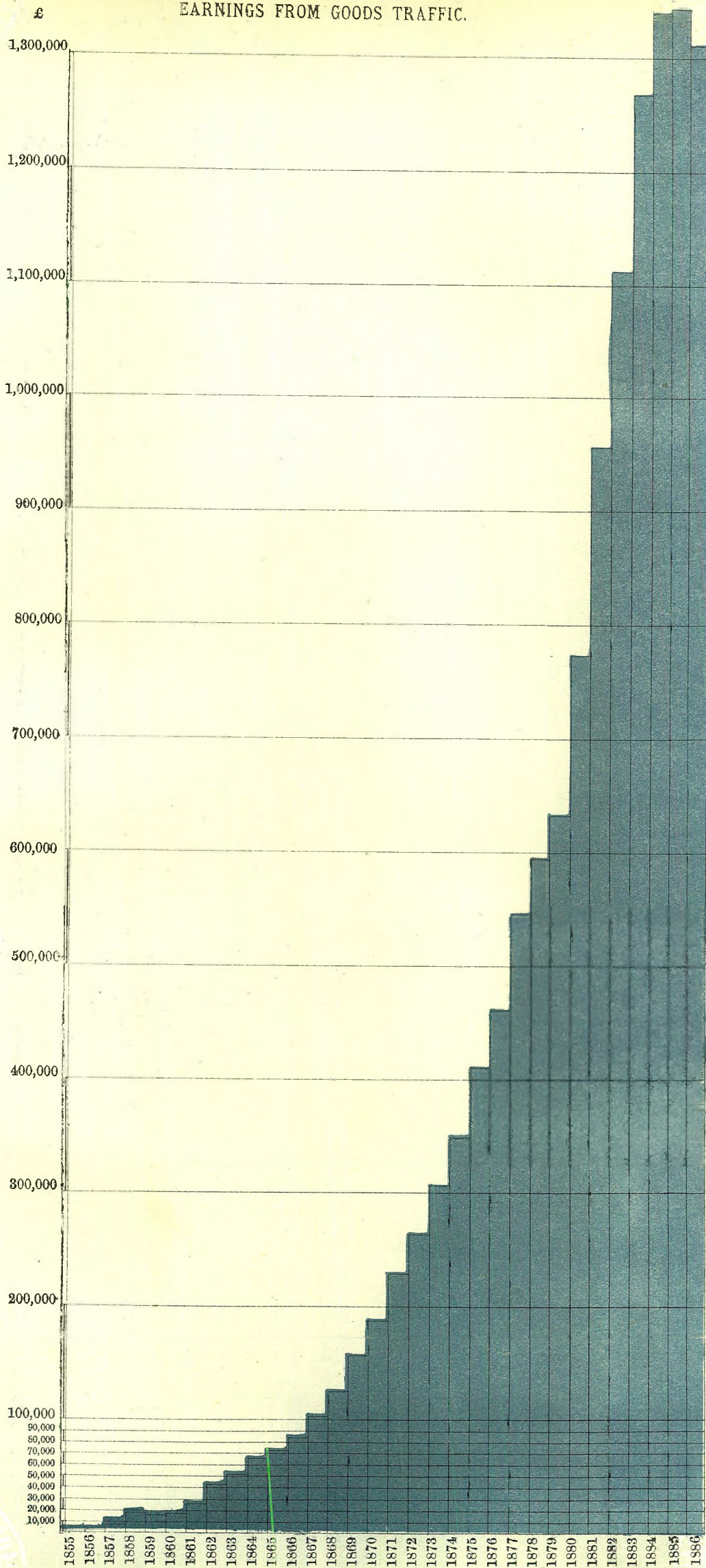
PHOTO-LITHOGRAPHED AT THE GOVT. PRINTING OFFICE, SYDNEY, NEW SOUTH WALES.

£
800,000

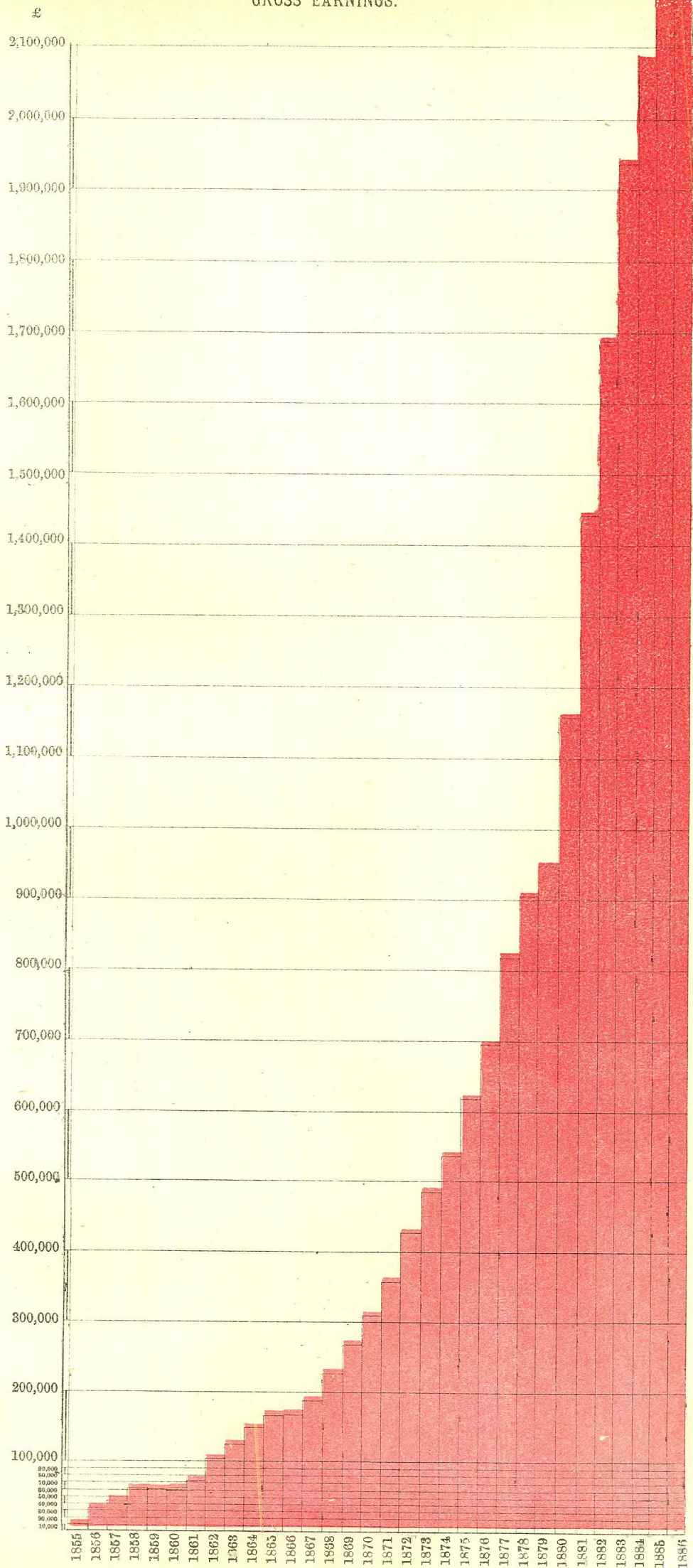
EARNINGS FROM COACHING TRAFFIC.

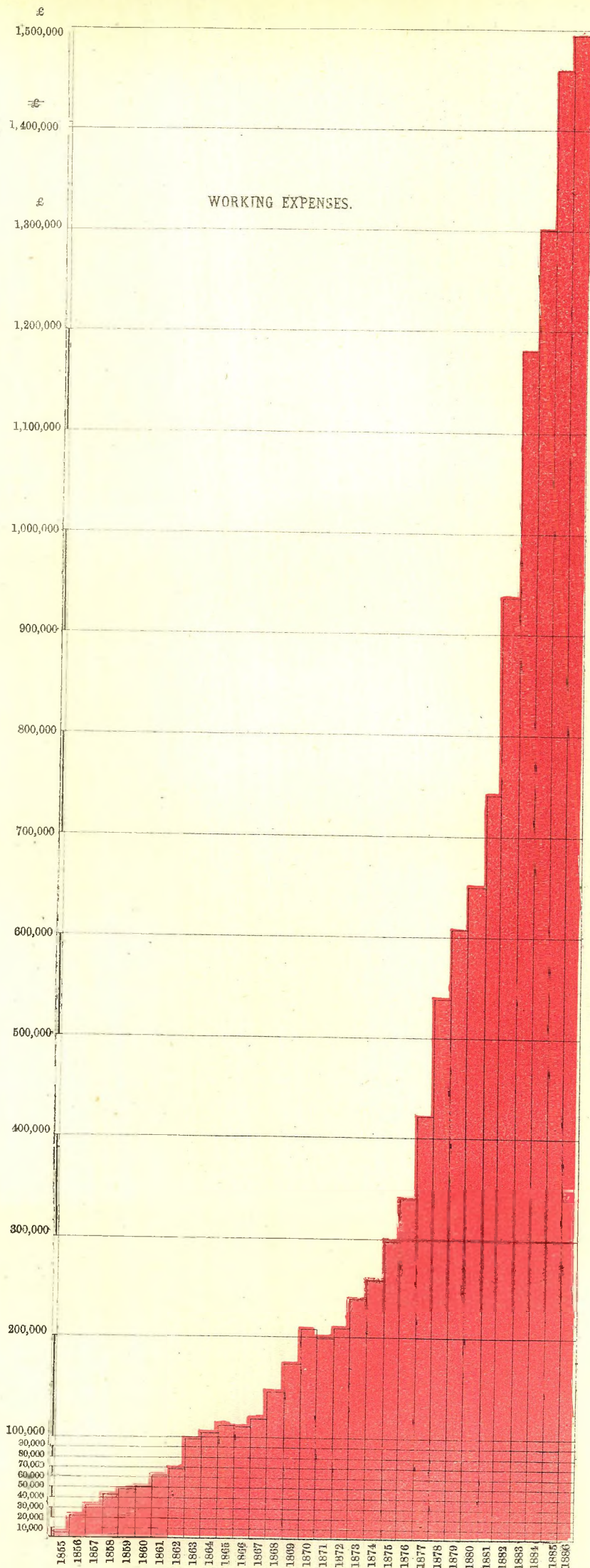


EARNINGS FROM GOODS TRAFFIC.

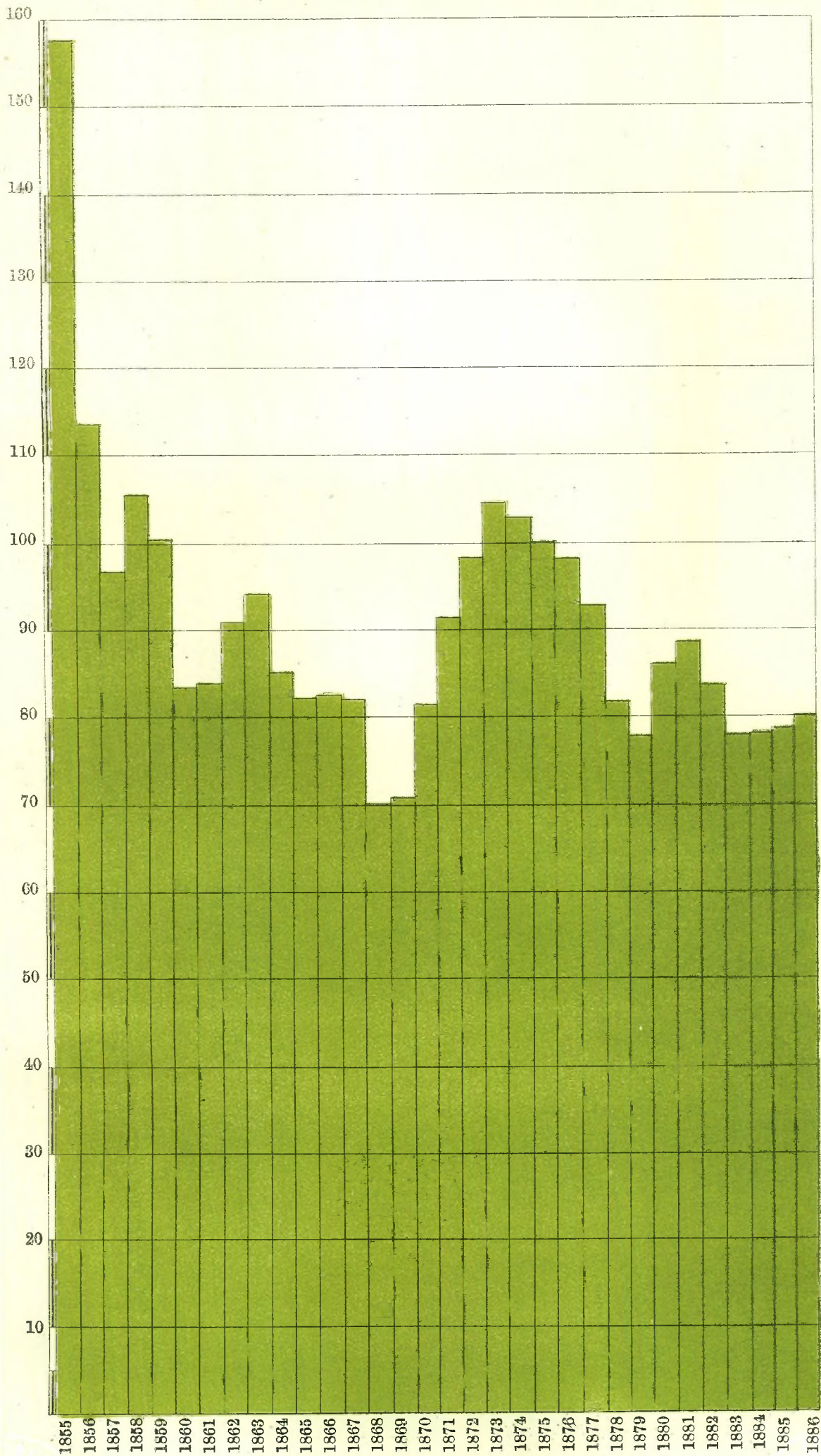


GROSS EARNINGS.



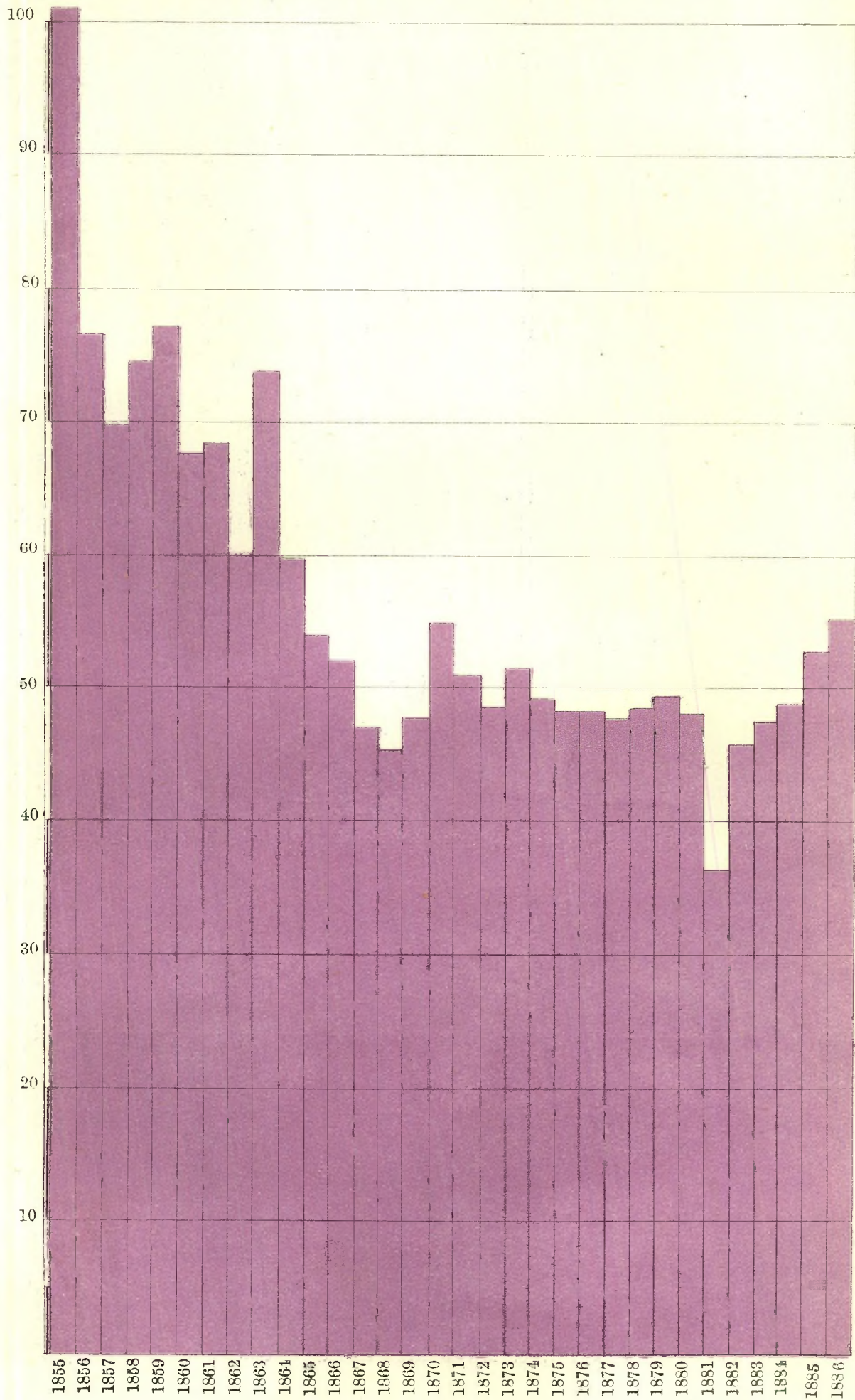


EARNINGS PER TRAIN MILE.



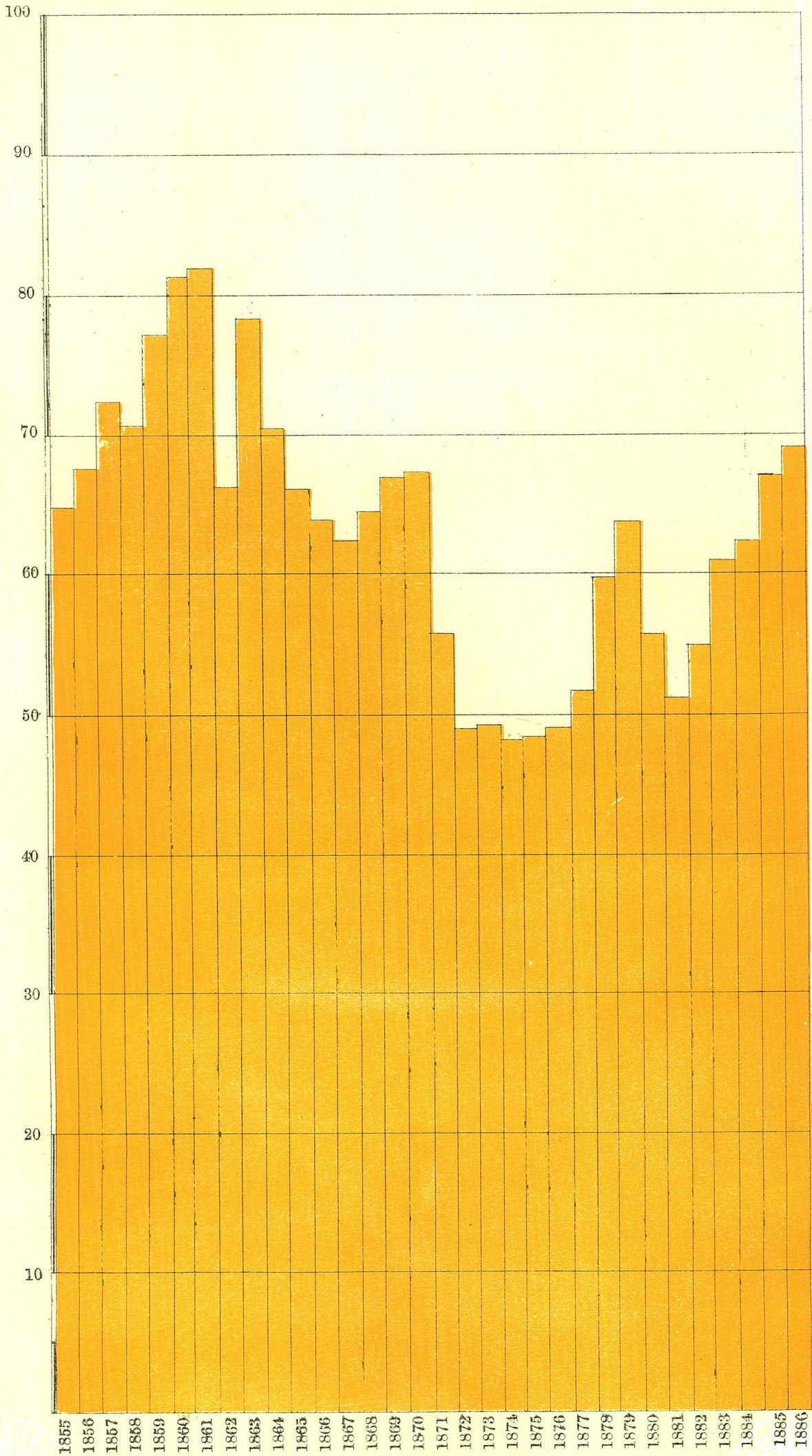
WORKING EXPENSES PER TRAIN MILE.

d.

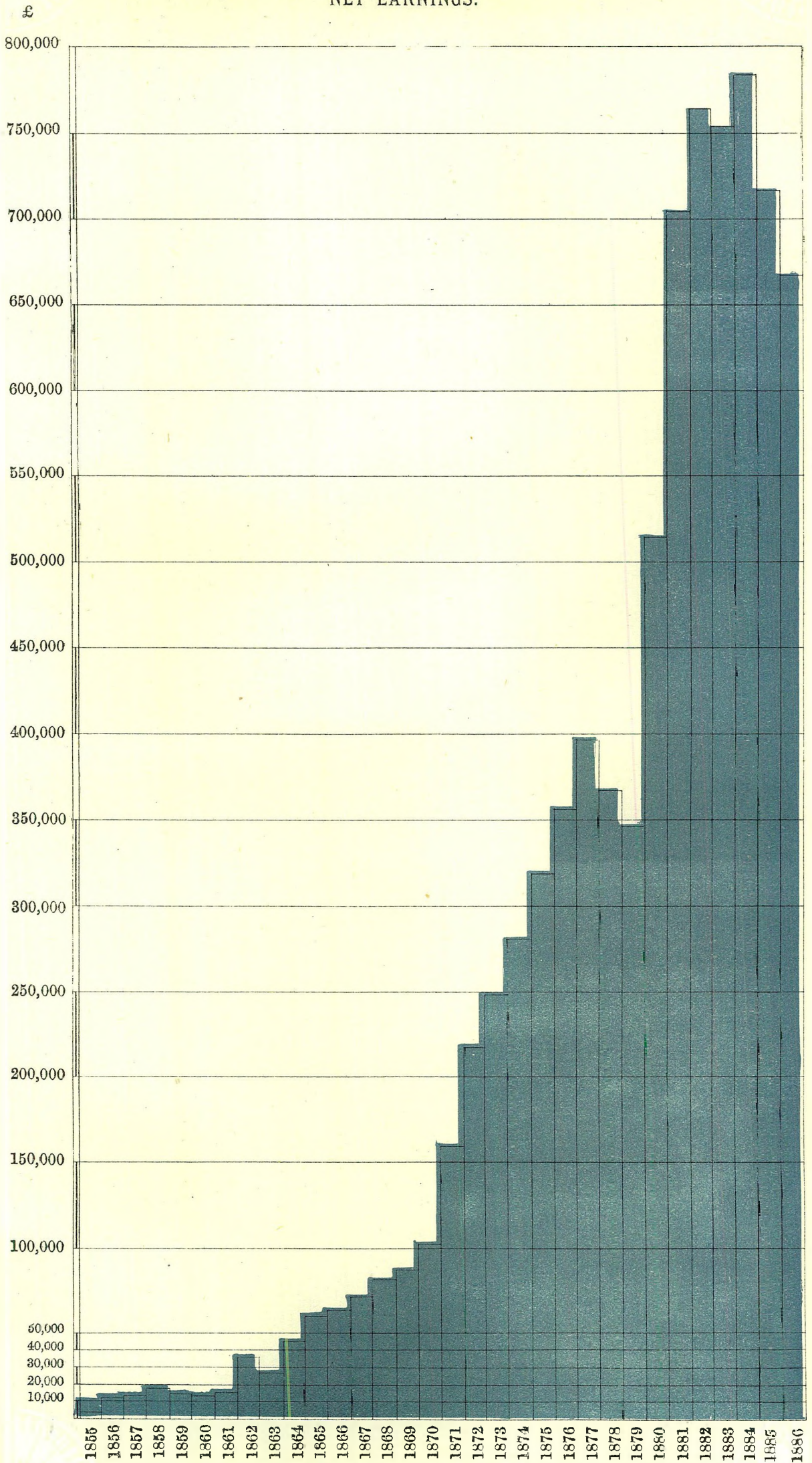


PERCENTAGE OF WORKING EXPENSES TO GROSS EARNINGS.

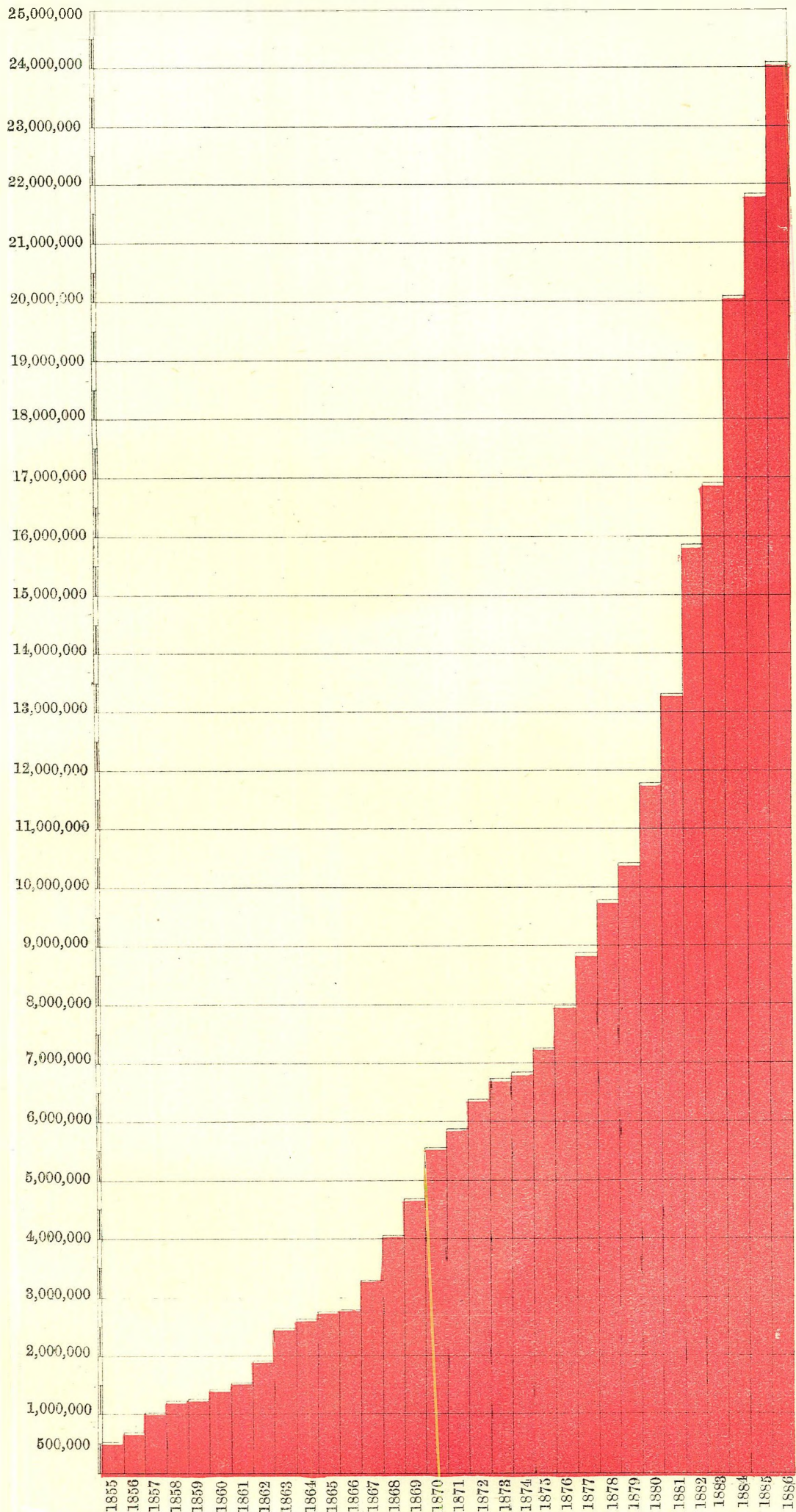
PER CENT.



NET EARNINGS.



CAPITAL INVESTED ON LINES OPEN.



PER CENT.

INTEREST ON CAPITAL.

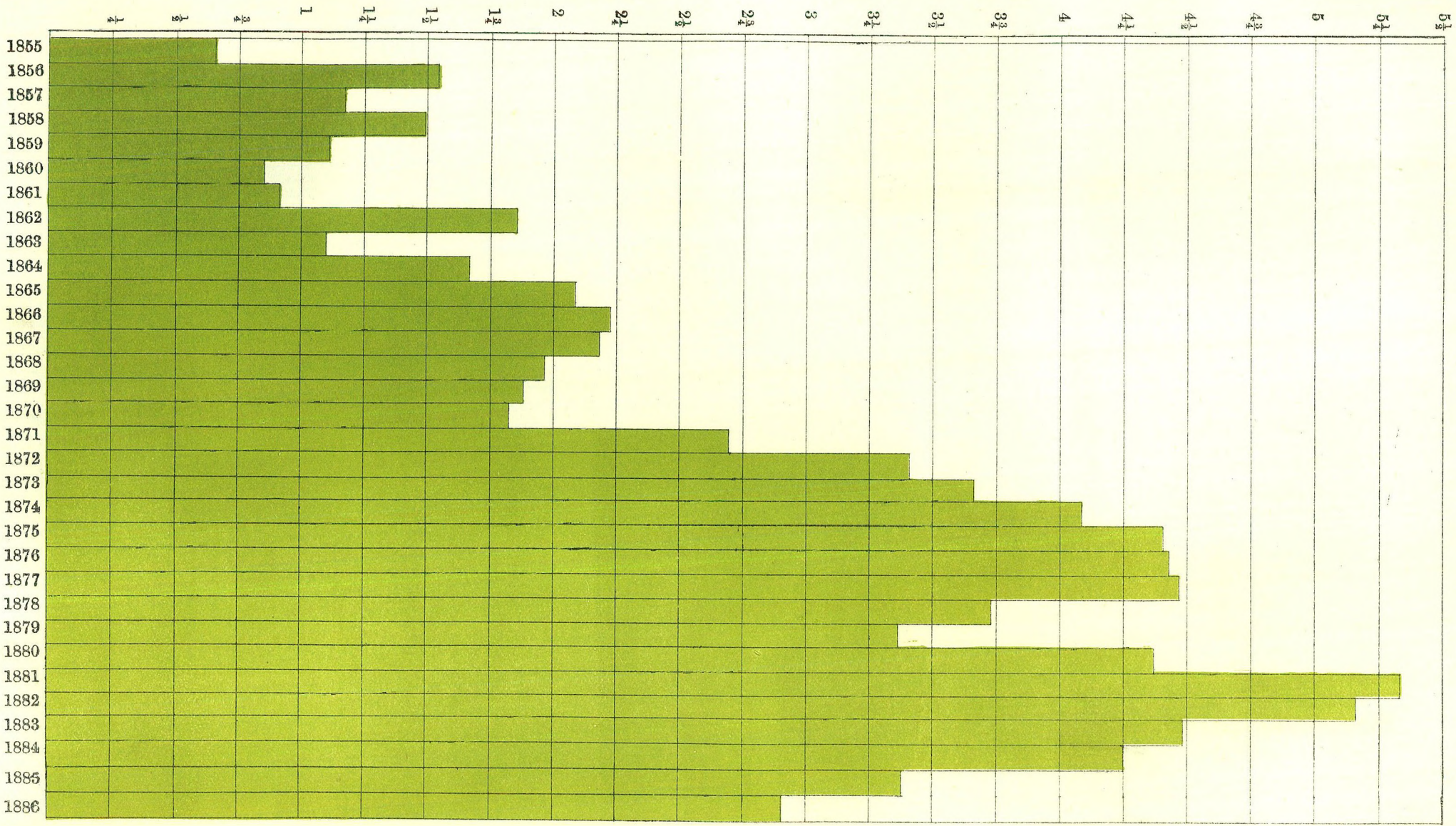
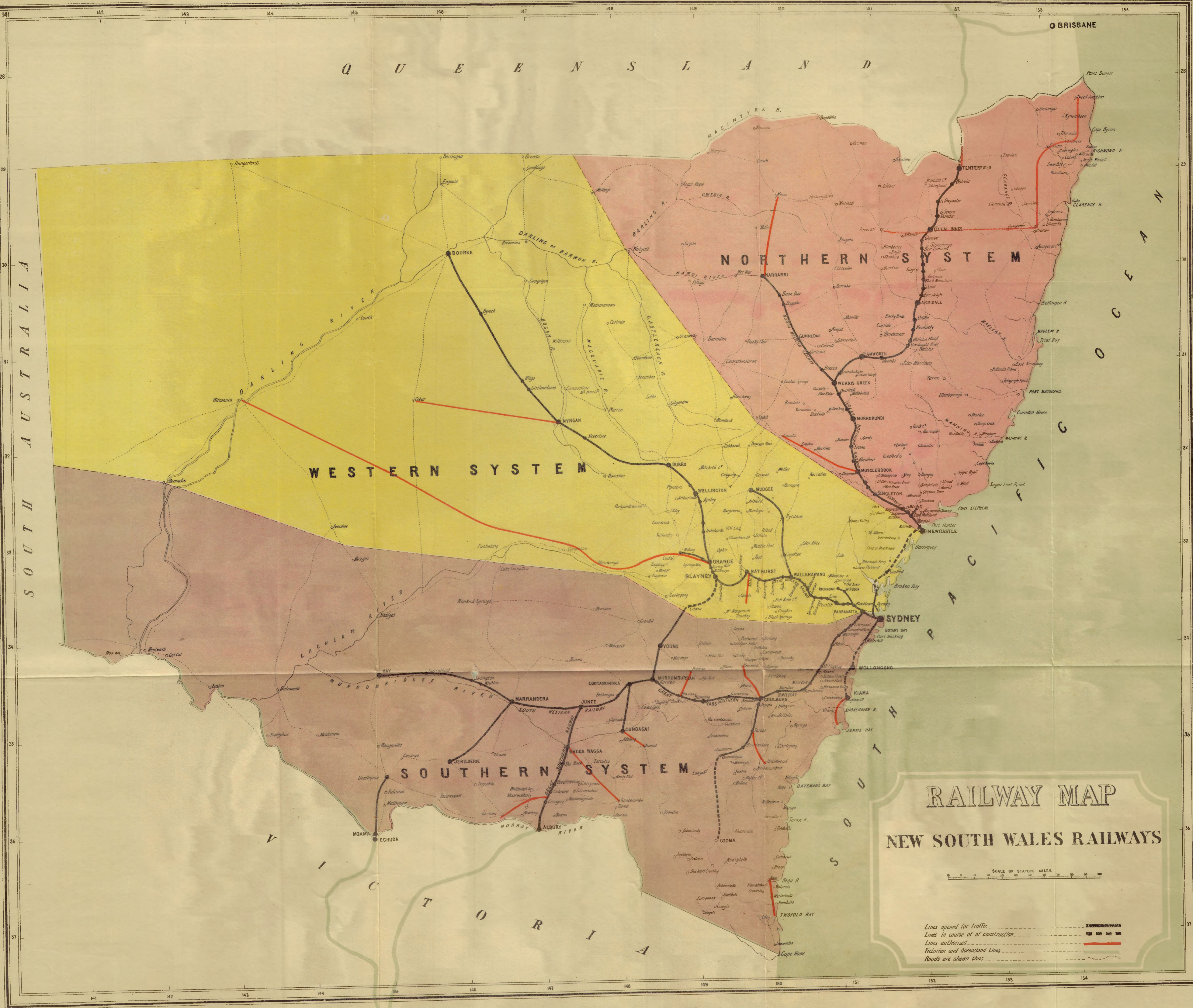


PHOTO-LITHOGRAPHED AT THE GOVT. PRINTING OFFICE, SYDNEY, N.E. V SOUTH WALES.



RAILWAY MAP

NEW SOUTH WALES RAILWAYS



- Lines opened for traffic ————
- Lines in course of construction ————
- Lines authorized ————
- Victorian and Queensland Lines ————
- Roads are shown thus ————

MAP SHEWING THE RAILWAY SYSTEMS OF AUSTRALIA

SCALE OF STATUTE MILES
100 0 100 200 300

REFERENCE
 Lines open for traffic
 Lines in course of construction
 Lines authorized



Comparative Statement showing Railway Mileage, Earnings, &c., for the year 1886.

	Area of Country, sq. miles	Population	Miles of Railway open	Authorized	Total mileage when completed	Capital expended on lines open, £	Total authorized, £	Gross receipts, £	Net receipts, £	Interest on Capital, £
New South Wales	310,700	1,001,086	1,880½	1,523½	3,413	24,071,454	42,190,161	2,180,070	607,078	2,801
Victoria	87,884	1,033,006	1,753	1,219	2,972	23,637,514	22,090,154	2,920,120	1,018,559	431
South Australia	380,070	230,451	1,279	609	1,779	7,353,959	11,697,955	649,092	178,430	237
Queensland	688,224	822,553	1,545	658	2,213	10,155,003	16,748,487	698,089	216,123	2128

With the exception of the figures relating to the Population and Mileage of Railways the Victorian and South Australian statistics refer to the year ended 30th June, 1886.

1887-8.

NEW SOUTH WALES.

RAILWAYS AND TRAMWAYS

OF

NEW SOUTH WALES.

REPORT

BY

THE COMMISSIONER FOR RAILWAYS

FOR THE YEAR

1887.

Presented to Parliament by Command.



SYDNEY: CHARLES POTTER, GOVERNMENT PRINTER.

1888.

[8s.]

991—A

[1575 copies—Approximate Cost of Printing (labour and material), £552 16s. 3d.]

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1887-8.

NEW SOUTH WALES.

RAILWAYS OF NEW SOUTH WALES.

(REPORT FOR 1887.)

*The Commissioner for Railways to The Honorable the
Secretary for Public Works.*

Department of Public Works,
Railway Branch,

Sydney, 20 July, 1888.

Sir,

I have the honor to submit, for the information of the Government, a statement of the transactions of the Department for the year 1887. Attached to the Report will be found the usual Appendix, containing complete accounts and returns of the cost of construction of the various lines to the close of the year under review, together with the revenue and working expenditure and other information, compiled with great care by the officers of the Department, to whom my acknowledgments are due.

1.—RAILWAY CAPITAL AUTHORIZED.

The total amount which has been authorized to be raised by loans is £42,195,161. At the close of 1887 the total value of Debentures issued was £33,537,944. The amount still to be raised is £8,657,217.

Railway Debt,
Appendix
Nos. 8 and 9,
pp. 55 and 61.

2.—RAILWAY CAPITAL EXPENDED.

At the close of 1887 there had been expended on lines open for traffic £26,532,122 * and on lines in course of construction £2,379,102; in all £28,911,224, of which amount the sum of £1,568,136 was expended in the year 1887, as under:—

Capital
expended.
Appendix
Nos. 10 and 11,
pp. 62 and 70.

Construction	...	...	...	...	£1,260,479
Rolling stock and machinery, &c.	...	...	...	...	299,085
Trial surveys	...	...	...	...	8,572
...	
...	...	...	...	...	£1,568,136

The sources from which the money expended on Railway Lines open for traffic have been obtained, are:—

From Loans	...	...	...	...	£25,765,499
„ Revenue	...	...	...	...	766,623

£26,532,122

3.—

* Excludes the cost—£4,878—of old Pitt-street Tramway, taken up in 1867, and £5,613, cost of rolling stock used on Camden and Sans Souci Tramways.

3.—LINES OPEN AND IN PROGRESS.

Of the sum of £1,568,136 expended in 1887 for construction, the sum of £688,634 was expended on lines open for traffic, and the balance £897,502 invested in lines in course of construction.

Additions to Capital Account—Lines open for traffic.

At the close of the year 1886 the capital invested in lines open was £24,071,454.* During 1887 a further sum of £2,460,668 was added, making the total capital invested £26,532,122.

Additions to
Capital
Account.

The amount of £2,460,668 was made up as follows, viz. :—

Amount transferred from Construction Account, &c.	£1,772,034
Expenditure during 1887 on construction, &c.	309,291
Additions and Improvements to Works and Stations, &c.	80,259
Additional Rolling Stock, Machinery, and Workshops, &c.	299,084

Railway Lines
opened.

At the close of 1886 the mileage opened was as under :—

Southern System.

	Miles.
Main Southern Line—Sydney to Albury... ..	388
South-Western Line—Junee to Hay, and Narrandera to Jerilderie	232
Darling Harbour Branch	1
Cooma Branch	40
Illawarra Branch	24
Junction Line between Southern and Western Systems	61
Cootamundra to Gundagai	34
	<hr/>
	780

Western System.

Main Western Line—Granville to Bourke	490
Richmond Branch—Blacktown to Richmond	16
Mudgee Branch—Wallerawang to Mudgee	85
Orange to Molong	22
	<hr/>
	613

Northern System.

Main Northern Line—Newcastle to Tenterfield	380
North-Western Line—Werris Creek to Narrabri	97
Branches—Morpeth, Bullock Island, &c.	5½
North Coast Line—Homebush to Waratah	14
	<hr/>
	496½

Total 1,889½

The

* Excludes cost of the old Pitt-street Tramway, and cost of rolling stock used on the Camden Line, for which latter see Tramway Returns.

The following extensions were opened during the year 1887 :—

	Dates of Opening.	Miles.	Extensions opened during 1887.
SOUTHERN SYSTEM.			
Clifton to Wollongong	21 June, 1887 ...	12	
Bungendore to Queanbeyan	8 September, 1887 ...	17½	
Wollongong to North Kiama	9 November, 1887 ...	22	
Queanbeyan to Michelago	7 December, 1887 ...	30	
NORTH COAST LINE—HOMEBUSH TO WARATAH.			
Hornsby to Hawkesbury	7 April, 1887 ...	15	
Gosford to Waratah	15 August, 1887 ...	50	
Total ... ..	.....	146½	

Making together a total of 2,036 miles in operation at the close of the year.

The average mileage in operation for the whole period was 1,936.

Since the close of the year the following extensions have been opened, making a total of 2,102 miles in operation at the present date :—

16 January, 1888—Mullet Creek to Gosford	10 miles.
16 „ 1888—Tenterfield to Wallangarra, junction- ing with the Queensland Railways	11 miles.
13 February, 1888—Cowra to Blayney	45 miles.

At the present time the following lines are under construction :—

Extension.	Sections.	Length.	Date for Completion.	Remarks.
		Miles.		
Illawarra Line	Second Section	10	Time expired...	Balance of section.
„ „	Third Section	2	„ ...	„ „
Homebush to Waratah.....	Hawkesbury and Mullet Creek. ...	4	19 Nov., 1888	„ „
Goulburn to Cooma	Michelago to Cooma	39	30 June, 1888	
North Shore	North Shore to Pearce's Corner ...	11	31 Dec., 1888	
		66		

Lines under construction.

The following is a summary of the Railways open up to the present date and under construction :—

Lines open	2,102 miles.
Under construction	66 „
Total	2,168 miles.

The

REPORT OF THE COMMISSIONER FOR RAILWAYS—1887.

Lines
Authorized.

The estimated cost of the following lines has been voted (under the Act 48 Vic. No. 26, assented to 1st November, 1884), but, with the exception of the line from Nyngan to Cobar, the plans, &c., have not yet been approved by Parliament :—

Extension.	Miles.	Amount Voted.
SOUTHERN.		
City Extension	2	£ 450,000
Tarago to Braidwood	31	310,000
Gundagai to Tumut	33	500,000
Goulburn to Crookwell	25	259,500
Galong to Burrowa	18	144,000
Wagga Wagga to Tumberumba	68	710,000
Culcairn to Corowa	45	210,000
Kiama to Jervis Bay	41	804,000
Bega to Eden	40	606,000
Total, Southern	303	3,993,500
WESTERN.		
Perth to Rockley	17	195,000
Forbes to Wilcannia	340	1,050,000
Nyngan to Cobar	82	263,500
Borenore to Forbes	60	705,500
Total, Western	499	2,214,000
NORTHERN.		
Musclebrook to Cassilis	70	700,000
Glen Innes to Inverell	45	578,000
Grafton to Glen Innes	103	2,000,000
Grafton to the Tweed	165	1,980,000
Narrabri to Moree	61	336,500
Total, Northern	444	5,594,500
Grand Total	1,246	11,802,000

The subjoined statement shows the action taken with regard to the several Railway schemes referred to above :—

Line.	Plans, &c., approved by Legislative Assembly.	Dealt with by Legislative Council.	Remarks.
City Extension	9 Sept., 1886	8 Oct., 1886	Referred by Legislative Council to a Select Committee which on the 21st October, 1886, brought up a Progress Report, but had not completed its labours when Parliament was dissolved in October, 1886.
Tarago to Braidwood	16 „ 1886	14 „ 1886	
Gundagai to Tumut	16 „ 1886	14 „ 1886	
Narrabri to Moree	14 „ 1886	14 „ 1886	
Glen Innes to Inverell	15 „ 1886	14 „ 1886	
Grafton to The Tweed	15 „ 1886	14 „ 1886	
Orange to Forbes	9 „ 1886	8 „ 1886	Plans, &c., approved by Legislative Assembly, but Legislative Council carried a motion for the making of a new trial survey along a fresh route.
Nyngan to Cobar	9 „ 1886	8 „ 1886	Approved by both Houses. Tenders were invited and received on the 22nd February, 1887, but the question of the unremunerative character of the line was raised, and has since suspended further action.
Culcairn to Corowa	14 „ 1886	14 „ 1886	Plans approved by Legislative Assembly but not approved by Legislative Council.

Goulburn to Crookwell	} Plans laid on the Table of House as exhibits only.
Galong to Burrowa	
Kiama to Jervis Bay	
Wagga Wagga to Tumberumba... ..	} Plans not yet submitted to Parliament.
Perth to Rockley	
Forbes to Wilcannia	
Bega to Eden	
Muswellbrook to Cassilis	
Grafton to Glen Innes	

The railway policy in regard to the extension of lines indicated in the above projects may, however, be considered to be, to a large extent, abrogated, for although Parliament has passed a Loan Act giving authority for raising the money to meet the estimated cost of the construction of these extensions, it has not given its approval to the plans and sections of the routes proposed, and the Railway Act 22 Victoria No. 19 prohibits the commencement of any line of railway until such authority has been given.

A new railway policy moreover has been projected by the present Government, the particulars of which, however, have not yet been finally announced.

4.—LAND TAKEN FOR RAILWAY PURPOSES.

The particulars of the whole of the land resumed to 31st December, 1887, for Railway purposes, will be found in Appendix No. 5, page 41.

Land resumed. Appendix No. 5, page 41.

The claims outstanding on the 31st December, 1886, were 383, to which 132 were added during 1887, making a total of 515 claims; of these 200 were settled in 1887, leaving at the close of the year 315 in various stages of adjustment, a large number of which have been settled during the present year.

5.—IMPORTATION OF RAILWAY MATERIAL.

In the Appendix will be found a return of the Permanent-way materials, locomotives, and miscellaneous articles imported during the year under review.

Appendix No. 6, p. 44

The following is an abstract of the returns :—

Number of Ships employed.	Number of Tons of Goods shipped.	Value of Goods Shipped.	Amounts paid for Freight and Insurance.	Average rate of Freight and Insurance per Ton.
115	25,225	£ s. d. 211,194 11 11	£ s. d. *13,736 9 0 †1,411 11 11	s. d. 10 10 ³ / ₄ 1 1 ¹ / ₂

* Freight. † Insurance.

In the foregoing are included :—

	Weight in Tons.	Value.
Permanent-way materials for Authorized Extensions...	16,725	£ s. d. 100,230 16 6
" " Renewals	4,659	30,979 7 9
" " Tramways	1,152	7,893 1 1
Miscellaneous items	1,238	35,488 17 4
Bridgework	757	9,606 7 8
Locomotives	694	26,996 1 7
	25,225	211,194 11 11

6.—EXISTING LINES.

Maintenance of Ways and Works.

Maintenance of ways and works, Appendix 1.

In the Appendix will be found the report of the Engineer for Existing Lines, on the condition of the Lines of Railway in his charge. The whole of the Works have been maintained in good working order during the year, and large additions have been made to improve the accommodation, and to facilitate the conduct of the traffic. Those charged to the capital account have been scheduled, and the cost of each is shown in Appendix No. 10*a*.

Locomotive and Carriage Division.

A considerable addition was made in 1887 to the rolling stock, 521 vehicles having been added, particulars of which are given below :—

ABSTRACT of Rolling Stock on hand on 31st December, 1886, and the number and description of Vehicles supplied in 1887.

Locomotives.		Passenger.													Goods.													Total of all Vehicles.										
Tank.	Passenger.	Goods.	Total.	State Carriages.			First-class.	Composite.	Second-class.	Mail-vans.	Prison-vans.	Workmen's Vans.	Horse-boxes.	Carriage Trucks.	Brake-vans.	Total.	Waggons.							Vans.														
				Accident Vans.	A.	B.											C.	D.	E.	Water-trucks.	F.	G.	Loco. Coal.	Powder.	Sheep.	Cattle.	Meat.		Refrigerating.	Ballast-waggons.	Brake-vans.	Dump-cars.	Combination.	Total.				
Rolling Stock on hand, 31st December, 1886.																																						
43	165	198	406	2	1	14	133	125	267	18	7	12	31	137	64	129	940	7	236	234	356	4957	344	54	11	293	250	40	432	436	28	1	298	171	201	15	5364	9710
Rolling Stock received during 1887.																																						
6	12	2	20	...	1	9	2	8	6	15	3	23	67	35	300	10	50	...	6	31	2	434	521		

In my Report for 1886 I drew attention to the necessity for the supply of additional locomotives for adequately meeting the requirements of the traffic, and supported the statement by a reference to the statistics of locomotive work performed in Great Britain, in the various countries forming the Continent of Europe, and in America, which showed that with one exception the locomotives in use on the lines of New South Wales were more heavily worked than the locomotives of any other country. The twenty additional engines supplied during 1887 afforded some relief, but more are required, and it is questionable whether the fifty engines recently ordered from Colonial manufacturers will be supplied in time to meet the demand.

In May, 1886, the Locomotive Engineer, Mr. Scott, recommended, in view of the additional mileage that would be opened within the succeeding two years, that more locomotives should be obtained for working the traffic. He estimated that 44 engines would be required.

Tenders were thereupon invited for the supply of these engines from European and American, as well as English and Colonial firms.

The

The Tenders were opened on the 12th April, 1887, when the following offers were received :—

SCHEDULE OF TENDERS.

English and Foreign.

28 outside Cylinder Bogie Goods Engines, with Tenders.

Firm.	Original conditions—Pay in England.		Altered conditions—Pay in Colony.		Informal conditions.	Place of delivery.
	Price each for 20 Sydney engines.	Price each for 8 Newcastle engines.	Price each for 20 Sydney engines.	Price each for 8 Newcastle engines.	Price each for the 28 engines.	
Dübs & Co.	£ 2,265	£ 2,290	£ 2,725	£ 2,750	.....	20 in steam, Sydney.
Beyer, Peacock, & Co.	2,345	2,370	2,495	2,520	.....	8 " Newcastle.
Stephenson & Co. ....	...	.....	No tender	No tender	2,135	20 " Sydney.
Kitson & Co. ....	...	.....	2,990	2,990	.....	8 " Newcastle.
Sharp, Stewart, & Co. ....	...	.....	2,368	2,368	.....	F.o.b., London or Liverpool.
Neilson & Co.	2,228	2,228	2,245	2,245	.....	20 in steam, Sydney.
Clyde Locomotive Company	2,375	2,400	2,425	2,450	.....	8 " Newcastle.
Vulcan Foundry Company	2,336	2,386	No tender	No tender	.....	20 " Sydney.
Burnham, Parry, Williams, & Co. ....	.....	.....	" ..	" ..	2,950	8 " Newcastle.
Canadian Locomotive Company ....	.....	.....	" ..	" ..	2,500	Alongside vessel, New York.
Sächsische Company	*About £2,518	*About £2,590	" ..	" ..	.....	F.o.b., New York.
						20 in steam, Sydney.
						8 " Newcastle.

* Price given by weight.

SCHEDULE OF TENDERS.

16 Outside Cylinder Bogie Passenger Engines, with Tenders.

Firm.	Original conditions—Pay in England.		Altered conditions—Pay in Sydney.		Informal conditions.	Place of delivery.
	Price each for 12 Sydney engines.	Price each for 4 Newcastle engines.	Price each for 12 Sydney engines.	Price each for 4 Newcastle engines.	Price each for the 16 engines.	
Dübs & Co.	£ 2,425	£ 2,450	£ 2,885	£ 2,910	.....	12 in steam, Sydney.
Beyer, Peacock, & Co.	2,495	2,520	2,645	2,670	.....	4 " Newcastle.
Stephenson & Co. ....	.....	.....	No tender	No tender	2,350	12 " Sydney.
Kitson & Co. ....	.....	.....	3,090	3,090	.....	4 " Newcastle.
Sharp, Stewart, & Co. ....	.....	.....	2,516	2,516	.....	F.o.b., London or Liverpool.
Neilson & Co.	2,358	2,358	2,375	2,375	.....	12 in steam, Sydney.
Clyde Loco. Co.	2,475	2,500	2,525	2,550	.....	4 " Newcastle.
Vulcan Foundry Co.	2,530	2,580	No tender	No tender	.....	12 " Sydney.
Burnham, Parry, Williams, & Co. ....	.....	.....	" ..	" ..	2,900	4 " Newcastle.
Canadian Loco. Co. ....	.....	.....	" ..	" ..	2,400	Alongside vessel, New York.
Sächsische Co.	*About £2,775	*About £2,851	" ..	" ..	.....	F.o.b., New York.
Société de Construction	3,150	3,250	" ..	" ..	.....	12 in steam, Sydney.
						4 " Newcastle.
						12 " Sydney.
						4 " Newcastle.

* Price given by weight.

COLONIAL OFFERS.

Goods.	20 Goods South.	8 Goods North.	12 Passenger South.	4 Passenger North.
	Price.	Price.	Price.	Price.
Thos. Wearne	£ 3,750	£	£ 3,750	£
Mort's Dock Company	3,995	4,185	4,375	4,555
Atlas Company	4,040	4,225	4,405	4,585
Henry Vale	3,785	.....	.....	.....
Hudson Brothers	3,680	3,760	3,820	3,970

These engines were to be built to Mr. Scott's design ; those for the passenger service were to be somewhat similar to those built by the Vulcan Company, twelve of which are running on the lines of the Colony ; and those for the goods' service to be of the class known as the English "Mogul" type.

Before deciding upon the acceptance of any tender it was deemed desirable to inquire into the merits of the designs proposed, and at your instance very full consideration was given to the question of the classes of engine that would be most suitable for our requirements. It was thought an engine might be obtained which would be simpler in its parts and less costly in construction, and ultimately it was decided to obtain tenders from Colonial makers for engines to designs suggested by Mr. Midelton. The decision to invite tenders from Colonial makers only was determined by the resolution passed by the Legislative Assembly on the 25th of April, 1887, that,—

In view of the widespread distress amongst the iron trades, this House is of opinion that the Government should take immediate steps to call for tenders in the Colony only for the manufacture of one hundred locomotive engines, and that the following be the conditions of such tenders :—That the construction of the said engines be carried out by labour already in the Colony, and only such material be imported as cannot be produced here.

Tenders were invited for fifty engines (twenty-five goods and twenty-five passenger) and offers were received on the 17th May, 1887, as follows :—

Name.	25 Goods.	25 Passenger.	Dates of delivery.	
	Price.	Price.	Date of delivery of first engine.	Date of completion of contract.
	£	£		
Hudson Brothers	4,050	3,698	16 July, 1888 ...	30 May, 1890.
G. A. Key	3,960	3,705	16 July, 1888 ...	30 April, 1891.
H. Vale	3,960	3,650	.....	.....
Mort and Company	4,080	3,702	17 Aug., 1888 ...	17 Aug., 1890.
Atlas Company	4,010	3,715	30 Nov., 1888 ...	31 Dec., 1890.
J. Monday	2,874	2,874	1 Sept., 1888 ...	— Sept., 1894.
T. Wearne	3,980	3,714	.....	.....
Morris Brothers	3,990	3,800	.....	.....
J. D. Brown	3,460	3,460	.....	.....

The matter remained undecided for some time, endeavours being made by the manufacturers to induce their workmen to accept a lower rate of wages, so as to admit of the engines being made in the Colony at more reasonable prices than those tendered at, and some consideration was also given to the suggestion that the locomotives should be made at the Railway Workshops at Eveleigh. It was finally determined, however, to call for fresh tenders. The tenders were opened on the 20th December, 1887, when the following offers were received :—

<i>Passenger Engines.</i>						£
Mort & Co. (associated with Hudson Brothers, H. Vale, and Morris Brothers)	...	...	...	...	...	3,552
Thos. Wearne	...	...	...	...	...	3,450
Atlas Company	...	...	...	...	...	3,263
<i>Goods Engines.</i>						£
Mort & Company	...	...	...	...	...	3,920
T. Wearne	...	...	...	...	...	3,700
Atlas Company	...	...	...	...	...	3,840

Although

Although these prices were considerably below those previously asked, the Government felt that it could not, in the face of the prices offered by English and Foreign firms, accept any of the amended offers. With the desire, however, to meet the spirit of the resolution of Parliament to provide work for the large number of skilled artizans out of employment, the Government finally determined to accept an offer for the manufacture of the locomotives in the Colony if the price did not exceed £3,000 per engine.

Fresh tenders were accordingly invited, the engines in regard to details of construction being simplified as far as possible without interfering with the structural parts, and on the 16th May, 1888, offers were received as follows:—

1. Albert Leahy, for 50 engines (25 of each class), each	... £3,150
" 25 " " "	... 3,240
2. Atlas Engineering Company, 25 passenger engines, each	... 2,989
3. H. Vale & Sons, 25 goods engines, each	... 3,275
3. " 25 passenger engines, each	... 3,150
4. Mort's Dock Company, 25 goods engines, each	... 3,250
" 25 passenger engines, each	... 3,130
5. Thomas Wearne, 25 engines, passenger or goods, each	... 3,000
6. Hudson Brothers, 25 passenger engines, each	... 3,120
" 25 goods engines, each	... 3,250

As the tender of the Atlas Company for the passenger engines, and of Mr. Thomas Wearne for the goods, were within the limit of price stipulated by the Government, they were accepted, and the engines are now in course of construction in the Colony. The Atlas Company are to complete their contract in 3 years. Thos. Wearne in 5 years. The first engine under each contract to be delivered at the expiration of 12 months from the date of acceptance of tenders.

7.—REVENUE AND EXPENDITURE.

The gross earnings in 1887 were £2,208,294, the working expenses, £1,457,760, and the net earnings, £750,534.

Gross and net earnings and working expenditure.

To earn the above amount 153,954 trains were run 6,472,107 miles. The number of trains averaged 492 per working day.

The gross revenue earned in excess of that for 1886 was £48,225. The whole of the increase was due to the wool traffic, which earned an additional £63,000, so it follows that but for this source of revenue there would have been a falling off in the gross earnings of £14,755. The detailed statement below shows that the falling off was in the revenue derived from the carriage of general merchandise and live stock.

Notwithstanding that 146 miles of additional railway line were opened for traffic during the year, and 2,068 more trains were run, the working expenses for 1887, as compared with 1886, were less by the sum of £35,232. Had the rate of expenditure per mile of line been continued the increase would have been, owing to the additional mileage opened, £156,816, so the constructive decrease in the working expenditure of the railways for 1887 may be set down at £192,048.

The actual saving being £35,232, and the additional revenue £48,225, the net revenue in excess of that for 1886 amounts to £83,457. The interest upon the new capital brought into the account, viz., £2,460,668, nearly absorbed the whole of this amount.

In

Particulars of coaching traffic.

In the following tables are given the particulars of the Revenue and Expenditure for 1887 compared with 1886:—

COACHING TRAFFIC.

			1886.			1887.		
			S. & W.	North.	Total.	S. & W.	North.	Total.
Number of passengers	First-class ...	No.	2,505,229	174,521	2,679,750	2,529,494	162,707	2,692,201
	Second-class ...	"	5,812,526	774,130	6,586,656	5,467,210	691,440	6,158,650
	Season tickets— No. of journeys	"	^a 5,430,096	185,102	^a 5,615,198	^b 5,389,260	^c 211,192	^d 5,600,452
	Gross ...	"	13,747,851	1,133,753	14,881,604	13,385,964	1,065,339	14,451,303
Receipts from Coaching traffic.	First-class ...	£	268,910	38,310	307,220	265,919	42,471	308,390
	Second-class ...	"	285,600	65,441	351,041	281,014	66,355	347,369
	Season tickets...	"	^e 49,363	2,760	^e 52,123	^f 53,066	^g 3,545	^h 56,611
	Total ...	"	603,873	106,511	710,384	599,999	112,371	712,370
	Horses and carriages, parcels, &c.	"	54,508	16,335	70,843	57,582	16,786	74,368
	Mails ...	"	37,856	13,132	50,988	26,315	18,666	44,981
	Miscellaneous...	"	11,038	6,000	17,038	13,010	5,770	18,780
Gross ...	"	707,275	141,978	849,253	696,906	153,593	850,499	
Average fare per head.	First-class ...	s. d.	2 1 ³ / ₄	4 5 ¹ / ₄	2 3 ¹ / ₂	2 1 ¹ / ₄	5 2 ¹ / ₂	2 3 ¹ / ₂
	Second-class ...	"	0 11 ³ / ₄	1 8 ³ / ₄	1 0 ³ / ₄	1 0 ¹ / ₄	1 11	1 1 ¹ / ₂
	Season tickets...	"	0 2 ¹ / ₄	0 3 ¹ / ₂	0 2 ¹ / ₄	0 2 ¹ / ₄	0 4	0 2 ¹ / ₂
	Mean ...	"	0 10 ³ / ₂	1 1 ¹ / ₂	0 11 ¹ / ₂	0 10 ³ / ₄	2 1 ¹ / ₄	0 11 ³ / ₄
Average receipts from Coaching traffic per average mile of line.	First-class ...	£ s. d.	199 17 0	86 3 6	171 12 7	185 6 2	84 15 5	159 5 10
	Second-class ...	"	212 5 4	147 4 6	196 2 3	195 16 7	132 8 11	179 8 6
	Season tickets...	"	36 13 10	6 4 5	29 2 5	36 19 7	7 1 7	29 4 10
	Total ...	"	448 16 2	239 12 5	396 17 3	418 2 4	224 5 11	367 19 2
	Horses and carriages, parcels, &c.	"	40 10 2	36 15 0	39 11 7	40 2 7	33 10 1	38 8 3
	Mails ...	"	28 2 10	29 10 9	28 9 7	18 6 9	37 5 2	23 4 8
	Miscellaneous...	"	8 4 0	13 10 0	9 10 5	9 1 4	11 10 3	9 14 0
Gross ...	"	525 13 2	319 8 2	474 8 10	485 13 0	306 11 5	439 6 1	
Average receipts per passenger train mile.	First-class ...	d.	27·72	21·05	26·66	27·41	20·62	26·22
	Second-class ...	"	29·44	35·96	30·48	28·97	32·22	29·54
	Season tickets...	"	5·09	1·52	4·52	5·47	1·72	4·81
	Total ...	"	62·25	58·53	61·66	61·85	54·56	60·57
	Horses and carriages, parcels, &c.	"	5·62	8·97	6·15	5·94	8·15	6·32
	Mails ...	"	3·90	7·21	4·43	2·71	9·06	3·83
	Miscellaneous...	"	1·14	3·30	1·48	1·34	2·80	1·60
Gross ...	"	72·91	78·01	73·72	71·84	74·57	72·32	
Proportion of classes.	First-class ...	%	18·23	15·40	18·01	18·90	15·27	18·63
	Second-class ...	"	42·28	68·27	44·26	40·84	64·90	42·62
	Season tickets...	"	39·49	16·33	37·73	40·26	19·83	38·75
		"	100·00	100·00	100·00	100·00	100·00	100·00
Proportion of receipts.	First-class ...	%	44·53	35·97	43·24	44·32	37·80	43·29
	Second-class ...	"	47·30	61·44	49·42	46·84	59·05	48·76
	Season tickets...	"	8·17	2·59	7·34	8·84	3·15	7·95
		"	100·00	100·00	100·00	100·00	100·00	100·00

^a Includes 1,771,620 journeys made with workmen's tickets. ^e Includes £12,973 for workmen's tickets.
^b " 1,714,980 " " ^f " £12,695 " "
^c " 9,984 " " ^g " £63 " "
^d " 1,724,964 " " ^h " £12,758 " "

The number of first-class passengers carried shows—

An increase of ...	24,265	for South and West lines.
A decrease ...	11,814	„ North line.
An increase of ...	12,451	„ all lines.

The number of second-class passengers carried shows—

A decrease of ...	345,316	for South and West lines.
„ ...	82,690	„ North line.
A decrease of ...	428,006	„ all lines.

The number of season tickets (journeys)—

Decreased ...	40,836	for South and West lines.
Increase ...	26,090	„ North line.
A decrease of ...	14,746	„ all lines.

The total decrease in the number of passengers carried on all lines was 430,301. With an annually increasing population this falling off in the number of journeys taken during 1887 calls for remark. In no previous year since 1872 has such a thing taken place, the returns always showing a large increase. The wet weather, which was abnormal in the past year, and the depressed state of trade and commerce probably account for the decrease.

The receipts for coaching traffic—

Decreased ...	£10,319	for South and West lines.
Increased ...	11,615	„ North line.
An increase of ...	£1,246	„ all lines.

The receipts from coaching traffic per average mile of line show—

	£	s.	d.	
A decrease of ...	40	0	2	for South and West lines.
„ ...	12	16	9	„ North line.
„ ...	35	2	9	„ all lines.

The receipts per train mile show—

A decrease of ...	1·07	for South and West lines.
„ ...	3·44	„ North line.
„ ...	1·40	„ all lines.

The proportion of percentage of classes of passengers shows—

An increase of ...	0·62	for 1st class.
A decrease of ...	1·64	„ 2nd „
An increase of ...	1·02	„ season tickets.

The proportion of percentage of receipts—

Increased ...	0·05	for 1st class.
Decreased ...	0·66	„ 2nd „
Increased ...	0·61	„ season tickets.

The

Particulars of
goods traffic.

The goods traffic, compared in the same way, is shown as under:—

REVENUE.—GOODS TRAFFIC.

		1886.			1887.			
		S. & W.	North.	Total.	S. & W.	North.	Total.	
Tons carried	Merchandise ...	Tons	938,240	162,519	1,100,759	950,980	161,283	1,112,263
	Coal	"	333,883	1,649,194	1,983,077	330,026	1,749,618	2,079,644
	Wool	"	42,018	16,107	58,125	55,948	21,135	77,083
	Live Stock.....	"	61,641	14,980	76,621	58,683	11,580	70,263
	Total	"	1,375,782	1,842,800	3,218,582	1,395,637	1,943,616	3,339,253
Receipts from Goods Traffic.	Merchandise ...	£	652,596	156,674	809,270	638,603	160,788	799,391
	Coal	"	61,752	78,349	140,101	60,681	80,943	141,624
	Wool	"	122,117	43,661	165,778	170,432	58,346	228,778
	Live Stock.....	"	164,792	24,957	189,749	163,179	19,132	182,311
	Miscellaneous..	"	3,830	2,089	5,919	4,305	1,387	5,692
Total	"	1,005,087	305,730	1,310,817	1,037,200	320,596	1,357,796	
Average rate per ton.	Merchandise ...	s.	13·91	19·21	14·74	13·43	19·94	14·38
	Coal	"	3·70	0·95	1·41	3·67	0·93	1·36
	Wool	"	58·12	54·21	57·04	60·93	55·21	59·36
	Live Stock.....	"	53·47	33·32	49·52	55·61	33·04	51·89
	Mean	"	14·68	3·32	8·14	14·86	3·29	8·13
Average No. of tons per mile of line.	Merchandise ...	Tons	697	366	615	663	322	575
	Coal	"	248	3,710	1,108	230	3,492	1,074
	Wool	"	31	36	32	39	42	40
	Live Stock.....	"	46	33	43	41	23	36
	Total	"	1,022	4,145	1,798	973	3,879	1,725
Average receipts per mile of line.	Merchandise ...	£ s. d.	485 0 5	352 9 5	452 2 4	445 0 6	320 18 6	412 18 2
	Coal	"	45 18 0	176 5 2	78 5 2	42 5 8	161 11 3	73 3 1
	Wool	"	90 15 2	98 4 7	92 12 2	118 15 4	116 9 4	118 3 5
	Live Stock.....	"	122 9 5	56 3 0	106 0 2	113 14 3	38 3 9	94 3 4
	Miscellaneous..	"	2 17 0	4 14 0	3 6 2	3 0 0	2 15 5	2 18 9
Total	"	747 0 0	687 16 2	732 6 0	722 15 9	639 18 3	701 6 9	
Average receipts per train mile.	Merchandise ...	d.	53·82	46·75	52·29	52·64	52·27	52·57
	Coal	"	5·09	23·37	9·05	5·00	26·32	9·31
	Wool	"	10·07	13·03	10·71	14·05	18·97	15·04
	Live Stock.....	"	13·59	7·45	12·27	13·45	6·22	11·99
	Miscellaneous..	"	0·32	0·62	0·38	0·35	0·45	0·37
Total	"	82·89	91·22	84·70	85·49	104·23	89·28	

In the tonnage carried there was—

An increase of 11,504 in merchandise.

,, 96,567 in coal.

,, 18,958 in wool.

A decrease of 6,358 in live stock.

120,671 total increase.

Per average mile of line open, the result shows—

A decrease of 40 tons in merchandise.

,, 34 ,, coal.

An increase of 8 ,, wool.

A decrease of 7 ,, live stock.

73 total decrease.

The

The receipts show—

A decrease of	£9,879	in merchandise.
An increase of	1,523	in coal.
„	63,000	in wool.
A decrease of	7,438	in live stock.
„	227	in miscellaneous.

£46,979 total increase.

Per average mile of line open, the receipts show—

	£	s.	d.	
A decrease of	39	4	2	in merchandise.
„	5	2	1	in coal.
An increase of	25	11	3	in wool.
A decrease of	11	16	10	in live stock.
„	0	7	5	in miscellaneous.

£30 19 3 average decrease.

The average receipts per train mile show—

	d.	
An increase of	·28	for merchandise.
„	·26	for coal.
„	4·33	for wool.
A decrease of	·28	for live stock.
„	·01	for miscellaneous.

4·58 total increase.

Working Expenditure.

The particulars of the whole of the expenditure are given in the following table:—

		1886.			1887.		
		S. & W.	North.	Total.	S. & W.	North.	Total.
Gross working expenses.	Maintenance of way, &c.	£ 360,802	71,569	432,371	329,769	67,429	397,198
	Locomotive power, &c.	358,250	89,395	447,645	362,612	80,796	443,408
	Repairs of carriages & waggons	79,408	17,301	96,709	70,548	13,090	83,638
	Traffic charges	318,215	112,286	430,501	321,998	112,940	434,938
	Compensation—Personal	5,827	846	6,673	11,548	580	12,128
	Do Goods	834	136	970	980	95	1,075
	Miscellaneous	59,459	18,664	78,123	66,331	19,044	85,375
	Total	1,182,795	310,197	1,492,992	1,163,786	293,974	1,457,760
Expenditure per average mile of line		879	698	834	812	586	753
Expenditure per train mile.	Maintenance of way, &c.	d. 16·53	13·84	16·02	15·11	13·13	14·73
	Locomotive power, &c.	16·41	17·29	16·58	16·61	15·74	16·44
	Repairs of carriages & waggons	3·64	3·35	3·58	3·23	2·55	3·10
	Traffic charges	14·58	21·71	15·95	14·75	21·99	16·13
	Compensation—Personal	0·27	0·16	0·24	0·53	0·11	0·45
	Do Goods	0·04	0·02	0·04	0·04	0·02	0·04
	Miscellaneous	2·72	3·61	2·89	3·04	3·71	3·16
	Total	54·19	59·98	55·30	53·31	57·25	54·05
Proportion of expenditure to gross receipts.	Maintenance of way, &c.	% 21·08	15·99	20·02	19·02	14·22	17·99
	Locomotive power, &c.	20·92	19·97	20·73	20·91	17·04	20·08
	Repairs of carriages & waggons	4·64	3·86	4·48	4·06	2·76	3·78
	Traffic charges	18·56	25·08	19·93	18·57	23·82	19·70
	Compensation—Personal	0·34	0·18	0·31	0·67	0·12	0·55
	Do Goods	0·05	0·03	0·04	0·06	0·02	0·05
	Miscellaneous	3·48	4·17	3·61	3·82	4·01	3·86
	Total	69·07	69·28	69·12	67·11	61·99	66·01

The total working expenditure, compared with 1886, decreased—
 £19,009, or 1·61 per cent., for South and West lines.
 £16,223, or 5·23 „ North line.
 £35,232, or 2·36 „ all lines.

The expenditure per average mile of line open—
 Decreased £ 67 for South and West lines.
 „ £112 for North line.
 „ £ 81 for all lines.

The expenditure for train mile shows as follows—
 A decrease of 0·88d. for South and West lines.
 „ 2·73d. for North line.
 „ 1·25d. for all lines.

The proportion of expenditure to gross receipts from all sources shows—
 A decrease of 1·96 per cent. for South and West lines.
 „ 7·29 „ North lines.
 „ 3·11 „ all lines.

Net Earnings.

Percentage of
net earnings
to capital.

The percentage of net earnings to capital expended in 1887, as against 1886, was as under :—

	1886.			1887.		
	No. of Miles.	Capital expended.	Percentage of interest.	No. of Miles.	Capital expended.	Percentage of interest.
South and West	1,407	18,163,089	3·01	1,503½	19,262,349	3·10
North	482½	5,908,365	2·55	532½	7,269,773	2·59
All Lines	1,889½	24,071,454	2·90	2,036	26,532,122	2·96

Percentage of
gross earn-
ings, working
expenditure,
and net earn-
ings to capital.

The subjoined abstract furnishes the percentages which the gross earnings, the working expenditure, and the net earnings bear to the capital invested in lines in operation for 1887, as compared with 1886 :—

		1886.			1887.		
		S. & W.	North.	Total.	S. & W.	North.	Total.
Net receipts from all sources ...	£	529,567	137,511	667,078	570,320	180,214	750,534
Do per average mile...	£	394	310	373	398	359	388
Do per train mile ...	d.	24·27	26·59	24·71	26·12	35·09	27·83
Proportion of gross receipts to capital.	%	9·73	8·29	9·40	9·90	6·92	8·72
Do of expenditure to capital.	„	6·72	5·74	6·50	6·29	4·29	5·76
Do of net receipts to capital.	„	3·01	2·55	2·90	3·10	2·59	2·96

The net earnings from all sources for the year show as follows—

£40,753	increase South and West.
42,703	„ North.
83,456	„ all lines.

The net earnings per average mile of line open show—

An increase of £ 4	for South and West lines.
„ £49	for North lines.
„ £15	for all lines.

The proportion of gross earnings to capital—

Increased 0·17 %	on South and West lines.
Decreased 1·37 %	on North lines.
„ 0·68 %	on all lines.

The proportion of net receipts to capital—

Increased 0·09 %	on South and West lines.
„ 0·04 %	on North lines.
„ 0·06 %	on all lines.

The following is a summary of the gross earnings, working expenditure, and net earnings of the Railways for 1887, as against 1886 :—

	South and West.	North.	Total.
	£	£	£
Gross earnings, 1887	1,734,106	474,188	2,208,294
Do 1886	1,712,362	447,708	2,160,070
Increase for 1887	21,744	26,480	48,224
Working expenditure, 1887	1,163,786	293,974	1,457,760
Do 1886	1,182,795	310,197	1,492,992
Decrease for 1887	19,009	16,223	35,232
Net earnings, 1887	570,320	180,214	750,534
Do 1886	529,567	137,511	667,078
Increase for 1887	40,753	42,703	83,456

Summary of gross earnings, working expenditure, and net earnings for 1886 and 1887.

Sectional
returns.

8.—DIVISION OF THE RAILWAY LINES INTO SECTIONAL AREAS.

In the following statements are given the capital expenditure, the gross earnings, the working expenditure, the net earnings, and the return which the net earnings give to the capital invested in each section.

It will be observed that the section from,—

Sydney to Granville, which for 1886 returned 7·73 per cent. on its capital, returned for the past year 7·93, an increase of ·20 per cent.

The Illawarra Line, which in 1886 returned 3·18 per cent., returned for the past year 1·54, a decrease of 1·64 per cent., but the capital account was increased from £437,408 to £1,064,297 by the opening of 34 miles of additional railway extension.

The Southern Line and Branches, which in 1886 returned 3·48 per cent., returned for the past year 3·11, a reduction of ·37 per cent., but the capital was swelled by the sum of £414,792 by the opening of 47 more miles of railway.

The Western Line and Branches, which in 1886 returned 2·81 per cent., returned for the past year 3·49, a sensible increase of ·68 per cent. on a capital of £6,940,932: No additional mileage was opened on this system during the year under review.

The Great Northern Line and Branches, which in 1886 returned 2·93 per cent., returned for the past year 3·18, an increase of ·25 per cent. No additional mileage was opened on this system.

The North-Western Line, Werris Creek to Narrabri, which for 1886 showed a loss on working of £2,408, earned for the past year £9,463 in excess of working expenditure, which gave a return to capital of 1·55 per cent.

The following are the sections which did not pay their working expenses:—

Section.	Loss on working.	Capital expended.	Total loss in working and interest upon capital at 4 per cent. per annum.	Remarks.
	£	£	£	
Strathfield to Hawkesbury, and Gosford to Waratah.	3,981	1,312,181	56,468	In 1886, on a capital of £300,566, the loss was £12,746.
Junee to Hay and Jerilderie	4,908	1,445,054	62,710	In 1886 the loss was £66,630.
Mudgee Line	5,593	1,002,517	45,693	The corresponding loss in 1886 was £44,792.
Murrumburrah to Cowra ...	4,385	524,945	25,382	In 1886 the loss was £21,396.
Totals	£ 18,867	4,284,697	190,253	

REPORT OF THE COMMISSIONER FOR RAILWAYS—1887.

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SUBURBAN SECTION—SYDNEY TO GRANVILLE.

Expenditure.				Earnings.		
Sydney to Granville—				Sydney to Granville—		
Miles open.....	14½	Cost per train mile.	Per cent. to earnings	Train mileage—		Earnings per train mile.
Train mileage	673,591			Coaching.....	524,017	
				Goods	149,574	
				Total.....	673,591	
	£	d.			£	d.
Locomotive expenses ...	55,686	19 84	19 89	Earnings from—		
Permanent way do ..	25,441	9 06	9 08	Coaching... ..	178,729	81 86
Traffic do ...	43,005	15 32	15 36	Goods	101,277	162 50
General do ...	8,527	3 04	3 05			
	£ 132,659	47 26	47 38			
Balance, net earnings ...	147,347					
	£ 280,006				£ 280,006	99 76
Capital expended—						
Construction, &c. ...	£1,307,912					
Rolling stock, &c. ...	550,638					
	£1,858,550					
Line in operation, 12 months.				Per cent. per annum returned on capital... ..		7 93

Sydney to Granville.

SOUTHERN LINE AND BRANCHES.

Expenditure.				Earnings.		
Granville to Albury, Goulburn to Michelago, and Cootamundra to Gundagai—				Granville to Albury, &c.		
Miles open.....	495½	Cost per train mile.	Percent. to earnings.	Train mileage—		Earnings per train mile.
Train mileage	1,748,964			Coaching.....	816,334	
				Goods	932,630	
				Total	1,748,964	
	£	d.			£	d.
Locomotive expenses ...	144,586	19 84	24 55	Earnings from—		
Permanent way do ...	121,098	16 62	20 56	Coaching... ..	242,356	71 25
Traffic do ...	111,663	15 32	18 96	Goods	346,579	37 16
General do ...	22,141	3 04	3 76			
	399,488	54 82	67 83			
Balance, net earnings...	189,447					
	£ 588,935				£ 588,935	80 82
Capital expended—						
Construction, &c. ...	£5,267,900					
Rolling stock, &c. ...	1,158,154					
	£6,426,054					
Lines in operation—				Per cent. per annum returned on capital		3 11
448½ miles open for 12 months.						
17 " " 3¼ "						
30½ " " ¾ "						

Granville to Albury &c.

SOUTH-WESTERN LINE AND BRANCHES.

June to Hay,
and Narran-
dera to Jeril-
derie.

Expenditure.				Earnings.		
June to Hay, and Narrandera to Jerilderie—		Cost per train mile.	Per cent. to earnings	June to Hay and Jerilderie—		Earnings per train mile.
Miles open	232			Train mileage	167,218		Train mileage—
				Coaching	59,598	
				Goods	107,620	
				Total.....	167,218	
	£	d.		Earnings from—	£	d.
Locomotive expenses ...	13,824	19·84	27·38	Coaching... ..	23,063	92·87
Permanent way do . . .	28,784	41·31	57·01	Goods	27,430	61·17
Traffic do	10,676	15·32	21·14		50,493	72·47
General do	2,117	3·04	4·19	Balance—		
				Loss on working... ..	4,908	...
	£	79·51	109·72		£	55,401
						...
Capital expended—						
Construction, &c. ...	...	£1,345,758				
Rolling stock, &c. ...	...	99,296				
		£1,445,054				
Line in operation 12 months.				Loss per cent. per annum on capital... 0·34		

MURRUMBURRAH AND BLAYNEY LINE.

Murrumburrah to
Cowra.

Expenditure.				Earnings.		
Murrumburrah to Cowra—		Cost per train mile.	Per cent. to earnings	Murrumburrah to Cowra—		Earnings per train mile.
Miles open	61			Train Mileage—		
Train mileage	33,113			Coaching.....	15,801	
				Goods	17,312	
				Total.....	33,113	
	£	d.		Earnings from—	£	d.
Locomotive expenses ...	2,737	19·84	21·58	Coaching... ..	4,614	70·08
Permanent way do . . .	11,800	85·52	93·02	Goods	8,071	111·89
Traffic do	2,114	15·32	16·67		12,685	91·94
General do	419	3·04	3·30	Balance—		
				Loss on Working	4,385	
	£	123·72	134·57		£	17,070
Capital expended—						
Construction, &c. ...	...	£500,000				
Rolling stock, &c. ...	...	24,945				
		£524,945				
Line in operation 12 months.				Loss per cent. per annum on capital, 0·83.		

WESTERN LINE AND BRANCHES.

Expenditure.				Earnings.		
Granville to Bourke, Blacktown to Richmond, and Orange to Molong—		Cost per train mile.	Per cent. to earnings	Granville to Bourke, &c.		Earnings per train mile.
Miles open	528			Train mileage—		
Train mileage	2,280,028			Coaching	655,180	
				Goods	1,624,848	
				Total	2,280,028	
	£	d.		Earnings from—	£	d.
Locomotive expenses ...	188,490	19 84	26 29	Coaching ...	191,404	70 11
Permanent way do ...	111,917	11 78	15 61	Goods ...	525,585	77 63
Traffic do ..	145,569	15 32	20 30			
General do ...	28,863	3 04	4 03			
	474,839	49 98	66 23			
Balance net earnings ...	242,150					
	£ 716,989				£ 716,989	75 47
Capital expended—						
Construction, &c....	...	£5,530,955				
Rolling stock, &c.	...	1,409,977				
		£6,940,932				
Lines in operation 12 months.				Return per cent. per annum on capital ...		3 49

Granville to Bourke, Blacktown to Richmond, and Orange to Molong.

MUDGEE LINE.

Expenditure.				Earnings.		
Wallerawang to Mudgee—		Cost per train mile.	Percent to earnings.	Wallerawang to Mudgee—		Earnings per train mile.
Miles open	85			Train mileage—		
Train mileage	89,184			Coaching	33,936	
				Goods	55,248	
				Total	89,184	
	£	d.		Earnings from—	£	d.
Locomotive expenses ...	7,373	19 84	26 72	Coaching ...	9,157	94 23
Permanent way do ...	18,993	51 11	68 82	Goods ...	18,439	80 10
Traffic do ...	5,694	15 32	20 63			
General do ...	1,129	3 04	4 09			
	£ 33,189	89 31	120 26	Balance — Loss on Working ...	27,596	74 26
					5,593	
					£ 33,189	
Capital expended—						
Construction, &c.	...	£948,249				
Rolling stock, &c.	...	54,268				
		£1,002,517				
Line in operation 12 months.				Loss per cent. per annum on capital		0 56

Wallerawang to Mudgee.

ILLAWARRA LINE.

Sydney to
Waterfall and
Clifton to
Kiama.

Expenditure.				Earnings.			
Sydney to Waterfall and Clifton to Kiama—		Cost per train mile.	Per cent. to earnings.	Sydney to Waterfall and Clifton to Kiama—		Earnings per train mile.	
Miles open	58			Train mileage	189,144		Train mileage—
Coaching				Goods	173,644		
Total				Total	189,144		
Locomotive expenses ...	£ 15,636	d. 19·84	32·61	Earnings from—	£	d.	
Permanent way do ...	7,160	9·08	14·93	Coaching ...	40,236	55·61	
Traffic do ...	12,077	15·32	25·19	Goods ...	7,715	119·45	
General do ...	2,395	3·04	4·99				
	£ 37,268	47·28	77·72				
Balance, net earnings...	10,683						
	£ 47,951				£ 47,951	60·84	
Capital expended—							
Construction, &c. ...		£970,000					
Rolling stock, &c. ...		94,297					
Lines in operation—		£1,064,297					
24 miles open for 12 months.				Per cent. per annum returned on capital ...			1·54
12 " " " 6½ "							
22 " " " 1⅓ "							

HOMEBUSH TO WARATAH LINE—STRATHFIELD TO HAWKESBURY, AND GOSFORD TO WARATAH.

Strathfield to
Hawkesbury,
and Gosford
to Waratah.

Expenditure.				Earnings.			
Strathfield to Hawkesbury, and Gosford to Waratah—		Cost per train mile.	Per cent. to earnings.	Strathfield to Hawkesbury, and Gosford to Waratah—		Earnings per train mile.	
Miles open	79			Train mileage	74,432		Train mileage—
Coaching				Coaching	58,586		
Goods				Goods	15,846		
					74,432		
Locomotive expenses ...	£ 6,050	d. 19·51	41·39	Earnings from—	£	d.	
Permanent Way do ...	6,352	20·48	43·46	Coaching ...	11,655	47·74	
Traffic do ...	5,207	16·79	35·62	Goods ...	2,960	44·83	
General do ...	987	3·18	6·75		14,615	47·12	
	18,596	59·96	127·22	Balance loss on working ...	3,981	...	
Capital expended—					18,596	...	
Construction, &c. ...		1,286,470					
Rolling stock, &c. ...		25,711					
Line in operation—		£1,312,181					
14 miles for 12 months.				Loss per cent. per annum on capital			0·49
15 " " " 8½ "							
50 " " " 4½ "							

NORTHERN LINE—NEWCASTLE TO TENTERFIELD.

Expenditure.				Earnings.				
Newcastle to Tenterfield, Morpeth, and Bullock Island Branches— Miles open 385½ Train mileage..... 1,109,553				Cost per train mile.	Per cent. to earnings	Newcastle to Tenterfield— Train mileage— Coaching 451,755 Goods..... 657,798 Total ... 1,109,553		Earnings per train mile.
Locomotive expenses ...	£ 84,521	d. 18·28	19·74	Earnings from— Coaching... ..	£ 135,660	d. 72·07		
Permanent way do ...	53,837	11·65	12·57	Goods	292,440	106·70		
Traffic do ...	102,285	22·12	23·89					
General do ...	17,145	3·71	4·01					
	£ 257,788	55·76	60·21					
Balance, net earnings ...	170,312							
	£ 428,100				£ 428,100	92·60		
Capital expended— Construction, &c. ...	£4,757,831							
Rolling stock, &c. ...	589,527							
	£5,347,358							
Lines in operation 12 months.				Per cent. per annum returned on capital		3·18		

Newcastle to Tenterfield.

NORTH-WESTERN LINE—WERRIS CREEK TO NARRABRI.

Expenditure.				Earnings.				
Werris Creek to Narrabri— Miles open..... 97 Train mileage 106,880				Cost per train mile.	Per cent. to earnings	Werris Creek to Narrabri— Train mileage— Coaching 33,411 Goods 73,469 Total 106,880		Earnings per train mile.
Locomotive expenses ...	£ 8,142	d. 18·28	19·90	Earnings from— Coaching	£ 13,626	d. 97·88		
Permanent way do ...	11,816	23·53	28·88	Goods	27,299	89·18		
Traffic do ...	9,853	22·12	24·07					
General do ...	1,651	3·71	4·03					
	31,462	70·64	76·88					
Balance, net earnings ...	9,463							
	£ 40,925				£ 40,925	91·90		
Capital expended— Construction, &c. ...	£ 553,877							
Rolling stock, &c. ...	56,357							
	£610,234							
Line in operation 12 months.				Per cent. per annum return on capital		1·55		

Werris Creek to Narrabri.

RAILWAYS—STATEMENT OF PROFIT AND LOSS, 1887.

Statement of
profit and loss.

Lines open for Traffic.	Length in Miles.	Periods for which lines were in operation.	Cost of Construction.		Cost of Rolling Stock, Machinery, Workshops, and Furniture.	Total capital expended.	Net Earnings.	Loss on working.	Rate per cent. per annum of interest returned on capital.	Less per cent. per annum on capital.	Net Return
			Amount.	Total.							
Suburban—Sydney to Granville.	14½	12	.....	£ 1,307,912	£ 550,638	£ 1,858,550	£ 147,347	£	7.93	...	...
South—Granville to the Murray, including Cooma and Gundagai Branches.	448½	12	4,867,900	5,267,900	1,158,154	6,426,054	189,447	.....	3.11	...	...
	17	3½	144,000								
	30¼	4½	256,000								
South-Western—Juneec to Hay, and Jerilderie Branch.	232	12	.....	£ 1,345,758	£ 99,296	£ 1,445,054	.....	4,908	...	0.34	...
Murrumburrah to Cowra.	61	12	.....	£ 500,000	£ 24,945	£ 524,945	.....	4,885	...	0.83	...
Western—Granville to Bourke, including Richmond and Molong Branches.	528	12	.....	£ 5,530,955	£ 1,409,977	£ 6,940,932	242,150	.....	3.49	...	...
Mudgee—Wallerawang to Mudgee.	85	12	.....	£ 948,249	£ 54,268	£ 1,002,517	.....	5,593	...	0.56	...
Illawarra—Sydney to Waterfall, and Clifton to Kiama.	24	12	460,000	970,000	94,297	1,064,297	10,683	.....	1.54	...	...
	12	6½	180,000								
	22	1½	330,000								
Homebush to Wara- tah—Strathfield to Hawkesbury, Gos- ford to Waratah.	14	12	297,288	1,286,470	25,711	1,312,181	.....	3,981	...	0.49	...
	15	8½	343,933								
	50	4½	640,249								
Northern—Newcastle to Tenterfield.	385½	12	.....	£ 4,757,831	£ 589,527	£ 5,347,358	170,312	.....	3.18	...	...
North-Western—Werris Creek to Narrabri.	97	12	.....	£ 553,877	£ 56,357	£ 610,234	9,463	.....	1.55	...	...
							769,402	18,867			
								18,867			
			2,035½	.....	22,468,952	4,063,170	26,532,122	750,535	.....	.....	2.96

9.—WOOL TRAFFIC.

The wool traffic on our Railways for the past season, notwithstanding that the rivers inland were generally very favourable to navigation and allowed a large quantity of wool to be diverted to the other Colonies, was the largest ever recorded, exceeding that for the season 1886-87 by 64,620 bales, no less than 407,229 bales having been carried during the past season. This very satisfactory result has been due to the great natural increase in the number of the sheep depastured in the Colony. The Chief Inspector of Stock reports an increase of nearly eight millions during the year 1887; the number of sheep at the close of the year was 46,965,152, more than double the number depastured in 1877.

The season 1887-88 has been regarded as one of the most favourable ever experienced in the Colony. The advantages of good seasons are most felt in the outlying districts, where, if the conditions allow it, the largest number of sheep can be depastured. The favourable seasons for the last two years have enabled pastoralists in these districts to maintain a large number of stock on their runs. That this is the case is revealed by the district returns
published

published by the Chief Stock Inspector. Bourke district shows an increase from 2,184,680 in 1885 to 2,635,519 in 1887; Cobar, from 1,044,443 in 1885 to 1,573,484 in 1887; Hay, from 1,035,905 in 1885 to 1,485,731 in 1887; Walgett, from 899,917 in 1885 to 1,571,061 in 1887; Wilcannia, from 2,039,344 in 1885 to 2,792,946 in 1887.

The detailed returns of the wool forwarded from each station will be found in the Appendix 30 to this Report, page 100. There was an increase in the total quantity carried on the Southern Line of 27,980 bales, the most favourable returns being those from the stations between Wagga Wagga and Albury, the border station showing a considerable increase.

On the Western Lines there were 25,061 additional bales carried, the greater part of which was due to the increase on the Bourke section.

On the Northern Line there was an increase of 11,579 bales, due principally to the north-western branch. From stations between Tamworth and Tenterfield there was a slight decrease, but in explanation of this it may be pointed out that there was, instead of an increase as in other parts of the country, an actual diminution in the number of sheep in the districts of Armidale, Glen Innes, and Tenterfield during the year 1887. The number in 1886 in these districts was 2,139,085, and in the past year, 2,109,408, owners, probably, taking advantage of the favourable season to move the stock further inland.

The wool traffic may be summarised as follows:—

Section.	1886-7.	1887-8.
	Bales.	Bales.
Sydney to Goulburn	27,363	25,325
Goulburn to Albury	29,159	39,967
Cooma Line	6,917	10,492
Gundagai Line	4,991	4,831
Cowra Line	12,844	21,231
South West Line	37,176	44,593
Camden	35	26
Total, South	118,485	146,465
Parramattato Orange	9,877	9,410
Orange to Bourke	95,031	118,491
Richmond Line	1,786	2,125
Molong Line	12,653	15,512
Mudgee Line	10,812	9,682
Total, West	130,159	155,220
Newcastle to Tamworth	31,431	35,677
Tamworth to Tenterfield	23,086	21,518
North-west	39,448	48,349
Total North	93,965	105,544
Grand total	342,609	407,229

From the Customs returns it would appear that, during 1887, a much larger quantity of wool was diverted to the other Colonies than was the case in 1886, due to the fact that the rivers were favourable to navigation, and to there being a large increase in the sheep shorn in districts which have the advantage of river navigation.

The

The following is an estimate of the clip sent to Sydney, and also the proportion sent across the borders and to Melbourne, Adelaide, and Brisbane, for the years 1886 and 1887 :—

Port of Shipment.								1886.	1887.
								lb.	lb.
Sydney	...	...	...	...	...	...	...	118,316,151.	128,151,154
Melbourne	...	...	...	...	...	...	...	37,199,377	47,012,987
Adelaide	...	...	...	...	...	...	...	14,562,809	16,054,563
Brisbane	...	...	...	...	...	...	...	155,134	348,856
								170,233,471	191,567,560

The prospect of an extremely heavy clip of wool during the approaching season, is very encouraging. It is estimated that the quantity which will be sent by railway for the season 1888-9, if the conditions continue as favourable as they are at present, will not fall far short of half a million bales.

10.—COAL TRAFFIC.

The coal traffic for the year has been very active. In 1886 I had to record a small decrease in the total quantity carried when compared with 1885; but this year the satisfactory increase of nearly 100,000 tons is shown.

Since the commencement of the year the coal trade has been very heavy. The carriage on the Northern Line from 1 January to 30 June, 1888, was increased by 20,000 tons in comparison with the similar period of 1887. The opening of the Gosford-Waratah Extension has admitted of communication being had with the extensive coal-field about Lake Macquarie, and several new mines have since been connected by branch lines with our railway.

Summarizing the returns furnished it may be stated that the quantity carried on the Northern line was—

					Tons.	Freight.
1886	...	...	...	...	1,633,875	£78,349
1887	...	...	...	...	1,733,381	£80,942
Increase					99,506	£2,593

And the quantity shipped from Newcastle for Intercolonial and Foreign parts :—

					Tons.	Value.
1886	...	...	...	...	1,544,494	£828,189
1887	...	...	...	...	1,658,386	£886,921
Increase					113,892	£58,732

The largest shipments to any one place were to the Colony of Victoria, which took 708,559, as against 628,141 tons for the previous year.

The largest foreign shipments were to the United States, India, and Hongkong; the United States, our largest foreign customer, took 248,325 tons in 1887, as against 178,168 tons in 1886. The

The coal and shale traffic on the Southern and Western Lines show little difference, the diminished output at some mines being balanced by the increased supply at others. The promised opening of several new mines, and the connection of the Illawarra Line will probably considerably augment the returns for the present year. The total quantity carried in 1886 and 1887 was as under:—

		COAL.		SHALE.	
		Tons.	Freight.	Tons.	Freight.
1886	... ..	182,369	£61,757	26,230	£8,786
1887	... ..	180,704	£60,689	26,141	£8,720
Increase ...		.....	.....	.....	.....
Decrease		1,665	£1,068	89	£66

In addition there were 165,559 tons of coal carried for Departmental use, the freight on which would have amounted to £72,447; but, as this was used for railway purposes, no credit for it has been taken in the railway earnings.

11.—ACCIDENTS.

The year, unhappily, did not pass away without accident, but only one of a serious character occurred—the so-called “Peat’s Ferry Accident.”

This accident was one of the most disastrous which has marked our history, and the Administration had to deplore a terrible sacrifice of life.

On the 21st June, on the occasion of Queen’s Jubilee, a special train was despatched from Sydney for Peat’s Ferry, properly provided with the usual hand-brakes, in addition to the Westinghouse automatic continuous brake. In descending one of the many steep grades which characterize that line, the train, despite the efforts of those in charge, got beyond control, and rushed at a high speed into the Peat’s Ferry Station, where, but for the courage and presence of mind displayed by the pointsman, it would have run into a waiting passenger train, with results fearful to contemplate. Turned by the pointsman into a siding, the fugitive train ran into some trucks standing there, the engine being capsized into the water by the force of the collision, and several carriages being wrecked. The engine-driver—who, with great intrepidity, stuck to his post—and four passengers were killed, a fifth dying a few days after from the effects of the injuries received, and seventy-three persons were more or less injured.

An exhaustive inquiry was held by a Board specially appointed for the purpose with a view to arrive at the causes of the accident. The evidence of the witnesses and all the attendant circumstances pointed to the inexpert use of the Westinghouse brake as the true cause of the catastrophe, and this was the conclusion arrived at by the Board.

12.—RETURNS.

In addition to the Returns given and referred to in the Report, several others will be found in the Appendix which serve further to illustrate the Railway transactions for the past year.

Annexed to the Appendix are thirteen coloured diagrams showing the particulars of the capital invested, the revenue received, the working expenditure, the net revenue, and the return which the net revenue gave to the capital invested for each of the thirty-one years, from 1855 to the end of 1887.

A Railway map of the lines constructed, under construction, and authorised is appended, and also a map of Australia, showing in the same way the Railways of the various Colonies.

13.—RECAPITULATION.

The transactions during the year are thus summarized :—

The total expenditure for construction was £28,911,224, of which the sum of £26,532,122 was expended for lines opened for traffic.

At the close of the year 2,036 miles of line were opened for traffic, and 132 miles were in course of construction.

The rolling stock consisted of 426 locomotives, 1,007 coaching, and 8,798 goods, vehicles.

The value of the railway materials, in the conveyance of which 115 vessels were employed, amounted to £211,195, including freight and insurance.

During the year 153,954 trains were run a distance of 6,472,107 miles; the earnings amounted to £2,208,294, and the working expenditure to £1,457,760. The number of passengers who travelled was 14,451,303, of whom 2,692,201 were first class, 6,158,650 second class, and 5,600,452 season-ticket holders.

The merchandise traffic consisted of 1,986,663 head of live stock, 437,680 bales of wool, 2,079,644 tons of coal, and 1,112,263 tons of general merchandise.

The earnings per mile open were £1,141, the expenditure was £753, and the net earnings were £388.

The net earnings were £750,534, yielding 2·96 per cent. to the capital invested on lines in operation.

I have the honor to be,

Sir,

Your most obedient servant,



Commissioner for Railways.

The Honorable John Sutherland, Esq.,
Secretary for Public Works,
&c., &c., &c.

TRAMWAYS OF NEW SOUTH WALES.

Department of Public Works, Railway Branch,
Sydney, 20 July, 1888.

Sir,

I have the honor to submit, for the information of the Government, the Report upon the Tramway Branch of the Public Service for the year 1887.

RETURN showing the capital expended on the New South Wales Government Tramways to 31st December, 1886, and subsequent expenditure to 31st December, 1887. Capital Expenditure.

Lines and Sections.	Total Expenditure to 31 December, 1886.	Amount expended during 1887.	Total expended to 31 December, 1887.
	£ s. d.	£ s. d.	£ s. d.
Railway Station to Circular Quay.....	61,218 2 1	489 2 7	61,707 4 8
Liverpool-street to Randwick and Coogee.....	105,790 14 8	0 3 5	105,790 18 1
Darlinghurst Junction to Waverley and Woollahra	48,952 16 0	43 14 0	48,996 10 0
Crown-street to Cleve-land-street. { £31,666 9 9 Less excess credit 15,627 19 8			
	†16,038 10 1		16,038 10 1
Newtown (Glebe Junction) to Marrickville { £53,404 16 11 Less excess credit 45 0 5			
	†53,359 16 1	5 7 2	53,365 3 3
Glebe Point and Forest Lodge	38,021 2 10		38,021 2 10
Railway Station Junction to Botany	78,161 9 2	659 3 7	78,820 12 9
Forest Lodge Junction to Leichhardt	31,111 5 11	4,463 10 2	35,574 16 1
Waverley to Bondi	20,015 17 5	3,286 13 10	23,302 11 3
Waverley to Randwick	4,862 1 2	3,284 10 5	8,146 11 7
North Shore Cable	£69,625 9 11		
‡Amount transferred to rolling stock and machinery	7,800 0 0		
	61,825 9 11	756 13 11	62,582 3 10
Newcastle to Plattsburg	20,716 2 1	26,680 6 11	47,396 9 0
Kogarah to Sans Souci (add Trial Surveys, £359 17s. 10d.)	359 17 10	9,067 7 4	9,427 5 2
Campbelltown to Camden	37,867 16 0	536 11 3	38,404 7 3
Circular Quay to Kent-street	100,216 18 2		100,216 18 2
Newtown to Cook's River	297 3 7		297 3 7
Harris-street to Pymont	276 1 10		276 1 10
Total cost of construction.....	679,091 4 10	49,273 4 7	728,364 9 5
Tramway Workshops	54,710 5 11	475 19 3	55,186 5 2
Rolling Stock	£216,130 7 4		
†Add from North Shore construction	2,800 0 0		
	£218,930 7 4		
Written off to working expenses.....	4,454 0 1		
	†214,476 7 3	3,060 11 7	217,536 18 10
Machinery.....	£5,470 9 10		
†Add from North Shore construction ...	5,000 0 0		
	10,470 9 10	5,114 9 11	15,584 19 9
Furniture	2,113 0 3		2,113 0 3
Trial surveys	*4,613 13 4	236 0 4	4,849 13 8
Total Tramways	£ †965,475 1 5	58,160 5 8	1,023,635 7 1

* This amount appears in Return of 1886 as £4,973 11s. 2d.; it is now reduced by £359 17s. 10d., transferred to Sans Souci Extension.
† Reduced by £20,127 0s. 2d. as follows, viz.:—Credits of 1887, £15,673 0s. 1d.; written off to working expenses, £4,454 0s. 1d.

In the above return is included the capital invested in lines other than what are known as the City and Suburban Tramways.

Confining my observations for the present to the capital expenditure upon the latter system of Tramways, I have to report that the amount expended to the close of 1886, as shown in my Report for that year, was £742,113.

During

During 1887 several causes combined to lessen this sum, the chief of which were:—

1. The transfer from the stock used upon the Sydney Tramway of 8 motors and 15 cars, which were required to work the Plattsburg Tramway. The value of these vehicles was £17,816. Of this cost £4,454 was written off to working expenses for depreciation, and £13,362 transferred to the cost of the Plattsburg line.
2. The debit of £15,628 to the City Council to meet their proportion of the cost of wood-paving Crown-street, Surry Hills, along which street the tram-line is constructed.

It is an unusual course in railway practice to write any sum off specially to depreciation account, but the value of this rolling stock was decreased by the removal of the upper decks on the cars, thereby reducing their carrying power, and it was considered fair to write off the amount stated. The adoption of this course necessarily decreased the return which the net revenue gives to the capital invested.

There were, in addition, some minor sums refunded on account of construction, and the expenditure to end of 1886—£742,113—must therefore be reduced by the sum of £33,489.

During the year there was expended the sum of £22,958, making the capital value at the end of 1887, £731,582, as under:—

Expended to end of 1886, as per report...	742,113
Less credits as shown above	33,489

Adjusted amount, 31st December, 1886 ... £708,624

Amount transferred for cost of lines opened	
during the year	4,875
Additions and improvements to the existing lines..	12,232
Additional rolling stock, workshops, and	
machinery	5,851

Total to end of 1887 £731,582

This expenditure, distributed among the various lines included in this system, is shown in the subjoined statement:—

Lines opened for Traffic.	Length in miles.	Total Cost.	Cost per mile.
		£	£
Railway Station to Circular Quay	1 $\frac{3}{4}$	61,707	35,261
Liverpool-street to Randwick and Coogee	5 $\frac{1}{4}$	105,791	20,150
Darlinghurst Junction to Waverley and Woollahra	3 $\frac{1}{2}$	48,996	13,999
Waverley to Bondi Beach	1 $\frac{3}{4}$	23,303	13,316
Waverley to Randwick	1 $\frac{1}{2}$	8,147	5,431
Crown-street Junction to Cleveland-street	0 $\frac{3}{4}$	16,038	21,385
Newtown (Glebe Junction) to Marrickville	3 $\frac{1}{2}$	53,365	16,420
Railway Station to Glebe and Forest Lodge	2 $\frac{1}{2}$	38,021	16,898
Forest Lodge to Leichhardt	2 $\frac{3}{4}$	35,575	12,936
Railway Station Junction to Botany	6 $\frac{3}{4}$	78,821	11,677
Average cost of construction	29 $\frac{1}{2}$	469,764	15,924
Tramway Workshops... ..	.....	55,186	.....
Rolling Stock ... ..	.....	194,202	.....
Machinery ... ..	.....	10,317	.....
Furniture ... ..	.....	2,113	.....
Average cost, all charges	29 $\frac{1}{2}$	731,582	24,800

The extensions opened during 1887 were :—

Line from Waverley to Randwick, $1\frac{1}{2}$ mile, opened June 4th, 1887.

Line from Kogarah to Sans Souci and Sandringham, 5 miles, opened September 10th, 1887.

Line from Newcastle to Plattsburg, $7\frac{1}{2}$ miles, opened July 13th, 1887.

Line from Bondi Beach to Aquarium, $\frac{1}{2}$ mile, opened September 28th, 1887.

WAVERLEY TO RANDWICK AND BONDI BEACH TO THE AQUARIUM.

These extensions form an addition to the line from Darlinghurst Junction to Waverley, Woollahra and Bondi, and the returns are therefore included with those shown under that branch of the City and Suburban system.

REVENUE AND EXPENDITURE.

The total earnings derived from the City and Suburban Tramways during the year were £214,125. The expenditure was £201,468. The net earnings were £12,657; giving a return to capital invested of 1·76 per cent.

As compared with the transactions for the year 1886, the returns show a decrease in the total earnings of £12,242, a decrease in the working expenses of £269, and in the net earnings of £11,973; causing a fall in the return to capital from 3·32 per cent. to 1·76 per cent.

While this large falling off in the gross takings is to be regretted it is not difficult to account for it. That it was gradual throughout the year will be seen from the following comparative statement of the earnings per month for 1886 and 1887 :—

EARNINGS STATEMENT.

Months.	1887.	1886.	Increase—1887.	Decrease—1887.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
January	18,937 1 9	20,195 11 6	.....	1,258 9 9
February	17,085 5 0	17,552 14 8	.....	467 9 8
March	18,884 18 0	20,133 19 8	.....	1,249 1 8
April	18,276 1 8	20,386 10 5	.....	2,110 8 9
May	17,700 15 8	18,643 4 9	.....	942 9 1
June	17,187 18 0	17,433 5 0	.....	245 7 0
July	16,131 10 7	17,103 13 3	.....	972 2 8
August	16,519 12 10	17,795 6 3	.....	1,275 13 5
September	17,712 17 6	18,318 2 6	.....	605 5 0
October	17,838 4 9	17,644 9 5	193 15 4	.....
November	16,331 1 5	18,668 8 9	.....	2,337 7 4
December	19,624 10 2	20,608 2 3	.....	983 12 1
Miscellaneous... ..	1,895 8 0	1,883 9 7	11 18 5	.....
	214,125 5 4	226,366 18 0	205 13 9	12,447 6 5
Deduct increase ... ..	.....	.....	.....	205 13 9
				£12,241 12 8

The unfavourable weather will account for the larger portion of the decrease. The whole year was exceptionally wet as compared with 1886. During 1887 there were 190 wet days as against 152 in the previous year, while the difference in the rainfall was even more striking. The returns of the Government Astronomer show that the rainfall in the Metropolitan District was 60·164 inches for 1887, while it was only 49·049 for 1886.

A separate return was kept of the number travelling on the public holidays, many of which, it will be remembered, were persistently wet. The earnings upon public holidays during 1887 were less by the sum of £2,276 than they were in the year 1886.

Another cause of the diminished returns was unquestionably the large increase in the number of omnibuses running on or near some of the tram routes. As this omnibus service has been established chiefly in directions in which the Department has increased the facilities and lowered the tram fares, it is difficult to account for the increased patronage given to the omnibuses. It may be conjectured that the chief reason is that the tram service is not run sufficiently near to the business centres of the western side of the city, the importance of which, in regard to the volume of trade and traffic, is largely on the increase.

Again, the extension of some of the sections, particularly on the Paddington-Waverley line, materially assisted in decreasing the revenue. The percentage return to capital on this line was reduced from 10·04 per cent. in 1886 to 3·30 in 1887.

Had it not been for this unexpected falling off in the revenue, and the decision to debit the working expenses with the amount of depreciation of the rolling stock sent to the Plattsburg line, the return to the capital invested would have been equal to 4 per cent.

It will be seen from the sectional returns which follow that the Lines worked at a profit were :—

	Gain per cent. on capital expended.
The line to the Railway	2·64
Randwick and Coogee Bay lines	2·11
Waverley, Woollahra, and Bondi lines	3·30
Newtown and Marrickville lines	6·89
Leichhardt line	6·13

All other lines worked at a loss are—

	Loss per cent. on capital.
Crown-street line	0·59
Waterloo and Botany lines	3·69
Glebe Point and Forest Lodge lines	5·34

CITY AND SUBURBAN TRAMWAYS—1887.

ALL SECTIONS.

Expenditure.				Earnings.		
All Sections—		Cost per	Per	All Sections—		Earnings per
Miles open	29½	train	cent. to	Miles open	29½	train
Train mileage	1,220,026	mile.	earnings	Train mileage ...	1,220,026	mile.
Locomotive expenses ...	£ 125,991	d. 24·78	58·84	Earnings from all sources	£ 214,125	d. 42·12
Permanent-way do ...	23,815	4·69	11·12			
Traffic do ...	40,884	8·04	19·09			
General do ...	10,778	2·12	5·03			
	201,468	39·63	94·08			
Balance, net earnings ...	12,657					
	£ 214,125				£ 214,125	42·12
Capital expended—						
Construction ...		£469,764				
Rolling stock, &c. ...		261,818				
		£731,582				
Lines in Operation.—27½ miles open for 12 months;				Per cent. per annum return on		
1½ mile open 7 months; ½ mile open 3 months.				capital 1·76		

All sections.

REDFERN LINE.

Expenditure.				Earnings.		
Miles open		Cost per	Per	Miles open		Earnings per
Train mileage	1½	train	cent. to	Train mileage	1½	train
	86,800	mile.	earnings		86,800	mile.
Locomotive expenses ...	£ 8,964	d. 24·78	39·08	Earnings from all sources	£ 22,939	d. 63·42
Permanent-way do ...	8,126	22·47	35·42			
Traffic expenses ...	2,908	8·04	12·68			
General do ...	767	2·12	3·34			
	20,765	57·41	90·52			
Balance, net earnings...	2,174					
	£ 22,939				£ 22,939	63·42
Capital expended—						
Construction ...		£61,707				
Rolling stock, &c. ...		20,503				
		£82,210				
Line in operation 12 months.				Per cent. per annum return on		
				capital 2·64		

Redfern Line.

RANDWICK-COOGEE LINE.

Randwick and
Coogee Bay.

Expenditure.				Earnings.		
Miles open	5 $\frac{1}{4}$	Cost per train mile.	Per cent. to earnings	Miles open	5 $\frac{1}{4}$	Earnings per train mile.
Train miles	152,571			Train miles	152,571	
	£	d.			£	d.
Locomotive expenses ...	15,756	24·78	55·58	Earnings from all sources	28,346	44·59
Permanent-way do ...	3,196	5·03	11·27			
Traffic do ...	5,113	8·04	18·04			
General do ...	1,348	2·12	4·76			
	25,413	39·97	89·65		£ 28,346	44·59
Balance, net earnings...	2,933					
	£ 28,346					
Capital expended—						
Construction			£105,791	Per cent. per annum return on capital		2·11
Rolling stock, &c... ..			33,536			
			£139,327			
Line in operation 12 months.						

WAVERLEY, WOOLLAHRA, AND BONDI.

Waverley,
Woollahra,
and Bondi.

Expenditure.				Earnings.		
Miles open	6 $\frac{3}{4}$	Cost per train mile.	Per cent. to earnings	Miles open	6 $\frac{3}{4}$	Earnings per train mile.
Train miles	279,862			Train miles	279,862	
	£	d.			£	d.
Locomotive expenses ...	28,901	24·78	59·42	Earnings from all sources	48,643	41·71
Permanent-way do ...	3,401	2·92	6·99			
Traffic do ...	9,379	8·04	19·28			
General do ...	2,472	2·12	5·08			
	44,153	37·86	90·77			
Balance, net earnings...	4,490					
	£ 48,643				£ 48,643	41·71
Capital expended—						
Construction			£80,446	Per cent. per annum return on capital		3·30
Rolling stock, &c.			61,438			
			£141,884			
Lines in operation 4 $\frac{3}{4}$ miles for 12 months.						
1 $\frac{1}{2}$ " 7 "						
$\frac{1}{2}$ " 3 "						

CROWN-STREET.

Expenditure.				Earnings.		
Miles open				Miles open		Earnings per train mile.
Train miles	70,594	Cost per train mile.	Per cent. to earnings	Train miles	70,594	
	£	d.			£	d.
Locomotive expenses ...	7,290	24.78	70.52	Earnings from all sources	10,337	35.14
Permanent-way do ...	234	0.80	2.26	Loss on working ...	176	.....
Traffic do ...	2,365	8.04	22.88			
General do ...	624	2.12	6.04			
	£ 10,513	35.74	101.70		£ 10,513	.....
Capital expended—						
Construction ...	...	£16,038		Loss per cent. per annum on capital ...	...	0.59
Rolling-stock, &c. ...	...	13,908				
		£29,946				
Line in operation 12 months.						

Crown-street.
to Cleveland street.

WATERLOO AND BOTANY.

Expenditure.				Earnings.		
Miles open				Miles open		Earnings per train mile.
Train miles	177,722	Cost per train mile.	Per cent. to earnings	Train miles	177,722	
	£	d.			£	d.
Locomotive expenses ...	18,353	24.78	73.11	Earnings from all sources	25,103	33.90
Permanent-way do ...	3,317	4.49	13.21	Loss on working ...	4,092	.....
Traffic do ...	5,955	8.04	23.72			
General do ...	1,570	2.12	6.26			
	£ 29,195	39.43	116.30		£ 29,195	.....
Capital expended—						
Construction ...	...	£78,821		Loss per cent. per annum on capital ...	...	3.69
Rolling stock, &c. ...	...	31,999				
		£110,820				
Line in operation 12 months.						

Waterloo and Botany.

GLEBE POINT AND FOREST LODGE.

Glebe Point
and Forest
Lodge.

Expenditure.				Earnings.		
Miles open	2½	Cost per train mile.	Per cent. to earnings	Miles open	2½	Earnings per train mile.
Train miles	145,092			Train miles	145,092	
Locomotive expenses ...	£ 14,984	d. 24·78	77·31	Earnings from all sources	£ 19,382	d. 32·06
Permanent-way do ...	1,551	2·57	8·00	Loss on working ...	3,297	.....
Traffic do ...	4,862	8·04	25·09			
General do ...	1,282	2·12	6·61			
.....						
	£ 22,679	37·51	117·01		£ 22,679	.....
Capital expended—						
Construction			£38,021	Loss per cent. per annum on capital		5·34
Rolling stock, &c....			23,682			
			£61,703			
Line in operation 12 months.						

NEWTOWN AND MARRICKVILLE.

Newtown and
Marrickville.

Expenditure.				Earnings.		
Miles open	3½	Cost per train mile.	Per cent. to earnings	Miles open	3½	Earnings per train mile.
Train miles	174,262			Train miles	174,262	
Locomotive expenses ...	£ 17,996	d. 24·78	53·00	Earnings from all sources	£ 33,955	d. 46·76
Permanent-way do ...	1,878	2·59	5·53			
Traffic do ...	5,840	8·04	17·20			
General do ...	1,539	2·12	4·53			
.....						
	27,253	37·53	80·26			
Balance, net earnings...	6,702					
	£ 33,955				£ 33,955	46·76
Capital expended—						
Construction			£53,365	Per cent. per annum return on capital		6·89
Rolling stock, &c....			43,861			
			£97,226			
Line in operation 12 months.						

LEICHHARDT LINE.

Expenditure.				Earnings.		
Miles open	2 $\frac{1}{4}$	Cost per train mile.	Per cent. to earnings	Miles open	2 $\frac{1}{4}$	Earnings per train mile.
Train miles	133,123			Train miles	133,123	
Locomotive expenses ...	£ 13,747	d. 24·78	54·08	Earnings from all sources	£ 25,420	d. 45·83
Permanent-way do ...	2,112	3·81	8·31			
Traffic do ...	4,462	8·04	17·55			
General do ...	1,176	2·12	4·62			
	£ 21,497	38·75	84·56			
Balance net earnings ...	3,923					
	£ 25,420				£ 25,420	45·83
Capital expended—						
Construction ...			£35,575			
Rolling-stock, &c. ...			32,891			
			£68,466			
Lines in operation, 2 $\frac{1}{4}$ miles open 12 months.				Per cent. per annum return on capital ...		6·13

Leichhardt.

GOVERNMENT TRAMWAYS, 1887.

STATEMENT OF PROFIT AND LOSS.

Lines open for Traffic.	Length in Miles.	Periods for which Lines were in Operation.	Cost of Construction.		Cost of Rolling Stock, Machinery, Workshops, and Furniture.	Total Capital expended.	Net Earnings.	Loss on Working.	Rate per cent. per annum of interest returned on Capital.	Loss per cent. per annum on Capital.	Net Return.
			Amount.	Total.							
CITY AND SUBURBAN.											
Railway Station to Circular Quay	1 $\frac{3}{4}$	12	£	£ 61,707	£ 20,503	£ 82,210	£ 2,174	£	2·64	...	...
Liverpool-street to Randwick and Coogee.	5 $\frac{1}{4}$	12	£	105,791	33,536	139,327	2,933	...	2·11	...	...
Darlinghurst Junction to Waverley, Woollahra, and Bondi.	4 $\frac{3}{4}$	12	£	69,026	.....	.....	.....	.....	.....	.....	.....
Waverley to Randwick	1 $\frac{1}{2}$	7	£	8,147	.....	.....	.....	.....	.....	.....	.....
Bondi to Aquarium	$\frac{1}{2}$	3	£	3,273	.....	.....	.....	.....	.....	.....	.....
				80,446	61,438	141,884	4,490	...	3·30	...	...
Crown-street Junction to Cleveland-street.	$\frac{3}{4}$	12	£	16,038	13,908	29,946	.....	176	...	0·59	...
Devonshire-st. Junction to Botany.	6 $\frac{3}{4}$	12	£	78,821	31,999	110,820	.....	4,092	...	3·69	...
Glebe Point and Forest Lodge	2 $\frac{1}{4}$	12	£	38,021	23,682	61,703	.....	3,297	...	5·34	...
Newtown and Marrickville	3 $\frac{1}{4}$	12	£	53,365	43,861	97,226	6,702	...	6·89	...	...
Leichhardt	2 $\frac{1}{4}$	12	£	31,111	.....	.....	.....	.....	.....	.....	.....
Do	$\frac{1}{2}$	0	£	4,464	.....	.....	.....	.....	.....	.....	.....
				35,575	32,891	68,466	3,923	...	6·13	...	...
Total .....				.....	.....	.....	20,222	7,565	...	...	...
Deduct loss on working ...				.....	.....	.....	7,565	.....	.....	.....	.....
	29 $\frac{1}{2}$	...		469,764	261,818	731,582	12,657	...	.....	.....	1·76

NORTH SHORE CABLEWAY.

The capital cost of this cableway, including rolling-stock and machinery, amounts to the large sum of £71,504, a considerable portion of which, however, will be recouped when the surplus land at Milson's Point (resumed in connection with the undertaking) is sold, and the proceeds credited to the vote.

Notwithstanding that the cable had to be renewed during the year, the cost of which (£825) was charged to the working expenses, the operations for 1887 resulted in a return to capital of 0·55 per cent., in place of a loss incurred in 1886, of 1·63 per cent. As the population on the North Shore increases this line of cableway will become gradually remunerative.

The following table gives the particulars of the capital expenditure the revenue and working expenses of the line :—

NORTH SHORE CABLE LINE.

Expenditure.				Earnings.		
Miles open	1½	Cost per train mile.	Per cent. to earnings	Miles open	1½	Earnings per train mile.
Train mileage.....	69,033			Train mileage.....	69,033	
Locomotive expenses ...	£ 4,649	d. 16·16	63·91	Earnings from all sources	£ 7,274	d. 25·29
Permanent-way do ...	715	2·49	9·83			
Traffic do ...	1,225	4·26	16·84			
General do ...	270	0·94	3·71			
	£ 6,859	23·85	94·29			
Balance, net earnings ...	415					
	£ 7,274				£ 7,274	...
Capital expended—						
Construction ...	...	...	£62,582			
Rolling stock, &c. ...	...	...	8,922			
			£71,504	Per cent. per annum return on capital ...	...	0·58
Line in operation 12 months.						

KOGARAH AND SANDRINGHAM TRAMWAY.

The capital cost of this Tram-line, which is 5 miles in length and connects the Illawarra Railway at Kogarah, with the popular water-side pleasure grounds of Sans Souci and Sandringham on the George's River, stands in the Tramway books at £9,427 for construction and £3,826 for rolling-stock, in all, £13,253; but to this amount has to be added the sum

sum of £6,000, subscribed by the residents as an inducement to the Government to construct the line. At the close of 1887 it had been in operation a little over three months, and the returns for that period show that it was worked at a loss of £98; the total revenue was £396, and the cost of working—without interest upon capital—£494.

At the same time while the line itself may not pay it must not be forgotten that it is a valuable feeder to the Illawarra Railway Line.

It would be premature, after an experience of three months only, to express an opinion upon the remunerative prospects of the line, but it seems probable that a larger residential traffic than it now possesses will be necessary to make it self-supporting—the excursion traffic is too infrequent to justify the expectation of a large return from that source.

The following table gives the return of Revenue and Expenditure :—

Expenditure.				Earnings.		
Miles open	5			Train mileage—		
Train miles	5,821	Cost per train mile.	Per cent. to earnings	Coaching	4,967	Earnings per train mile.
				Goods	854	
				Total	5,821	
Locomotive expenses ...	£ 319	d. 13·15	80·56	Earnings from—	£	d.
Permanent-way do ...	86	3·55	21·72	Coaching ...	388	18·75
Traffic do ...	87	3·59	21·97	Goods ...	8	2·25
General do ...	2	0·08	0·50			
	£ 494	20·37	124·75	Balance—	396	
				Loss on working ...	98	
					£ 494	
Capital expended—						
Construction ...	...	...	£9,427			
Rolling stock, &c. ...	...	...	3,826			
			£13,253			
Line in operation, 3½ months.				Loss per cent. per annum on capital ...		2·42

Kogarah to San Souci and Sandringham.

NEWCASTLE AND PLATTSBURG TRAM LINE.

This line was constructed to connect the City of Newcastle with the coal-mining townships of Lambton and Wallsend. The capital cost of the line—which is 7½ miles in length—has been £62,104, inclusive of rolling stock. At the close of 1887 it had been in operation five and a half months only, and the working expense for that time amounted to £4,128, while the revenue was only £3,949, showing a loss on working of £179.

The net earnings of this tramway must be annually £2,484 to make it self-supporting.

In the following table are given particulars of the revenue and expenditure :—

Expenditure.				Earnings.		
Miles open	7½	Cost per train mile.	Per cent. to earnings	Miles open	7½	Earnings per train mile.
Train mileage.....	35,040			Train mileage.....	35,040	
	£	d.			£	d.
Locomotive expenses ...	2,228	15·26	56·42	Earnings from all sources	3,949	27·05
Permanent-way do ...	351	2·40	8·89	Balance—		
Traffic do ..	1,398	9·58	35·40	Loss on working ...	179	
General do ...	151	1·03	3·82			
	£	28·27	104·53		£	4,128
Capital expended—						
Construction ...	...	...	£47,397			
Rolling stock ...	...	...	14,707			
			£62,104	Loss per cent. per annum on capital ...		0·63
Line in operation, 5½ months.						

CAMPBELLTOWN AND CAMDEN TRAMWAY.

The subjoined return of the transactions of the Campbelltown and Camden Tramway is very satisfactory; the net revenue for 1887 gives a return to the capital invested of 4·29 per cent. as against 3·36 per cent. for 1886 :—

RETURN OF EXPENDITURE AND EARNINGS.

Expenditure.				Earnings.		
Miles open	7½	Cost per train mile.	Per cent. to earnings	Train mileage—Coaching.....	12,475	Earnings per train mile.
Train mileage.....	25,499			Goods.....	13,024	
					25,499	
	£	d.		Earnings from—	£	d.
Locomotive expenses ...	1,028	9·68	25·51	Coaching ...	1,940	37·32
Permanent way do ...	783	7·37	19·43	Goods ...	2,089	38·50
Traffic do ...	252	2·37	6·26			
General do ...	27	0·25	0·67			
	2,090	19·67	51·87			
Balance, net earnings ...	1,939					
	£				£	4,029
Capital expended—						
Construction ...	...	...	£38,404			
Rolling stock, &c. ...	...	...	6,761			
			£45,165	Per cent. per annum return on capital... ..		4·29
Line in operation 12 months.						

ACCIDENTS.

The following were the accidents for the years 1886 and 1887, together with the number of passenger fares collected :—

Years.	Accidents.						Total.		Number of Passenger Fares on Metropolitan Tramways.
	Servants.		Passengers.		Other than Passengers.		Killed.	Injured.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.			
1887	1	1	2	6	6	20	9	27	50,108,256
1886 .....	.....	9	3	8	4	17	7	34	52,977,578
Increase	1	3	.....	1	2	3	2	.....
Decrease .....	.....	8	1	2	.....	.....	.....	7	2,869,322

In concluding this *résumé* of the transactions of the Tramways for the year 1887, I must express my disappointment with the results. It is my intention to submit to you, in a few weeks, a return of the operations for the year ending the 30th June, 1888, and I have every reason to believe that I shall be able to place before you a more encouraging statement of our Tramway affairs.

I have the honor to be,

Sir,

Your most obedient Servant,



Commissioner for Railways.

The Honorable John Sutherland, Esq.,
Secretary for Public Works,
&c., &c., &c.

APPENDIX

TO THE

REPORT ON THE RAILWAYS AND TRAMWAYS

OF

NEW SOUTH WALES,

1887.

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APPENDIX TO REPORT ON RAILWAYS—1887.

No. 1.

The Engineer for Existing Railways and Tramways to The Commissioner for Railways.

I HAVE the honor to submit my Annual Report from January 1st to December 31st, 1887, on the condition of the Existing Railways and Tramways under my charge.

SUBURBAN RAILWAYS.

Sydney to Granville Junction—Double Line—Length, 13 miles 16 chains.

GREAT SOUTHERN AND SOUTH-WESTERN RAILWAYS.

Granville Junction to River Murray—Single Line—Length, 374 miles 4 chains.

Junee Junction to Hay—Single Line—Length, 167 miles 29 chains.

Narrandera to Jerilderie—Single Line—Length, 64 miles 49 chains.

Murrumburrah to Cowra—Single Line—Length, 64 miles 55 chains.

Cootamundra to Gundagai—Single Line—Length, 33 miles 15 chains.

Joppa Junction to Bungendore—Single Line—Length, 39 miles 10 chains.

Bungendore to Queanbeyan—Single Line—Length, 17 miles 32 chains.—Opened for public traffic, 8th September, 1887.

Queanbeyan to Michelago—Single Line—Length, 30 miles 19 chains.—Opened for public traffic, 7th December, 1887.

The permanent way and works on these sections have on the whole been kept in good order during the year, but the maintenance of the permanent way has involved considerable trouble and expense on account of the extremely wet weather which prevailed during the greater part of the period.

From Sydney to Goulburn the road is in good running order, but the heavy traffic on the suburban line combined with the unfavourable weather necessitated the greatest attention, and occasionally the employment of extra hands, to keep up the permanent way of that section.

From Goulburn to the river Murray the road is in fair order, with the exception of places between Goulburn and Binalong, and Illabo and Junee, which are rough on account chiefly of the bad condition of the sleepers. Renewals of sleepers have been largely carried out during the year from Goulburn southwards, and must be continued as rapidly as practicable until the entire section has been re-sleepered. The rails between Bowning and Junee have also begun to wear very badly.

The timber bridges have received careful attention and in some instances have undergone extensive repairs. They are generally in good order but a few will require renewal at no distant date.

The South-western and Jerilderie Lines are in very fair running order, and no repairs of any magnitude have been required to the bridges or other structures during the year.

Between Demondrille Junction and Cowra the road is not in a satisfactory state, the heavy rains having caused the banks to subside very much, making the permanent way consequently rough and knotty. Considerable quantities of ballast have been required on this section and large expenditure has been incurred in cleaning out cuttings which, in many instances, were filled by slips up to rail level.

The Gundagai Line has continued in very fair running order during the year.

From Joppa Junction to Bungendore the permanent-way has stood the severe weather very well and the sections Bungendore to Queanbeyan, and Queanbeyan to Michelago, which were opened for public traffic during this year, are also in very fair running order. The sleepers between Joppa and Tarago have, however, continued to wear out rather rapidly. More ballast is needed between Bungendore and Queanbeyan.

CULVERTS, &c., CONSTRUCTED DURING THE YEAR.

Mileage.		Number.	Number of Openings.	Size of Openings.	Depth of Waterway.
Miles.	Chains.				
152	51	1	1	ft. in. 8 0	ft. in. 12 5
154	20	1	1	6 0	6 0
208	4	1	1	10 0	3 3
252	35	1	1	4 0	1 3
273	34	1	2	26 0	14 0
309	.....	1	1	2 0	2 3

The following sidings have been laid in during the year :—

<i>Darling Harbour</i> —	feet.	<i>Joadza</i> —	
Siding for Gibbs, Bright, & Co. ...	367	Junction for Kerosene Oil and Mineral	feet.
Through road to ditto and main lines...	156	Co. (Ld.)	85
<i>Sydney</i> —		<i>Bundanoon</i> —	
Botany Road siding extended... ..	410	Siding extended... ..	105
<i>Eveleigh</i> —		<i>Galong</i> —	
Sidings to Shops Nos. 1 to 4 extended	313	New Siding	330
Sidings between Shops Nos. 4 and 5...	360	<i>Murrumburrah</i> —	
Traverser to No. 8 shop	764	Dead-end siding extended	426
Sidings to No. 10 shop... ..	347	<i>Yerong Creek</i> —	
Sidings to No. 11 shop... ..	220	New through road	175
Sidings to No. 12 shop... ..	305	<i>Doodle Cooma</i> —	
Traverser to No. 13 shop	764	New sidings	361
Sidings at east side of Shops Nos. 1 to		<i>Albury</i> —	
15... ..	1,834	Dead-end siding	133
<i>Flemington</i> —		MURRUMBURRAH-BLAYNEY LINE.	
Cross-over road to main line	181	<i>Demondrille Junction</i> —	
<i>Clyde</i> —		Triangle... ..	1,670
Junction of Rosehill Racecourse Line		<i>Burrangong (251 miles 3 chains)</i> —	
with main Southern Lines	587	New siding	288
Sidings for Messrs. Brunton and Co.		<i>Koorawatha</i> —	
and slip points to ditto	1,301	New siding (partly completed)	294
<i>Ingleburn</i> —		<i>Crowther Creek</i> —	
Siding extended	198	New siding (partly completed)	287
<i>Thirlmere</i> —		GUNDAGAI LINE.	
Siding extended	210	267 miles 3 chains—	
<i>Mittagong</i> —		Siding for Mr. Broughton	198
Siding extended	72	Total	12,741

PERMANENT WAY RELAID WITH STEEL RAILS.

	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	Total.
	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.
Main "up" line, 1st mile ...	1,387	.....	2,465	533	238	.....	1,677	1,796	.....	.....	.....	8,096
Main "down" line, 1st mile	1,173	2,587	.....	424	153	.....	1,674	1,782	.....	.....	.....	7,793
Main "up" line, Darling				531	.....	1,509	.....	1,354	1,538	.....	.....	4,932
Harbour Branch				259	.....	1,487	271	1,829	470	.....	.....	4,316
Main "down" line, Darling				.....	.....	5,359	.....	13,655	.....	254	.....	19,593
Main "up" line, between 1			325	.....	.....	.....	.....	.....	.....	.....	.....	.....
and 5 miles .....			.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Main "down" line, between		20	.....	3,864	.....	3,272	.....	5,502	9,273	254	.....	22,185
1 and 5 miles .....		.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Main "down" line, between				.....	.....	.....	.....	2,064	3,082	2,252	12,354	19,752
5 and 10 miles .....				.....	.....	.....	.....	.....	.....	.....	.....	.....
Main "up" line, between 5				.....	.....	.....	.....	.....	7,887	2,133	4,571	14,591
and 10 miles .....				.....	5,280	.....	.....	.....	.....	.....	.....	7,882
Main "up" line, between				.....	.....	.....	.....	.....	2,388	.....	.....	2,388
10 and 12 miles .....				.....	.....	.....	.....	.....	.....	.....	.....	.....
Main "up" line, between				.....	.....	.....	.....	.....	.....	.....	.....	.....
12 and 13 miles .....				.....	.....	.....	.....	.....	.....	.....	.....	.....
Main "down" line, at 13				273	.....	.....	.....	.....	.....	.....	.....	273
miles .....				.....	.....	.....	.....	.....	.....	.....	.....	.....
Main line, between 13 and				.....	.....	.....	.....	289	1,576	.....	.....	1,865
14 miles .....				.....	.....	.....	.....	.....	.....	.....	.....	.....
Main line, between 14 and				.....	.....	.....	.....	.....	.....	.....	.....	.....
18 miles			1,302	.....	1,338	.....	1,473	3,258	10,836	987	2,322	21,516
Main line, between 18 and			.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
20 miles .....			.....	.....	.....	.....	907	.....	.....	.....	6,535	7,442
Main line, between 20 and			.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
22 miles .....			.....	.....	.....	.....	147	3,266	4,884	.....	.....	8,297
Main line, between 23 and			.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
25 miles .....			.....	.....	.....	.....	.....	5,214	.....	.....	.....	5,214
Main line, between 26 and			.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
27 miles .....			.....	.....	1,238	.....	.....	.....	.....	.....	.....	1,238
Main line, between 27 and			.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
29 miles .....			.....	.....	.....	.....	.....	.....	.....	.....	351	351
Main line, between 29 and			.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
35 miles .....			.....	.....	.....	.....	.....	.....	.....	10,855	1,302	12,157
Mine line, between 50 and			.....	.....	.....	.....	2,793	1,779	5,386	3,271	.....	18,740
53 miles .....			.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Main line, at 68 miles	952	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	952
	3,512	2,607	4,092	5,884	8,247	14,420	7,928	45,395	45,205	19,337	32,946	189,573

APPENDIX TO REPORT ON RAILWAYS—1887.

3

SIDINGS RELAID WITH STEEL RAILS.

	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	Total.
	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.
Sidings at Darling Harbour					182	370		158		710
Do at Sydney		3,810	3,455	1,495						8,760
Do at Newtown					256					256
Do at Petersham							1,171			1,171
Do at Ashfield			178							178
Do at Homebush						202				202
Do at Rookwood							139			139
Do at Duck River					374					374
Do at Granville ...	743	829			169					1,741
Do at Cabramatta			576							576
Do at Liverpool			1,275							1,275
Do at Picton						326				326
	743	4,639	5,484	1,495	981	898	1,310	158	.....	15,708

SIDINGS RELAID WITH RE-ROLLED IRON RAILS.

Sidings at Lake Bathurst...	...	...	...	...	...	...	...	...	525
Do Tarago ...	...	...	...	...	...	...	...	...	525
									1,050
									Total 1,050

The following sleepers have been used for renewals of main lines during the year :—

Sydney to Granville Junction	129
Granville Junction to Picton	765
Picton to Goulburn	4,349
Goulburn to Albury	35,841
Joppa Junction to Tarago	210
Tarago to Bungendore	90
	Total 41,384

The following sleepers have been used in new sidings laid in during the year :—

Sidings at Darling Harbour	70
Do at Sydney	180
Do at Eveleigh	959
Do at Flemington	60
Do at Rookwood	176
Do at Clyde	701
Do at Ingleburn	75
Do at Picton... ..	13
Do at Thirlmere	70
Do at Mittagong	24
Do at Joadja... ..	38
Do at Bundanoon	35
Do at Galong	120
Do at Murrumburrah	168
Do at Yerong Creek	69
Do at Doodle Cooma	113
Do at Albury	55

Murrumburrah-Blayney Line—

Sidings at Demondrille Junction	623
Do at Burrangong	100
Do at Koorawatha	110
Do at Crowther Creek	112

Gundagai Line—

Siding at 267 miles 3 chains.	94
--------------------------------------	----

Total 3,965

The

The following quantity of ballast has been used on main lines during the year:—

	Cubic yards.
Sydney to Granville Junction	895
Granville to Picton	191
Goulburn to Albury	7,352
Junee Junction to Hay	593
Narrandera to Jerilderie	2,968
Demondrille Junction to Young	818
Young to Cowra	759
Cootamundra to Gundagai	1,596
Total	15,172

RAILWAY FENCE WIRED DURING THE YEAR.

Bounding the Property of	Sides.	Mileage.		No. of Wires.	Length.
		From	To		
		miles chs.	miles chs.		miles chs.
Mr. Alfred Wright	1	116 30	116 52	2	0 22
Mr. Fulton	1	137 42	137 72	4	0 30
Total					0 52

ILLAWARRA LINE.

Eveleigh to Hurstville—Double Line—Length, 9 miles 40 chains.

Hurstville to Waterfalls—Single Line—Length, 14 miles 60 chains.

National Park Branch Line—Single Line—Length, 1 mile 15 chains.

Clifton to Wollongong—Single Line—Length, 12 miles 27 chains.—Opened for public traffic, 21st June, 1887.

Wollongong to Kiama—Single Line—Length, 21 miles 43 chains.—Opened for public traffic, 9th November, 1887.

As far as Hurstville the road has been kept in good order during the year, but its maintenance has been attended with difficulty on account of the soft nature of the formation between Eveleigh and Marrickville, and the subsidence of the banks south of Hurstville. At these places the heavy rains severely tried the permanent way.

On the sections Clifton to Wollongong, and Wollongong to Kiama, which were taken over during the year—the former in an unfinished state—the road is in fair order, but is slightly down on some of the banks and at bridge ends, and there is an insufficiency of ballast.

CULVERTS lengthened during the year.

Mileage.		Number.	Number of Openings.	Size of Openings.	Lengthened.
Miles.	Chains.				
7	17	1	1	ft. in. 3 0	ft. in. 18 0
7	28	1	1	3 0	13 0

The following sidings have been laid in during the year:—

<i>Kogarah—</i>								feet.
New siding ... ..	...	...	...	...	...	...	...	673
<i>Sutherland—</i>								
Dead-end siding extended ... ..	...	...	...	...	...	...	...	99
<i>National Park—</i>								
Loop siding ... ..	...	...	...	...	...	...	...	614
Total								1,386

The

The following sleepers have been used in new sidings laid in during the year :—

Sidings at Kogarah...	...	...	...	...	...	...	...	356
Do at Sutherland	...	...	...	...	...	...	...	33
Do at National Park	...	...	...	...	...	...	...	210
Total	...	...	...	...	...	...	...	599

The following quantity of ballast has been used on the main lines during the year :—

Sydney to Waterfalls	cubic yards. 718
----------------------	-----	-----	-----	-----	-----	-----	-----	---------------------

GREAT WESTERN RAILWAY.

Granville Junction to Penrith—Double Line—Length, 20 miles 71 chains.

Penrith to Bourke—Single Line—Length, 469 miles 38 chains.

Wallerawang to Mudgee—Single Line—Length, 85 miles 18 chains.

Orange to Molong—Single Line—Length, 22 miles 50 chains.

From Granville Junction to Penrith the new second line has been found difficult to keep up, in consequence of the action of the heavy rains on the banks which were made up during a prolonged drought.

From Penrith to Bathurst the road is in good order with the exception of a few rough places from Eskbank westwards. The rails on this section are wearing very badly, and renewals of sleepers are required on the sharp curves on the mountains.

From Bathurst to Wellington the permanent way is in fair order, except in one or two places where the heavy rains and decayed condition of the sleepers have caused roughness.

Between Wellington and Bourke the road is generally in fair order, but has been found difficult to maintain at places from Dubbo westwards in consequence of the effect of the extremely heavy weather on the soft formation; and from Wellington to Dubbo and near Bourke the road is rough on the banks from the same cause.

The timber bridges, culverts, fencing, and other works have received careful attention during the year.

The Mudgee Line is in fair running order so far as the permanent way is concerned, except between Carlos Gap and Ilford, where rough places are met with in consequence of the settlement of the banks under the influence of the heavy rains. More ballast is needed on the Molong Line to make up banks which have also suffered from the general rainfall.

The following sidings have been laid in during the year :—

<i>Parramatta—</i>	feet.	<i>Bathurst—</i>	feet.
Through road west end of yard	... 181	Sidings to coal stage	... 2,318
<i>St. Marys—</i>		Sidings to turntable and engine-shed	... 663
Dead-end siding, "down" line, extended	192	Siding for Corporation Gas Works	... 628
Dock siding, "up" line, and slip point	505	<i>Orange—</i>	
<i>Wentworth Falls—</i>		Siding and cross-over roads	... 500
Dead-end converted into loop	... 229	Sidings to new turntable	... 533
<i>Katoomba—</i>		<i>Ponto—</i>	
Sidings in connection with double com- pound crossing arrangement	... 3,684	Siding extended	... 438
Dead-end siding	... 594	<i>Manoa (286 miles 75 chains)—</i>	
Safety siding	... 285	New sidings	... 1,987
<i>Eskbank—</i>		<i>325 miles 25 chains—</i>	
Sidings to engine-shed	... 1,150	Siding for Mr. Kelly	... 333
<i>Lithgow—</i>		<i>Bourke—</i>	
Loop extended for coal company	... 240	Siding to cattle yards	... 828
<i>Sodwalls—</i>		MUDGEE LINE.	
Temporary siding to gravel pit	... 381	163 miles 16 chains—	
<i>Raglan—</i>		Sidings for Messrs. Cox Bros.	... 1,365
Alteration of sidings for interlocking	350	Total	... 17,384

APPENDIX TO REPORT ON RAILWAYS—1887.

CULVERTS constructed during the year.

At		Number.	Number of Openings.	Size of Openings.	Depth of Waterway.
Miles.	Chains.				
170	60	1	1	4 6	4 0
284	31	1	1	10 0	20 0

CULVERTS lengthened during the year.

Mileage.		Size of Culvert.	Number of Openings.	Lengthened.	Remarks.
Miles.	Chains.				
66	28	ft. in. 2 0 × 2 0	1	ft. 42	Brick with stone top.
Rydal Station Yard		2 0 × 2 0	1	17	Do do
MUDGE LINE.					
163	55	8 0 × 8 0	1	10	

PERMANENT WAY RELAID WITH STEEL RAILS.

Mileage.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	Total.
Between 13 and 14 miles, Up line.	feet. ...	feet. ...	feet. ...	feet. ...	feet. ...	feet. 175	feet. ...	feet. ...	feet. ...	feet. ...	feet. ...	feet. ...	feet. ...	feet. 175
Between 13 and 14 miles, Down line.	1,451	2,106	417	...	...	...	...	...	...	...	3,974
Do 14 and 19 miles	1,082	...	106	...	...	...	1,449	8,005	9,068	4,662	2,787	27,159
Do 19 and 26 miles	895	2,108	6,364	9,367
Do 26 and 34 miles	4,340	...	...	...	218	1,293	...	5,851
Do 34 and 40 miles	2,204	2,748	...	3,206	4,695	7,586	...	4,116	7,071	...	1,512	33,138
Do 40 and 47 miles	2,368	...	...	...	3,387	4,606	1,345	8,260	10,735	6,022	1,200	37,923
Do 47 and 57 miles	5,325	3,644	10,560	...	...	3,564	5,280	7,656	4,158	...	...	924	4,752	45,863
Do 57 and 67 miles	13,200	7,920	4,290	5,280	7,920	1,980	...	...	1,320	...	41,910
Do 67 and 79 miles	6,600	3,300	6,270	3,300	...	26,268	11,682	57,420
Do 87 and 97 miles	4,884	...	6,798	...	...	...	...	...	11,682
Do 137 and 147 miles	4,224	...	...	...	...	...	...	2,640	1,518	231	1,716	10,329
Do 147 and 157 miles	2,706	...	9,702	5,214	...	...	1,320	5,016	7,458	7,854	2,178	41,448
Do 157 and 166 miles	6,270	...	...	2,640	...	5,280	...	12,078	5,940	...	1,716	33,924
Do 166 and 176 miles	3,300	...	...	...	22,440	4,884	3,300	6,930	7,062	...	4,488	52,404
Do 176 and 186 miles	4,224	...	...	...	...	...	...	16,698	6,204	1,518	5,808	34,452
Do 186 and 196 miles	5,280	3,036	10,626	1,518	1,832	5,313	27,605
Total.....	5,325	3,644	36,938	17,399	19,834	24,390	52,022	53,310	22,858	77,669	57,687	54,032	49,516	474,624

PERMANENT WAY RELAID WITH REROLED IRON RAILS.

	1883.	1884.	1885.	1886.	1887.	Total.
Between 25 and 26 miles	feet.	feet.	feet. 718	feet.	feet.	feet. 718
Between 47 and 49 miles	...	7,854	...	...	...	7,854
Between 54 and 55 miles	4,686	...	...	...	...	4,686
Between 56 and 57 miles	1,122	...	...	...	...	1,122
Between 61 and 62 miles	2,310	...	...	...	...	2,310
Between 62 and 63 miles	3,498	...	...	...	...	3,498
Between 76 and 77 miles	...	1,914	...	...	...	1,914
Between 77 and 79 miles	...	10,758	...	...	...	10,758
Between 81 and 82 miles	...	...	1,584	...	...	1,584
Between 84 and 85 miles	...	...	792	...	...	792
Between 85 and 88 miles	...	...	17,094	...	...	17,094
Between 95 and 96 miles	...	2,706	...	...	...	2,706
Total.....	11,616	23,232	20,188	.....	.....	55,036

APPENDIX TO REPORT ON RAILWAYS—1887.

7

SIDINGS RELAID WITH STEEL RAILS.

	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	Total.
	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.
Sidings at Parramatta.....	.....	.....	.....	.....	.....	115	.....	.....	115
Sidings at Blacktown.....	.....	.....	.....	.....	.....	.....	179	.....	179
Sidings at South Creek.....	.....	.....	.....	.....	.....	180	.....	.....	180
Sidings at Penrith.....	.....	166	628	101	2,031	.....	.....	.....	2,926
Sidings at Katoomba.....	.....	.....	.....	.....	.....	.....	635	.....	635
Sidings at Hartley Vale.....	277	.....	.....	.....	.....	.....	.....	.....	277
Sidings at Eskbank.....	697	.....	.....	.....	.....	.....	.....	.....	697
Sidings at Wallerawang.....	.....	.....	.....	.....	.....	254	.....	.....	254
Total.....	974	166	628	101	2,031	549	814	.....	5,263

The following sleepers have been used in new sidings laid in during the year :—

Sidings at Parramatta	70
Do St. Mary's	16
Do Wentworth Falls	50
Do Katoomba	1,067
Do Eskbank	150
Do Raglan	50
Do Bathurst	621
Do Orange... ..	276
Do Ponto	147
Do Manoa	597
Do 325 miles 25 chains	71
Do Bourke... ..	282

Mudgee Line.

Sidings for Messrs. Cox Bros.	443
Total	3,840

The following sleepers have been used for renewals during the year :—

Granville Junction to Springwood	2,492
Springwood to Bathurst	16
Bathurst to Orange	6,675
Orange to Wellington	2,465
Wellington to Dubbo	104
Wallerawang to Mudgee... ..	737
Total	12,489

The following quantity of ballast has been used on main lines during the year :—

	Cubic yards.
Granville Junction to Springwood	1,449
Springwood to Bathurst	1,440
Bathurst to Orange	12
Orange to Wellington	180
Wellington to Dubbo	318
Dubbo to Nevertire	2,625
Nevertire to Nyngan	1,669
Nyngan to Byrock... ..	987
Byrock to Bourke	430
Wallerawang to Mudgee	2,579
Orange to Molong... ..	899
Total	12,588

RAILWAY FENCE WIRED DURING THE YEAR.

Bounding the Property of	Sides.	Mileage.				Number of Wires.	Length.		
		From.		To.			miles.	chains.	
Central Cumberland A. and H. Society	1	15	31	15	50	3	0	19	
Mr. Gardner	1	107	20	108	20	2	1	0	
Mr. Lee	1	139	60	140	70	2	1	10	
<i>Mudgee Line—</i>									
Government Reserve	1	148	0	148	4	4	0	4	
<i>Molong Line—</i>									
Public Road	1	196	55	197	41	4	0	66	
Total							3	19	

RICHMOND LINE.

Blacktown to Richmond—Single Line, length, 16 miles 11 chains.

About 8 miles of road has been relaid with 70-lb. rerolled iron T rails during the year, and the permanent way throughout the line has been kept in good running order, except the portion from near Windsor to Richmond, where it is too light for the traffic, and consequently rough.

The following sidings have been laid in during the year :—

<i>Schofield's—</i>										feet.
Slip points	...	...	...	...	...	...	...	...	...	21
<i>Riverstone—</i>										
Loop and dead-end sidings extended, and slip points laid in "up" side	...	...	...	...	...	...	...	...	...	879
Loop siding "down" side, and slip points to ditto	...	...	...	...	...	...	...	...	...	478
Richards' siding extended	...	...	...	...	...	...	...	...	...	315
<i>Mulgrave—</i>										
Siding extended	...	...	...	...	...	...	...	...	...	384
Cross-over roads to main line and sidings	...	...	...	...	...	...	...	...	...	505
Total										2,582

PERMANENT WAY RELAID WITH STEEL RAILS.

	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	Total.
	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.	feet.
Between 21 and 26 miles...	2,642	3,192	.....	10,563	2,215	.....	.....	.....	1,482	.....	20,094
Between 32 and 35 miles...	.....	.....	.....	795	525	.....	1,239	.....	.....	.....	2,559
Between 37 and 38 miles...	.....	.....	.....	.....	1,659	.....	.....	.....	.....	.....	1,659
Total	2,642	3,192	.....	11,358	4,399	.....	1,239	.....	1,482	.....	24,312

Permanent way relaid with rerolled iron rails :—

Between 25 and 33 miles	41,128
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Sidings relaid with rerolled iron rails :—

At Schofield's	749
„ Riverstone	1,082
„ Mulgrave	...	...	...	...	...	...	...	...	1,023
Total	...	...	...	...	...	...	...	...	2,854

APPENDIX TO REPORT ON RAILWAYS—1887.

The following sleepers have been used in new sidings laid in during the year:—

Sidings at Schofield's	...	...	...	...	...	...	...	7
Do Riverstone	...	...	...	...	...	...	...	558
Do Mulgrave...	...	...	...	...	...	...	...	296
Total	...	...	...	...	...	...	...	861

The following sleepers have been used for renewals during the year:—

Blacktown to Richmond	8,077
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The following quantity of ballast has been used on the main line during the year:—

Blacktown to Richmond	8,708
-----------------------	-----	-----	-----	-----	-----	-----	-----	-------

Cubic yards.

List of machinery added to the Permanent way workshops during the year 1887:—

At Redfern (Blacksmiths' Shop)—One fan for collecting smoke.

ACCOUNT of Permanent way Rails turned, renewed, and broken, from the opening of the various extensions, Great Southern, South-western, Western, and Richmond Lines, to 31st December, 1887:—

Extensions.	Length.	Date when opened for traffic.	Time opened for traffic up to 31st December, 1887.	Rails.		
				Number turned.	Number renewed.	Number broken.
Sydney Yard to 1st mile-post	13 16	26 Sept., 1855	32 3	2,124	2,447	12
1st mile-post to Granville Junction	8 68	20 Sept., 1856	31 3	4,791	3,340	23
Granville Junction to Liverpool	11 65	17 May, 1858	29 7½	2,299	1,064	3
Liverpool to Campbelltown	6 50	1 Sept., 1862	25 4	2,499	807	8
Campbelltown to Menangle	12 28	1 July, 1863	24 6	966	203	12
Menangle to Picton	23 75	1 Mar., 1867	20 10	1,863	806	1
Picton to Mittagong	8 62	2 Dec., 1867	20 1	6,839	3,754	12
Mittagong to Moss Vale	28 57	6 Aug., 1868	19 4	826	181	11
Moss Vale to Marulan	19 73	27 May, 1869	18 7	1,758	352	34
Marulan to Goulburn	30 20	9 Nov., 1875	12 2	1,016	342	27
Goulburn to Gunning	29 26	3 July, 1876	11 6	1,380	4,338	103
Gunning to Bowning	14 42	1 Nov., 1876	11 2	1,262	4,830	51
Bowing to Binalong	19 48	12 Mar., 1877	10 9½	584	1,145	10
Binalong to Murrumburrah	25 13	1 Nov., 1877	10 2	432	1,819	10
Murrumburrah to Cootamundra	15 10	15 April, 1878	9 8½	415	1,343	1
Cootamundra to Bethungra	18 28	6 July, 1878	9 6	244	1,338	5
Bethungra to Junee Junction	17 38	3 Sept., 1878	9 4	63	708	.....
Junee Junction to Bomen	5 1	1 Sept., 1879	8 4	44	499	.....
Bomen to South Wagga	58 63	1 Sept., 1880	7 4	30	72	1
South Wagga to Gerogery	18 37	3 Feb., 1881	6 11	1	4	3
Gerogery to Albury	1 0	14 June, 1883	4 6½	.....	2	1
Albury to River Murray	387 20	.....	.....	.....	.....	.....
Sydney to River Murray	.....	.....	.....	29,436	29,484	328
Joppa Junction to Tarago	19 71	3 Jan., 1884	4 0	.....	.....	.....
Tarago to Bungendore	19 19	4 Mar., 1885	2 10	.....	.....	.....
Bungendore to Queanbeyan	17 32	8 Sept., 1887	0 4	.....	.....	.....
Queanbeyan to Michelago	30 19	7 Dec., 1887	0 1	.....	.....	.....
Joppa Junction to Michelago	86 61	.....	.....	.....	.....	.....
Junee Junction to Narrandera	61 0	28 Feb., 1881	6 10	.....	17	17
Narrandera to Darlington	37 66	1 Sept., 1881	6 3	1	4	4
Darlington to Carrathool	33 66	1 Mar., 1882	5 10	.....	1	1
Carrathool to Hay	34 57	4 July, 1882	5 6	.....	.....	.....
Junee Junction to Hay	167 29	.....	.....	1	22	22
Narrandera to Jerilderie	64 49	16 Sept., 1884	3 3½	.....	3	3
Murrumburrah to Young	17 57	26 Mar., 1885	2 9	.....	.....	.....
Young to Cowra	46 78	1 Nov., 1886	1 2	.....	.....	.....
Murrumburrah to Cowra	64 55	.....	.....	.....	.....	.....
Eveleigh to Hurstville	9 11	15 Oct., 1884	3 2½	.....	1	1
Hurstville to Waterfalls, including National Park Line.	15 75	9 Mar., 1886	1 10	.....	.....	.....
Clifton to Wollongong	13 27	21 June, 1887	0 6½	.....	.....	.....
Wollongong to Kiama	21 43	9 Nov., 1887	0 1½	.....	.....	.....
Eveleigh to Kiama, exclusive of section Waterfalls to Clifton.	58 76	.....	.....	.....	1	1

ACCOUNT of Permanent way Rails turned, &c.—*continued.*

Extensions.	Length.	Date when opened for traffic.	Time opened for traffic up to 31st December, 1887.	Rails.		
				Number turned.	Number renewed.	Number broken.
Cootamundra to Gundagai	ms. chs. 33 15	1 June, 1886	yr. ms. 1 7	.....	.....	.....
Granville to Blacktown	8 24	4 July, 1860	27 6	1,868	1,116	19
Blacktown to Rooty Hill	3 66	12 Dec., 1861	26 0½	645	268	13
Rooty Hill to South Creek	3 75	1 May, 1862	25 8	417	156	1
South Creek to Penrith	4 66	7 May, 1862	25 8	701	371	2
Penrith to Wentworth Falls	27 70	11 July, 1867	20 5½	10,756	5,360	6
Wentworth Falls to Mount Victoria	14 70	1 May, 1868	19 8	5,480	2,883	5
Mount Victoria to Bowenfels	19 49	18 Oct., 1869	18 2½	7,076	3,438	17
Bowenfels to Wallerawang	7 46	1 Mar., 1870	17 10	1,718	995	.....
Wallerawang to Rydal	6 11	1 July, 1870	17 6	757	339	5
Rydal to Locksley	19 11	20 April, 1872	15 8	4,007	1,342	5
Locksley to Brewongle	5 31	1 July, 1872	15 6	1,371	314	.....
Brewongle to Raglan	5 3	4 Mar., 1873	14 10	629	115	.....
Raglan to Kelso	3 0	1 Mar., 1875	12 8	504	53	.....
Kelso to Bathurst	1 35	4 April, 1876	11 9	553	385	4
Bathurst to Blayney	27 69	1 Nov., 1876	11 2	994	6,706	2
Blayney to Orange	19 75	19 April, 1877	10 8½	304	4,279	14
Orange to Wellington	55 55	1 June, 1880	7 7	.....	16	2
Wellington to Dubbo	30 34	1 Feb., 1881	6 11	.....	5	5
Dubbo to Nevertire	63 5	20 Oct., 1882	5 2	.....	.....	.....
Nevertire to Nyngan	35 64	9 June, 1883	4 7	.....	.....	.....
Nyngan to Byrock	78 10	2 Sept., 1884	3 4	.....	.....	.....
Byrock to Bourke	48 40	3 Sept., 1885	2 4	.....	.....	.....
Granville to Bourke	490 29	.....	.....	37,780	28,141	100
Wallerawang to Capertee	22 74	15 May, 1882	5 7½	.....	.....	.....
Capertee to Rylstone	30 41	9 June, 1884	3 7	.....	.....	.....
Rylstone to Mudgee	31 63	10 Sept., 1884	3 3½	.....	.....	.....
Wallerawang to Mudgee	85 18	.....	.....	.....	.....	.....
Orange to Molong	22 50	21 Dec., 1885	2 0½	.....	.....	.....
Blacktown to Richmond	16 11	1 Dec., 1864	23 1	475	622	2

The following shows the number of men per mile of single line engaged in maintenance of the permanent way :—

	Men per mile.
Sydney to Granville Junction—including Haslem's Creek Cemetery Branch, Darling Harbour Branch, and sidings head of Darling Harbour	1·30
Granville to Goulburn	0·98
Goulburn to River Murray	0·94
Junee Junction to Hay	0·79
Narrandera to Jerilderie... ..	0·57
Joppa Junction to Michelago	0·89
Murrumburrah to Cowra	0·88
Cootamundra to Gundagai	0·93
Eveleigh to Waterfall	0·81
Clifton to Kiama	0·83
Granville Junction to Bathurst... ..	0·77
Bathurst to Orange	0·74
Orange to Wellington	0·75
Wellington to Dubbo	0·82
Dubbo to Nevertire	0·75
Nevertire to Nyngan	0·70
Nyngan to Byrock	0·67
Byrock to Bourke	0·68
Wallerawang to Capertee	0·78
Capertee to Rylstone	0·79
Rylstone to Mudgee	0·76
Orange to Molong	0·80
Blacktown to Richmond	0·74

HOMEBUSH

HOMEBUSH-WARATAH LINE.

Strathfield Junction to Hornsby—Single Line—Length, 13 miles 67 chains.

Hornsby to Hawkesbury—Single Line—Length, 14 miles 62 chains—Opened for public traffic, 7th April, 1887.

Gosford to Hamilton Junction—Single Line—Length, 50 miles—Opened for public traffic, 15th August, 1887.

The sections to the Hawkesbury River have proved difficult and expensive to maintain, the heavy rains which fell during the year having affected the soft formation so that additional labour and considerable quantities of ballast were required to keep the road up. From Gosford to the junction with the Great Northern Railway the line has not been so troublesome, and is in good running order. The timber bridges on the latter section have been attacked by white ants.

The following sidings have been laid in during the year:—

<i>Ryde—</i>										
Loop points at north and south ends of bridge	...	...	...	...	...	...	...	...	...	Fect. 333
Slip points at Ryde Station	...	...	...	...	...	...	...	...	...	20
<i>Eastwood—</i>										
Slip points	...	...	...	...	...	...	...	...	...	68
<i>Awaba—</i>										
New siding	...	...	...	...	...	...	...	...	...	259
Total										680

The following quantity of ballast has been used on the main line during the year:—

Strathfield Junction to Hawkesbury	Cubic yards. 1,511
------------------------------------	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----------------------

The following sleepers have been used in new sidings laid in during the year—

Sidings at Ryde	...	...	...	...	...	...	...	...	...	200
Do at Awaba	...	...	...	...	...	...	...	...	...	95
Total										295

The following shows the number of men per mile of single line engaged in maintenance of the permanent way:—

Strathfield Junction to Hawkesbury	...	...	...	...	...	...	...	...	...	Men per mile. 0·84
Gosford to Hamilton Junction	...	...	...	...	...	...	...	...	...	0·70

ACCOUNT of Permanent way Rails turned, renewed, and broken, from the opening of the various extensions Homebush to Waratah Railway, to 31st December, 1887:—

Extensions	Length.	Date when opened for traffic.	Time opened for traffic up to 31st December, 1887.	Rails.		
				Number turned.	Number renewed.	Number broken.
Strathfield Junction to Hornsby	ms. chs. 13 67	17 Sept., 1886	yr. ms. 1 3½	.....	.....	.....
Hornsby to Hawkesbury.....	14 62	7 April, 1887	0 9	.....	.....	.....
Gosford to Hamilton Junction	50 0	15 Aug., 1887	0 4½	.....	.....	.....
Strathfield to Hamilton Junction, exclusive of section Hawkesbury to Gosford	78 49	.....	.....	.....	.....	.....

GREAT NORTHERN RAILWAY.

Newcastle to West Maitland—Double Line—Length, 20 miles 18 chains.

West Maitland to Tamworth—Single Line—Length, 161 miles 28 chains.

Tamworth to Tenterfield—Single Line—Length, 200 miles 9 chains.

Bullock Island Branch—Double Line—Length, 1 mile 43 chains.

Morpeth Branch—Single Line—Length, 4 miles.

North-western Line—Single Line—Length, 96 miles 45 chains.

The maintenance of these sections has, generally speaking, not been troublesome during the year, and the permanent way throughout is in good order, but the continuous heavy rains found some soft spots between West Maitland and Murrurundi; and from Murrurundi to Tamworth—always a difficult piece of road to keep up—the wet weather and the necessity for extensive renewals of rails and sleepers have not improved the condition of the permanent-way.

The bridges, buildings, and other works are in a satisfactory state, with the exception of the fencing between West Maitland and Singleton, which is in need of early renewal, and the wooden bridge over Black Creek about to be replaced by a structure in brick and iron.

CULVERTS constructed during the year.

Mileage.		Number.	Number of Openings.	Size of Openings.	Depth of Waterway.
Miles.	Chains.				
150	25	1	5	ft. in. 10 0	ft. in. 4 0
North-western Line.					
178	59	1	6	3 0	2 0
179	43	1	1	10 0	3 0
184	...	1	1	10 0	2 3

CULVERTS lengthened during the year.

Mileage.		Number.	Number of Openings.	Depth of Waterway.	Lengthened.	Remarks.
Miles.	Chains.					
183	23	1	1	ft. in. 3 0	ft. in. 3 0	} For sidings to new Goods-shed, Tamworth. Under roadway, Uralla. For carriage docks, Deepwater.
183	30	1	2	1 6	2 0	
183	30	1	1	4 0	10 0	
245	...	1	1	3 0	3 0	
346	...	1	1	8 0	10 0	

The following sidings have been laid in during the year:—

<i>Newcastle—</i>					<i>Willow Tree—</i>				
Cross-over road from Goods to Ballast	feet.				Siding for turntable	...	...	...	277
Siding	...	...	...	132	<i>Tamworth—</i>				
<i>Bullock Island Branch—</i>					Sidings to Goods-shed	...	...	...	947
Siding for Ferndale Coal Company	...	1,257			<i>Moonbi—</i>				
Siding for Hetton Coal Company	...	528			Siding to turntable	...	...	...	74
<i>Homebush-Waratah Junction—</i>					<i>Llangothlin—</i>				
Southern Junction, cross-over road, &c.	300				Siding	...	...	...	236
<i>21 miles 57 chains—</i>					<i>Sandy Flat—</i>				
Siding to Homeville Colliery	...	...	249		Siding	...	...	...	300
<i>Singleton—</i>									
Siding for Locomotive Branch	...	90			Total	4,390

PERMANENT

APPENDIX TO REPORT ON RAILWAYS—1887.

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PERMANENT WAY RELAID WITH STEEL RAILS.

	1884.	1885.	1886.	1887.	Total.
	Feet.	Feet.	Feet.	Feet.	Feet.
Between 1 and 3 miles		3,474	3,342		6,816
Between 3 and 5 miles	7,410		4,254		11,664
Between 5 and 7 miles	5,334	1,905		3,960	11,199
Between 7 and 9 miles	480	831			1,311
Between 9 and 12 miles		1,320		672	1,992
Between 12 and 15 miles	2,736	1,260			3,996
Between 15 and 20 miles	6,192	1,302	5,526		13,020
Between 20 and 25 miles		1,368	1,044	1,566	3,978
Between 25 and 30 miles				126	126
Between 30 and 35 miles				168	168
Between 45 and 50 miles				126	126
Between 50 and 55 miles			672		672
Between 55 and 60 miles				168	168
NORTH-WESTERN LINE.					
Between 192 and 193 miles				120	120
Between 196 and 197 miles		558			558
Total... ..	22,152	12,018	14,838	6,906	55,914

The following sleepers have been used for renewals during the year :—

Newcastle to Murrurundi	1,272
Murrurundi to Tamworth	1,319
Tamworth to Glen Innes	680
Werris Creek to Narrabri	1,186
Total	4,457

The following quantity of ballast has been used on the permanent way during the year :—

	Cubic yards.
Newcastle to Murrurundi	1,722
Murrurundi to Tamworth	596
Tamworth to Glen Innes	1,152
Glen Innes to Tenterfield	270
Werris Creek to Narrabri	1,430
Total	5,170

The following sleepers have been used in new sidings laid in during the year :—

Sidings at Newcastle	40
Do on Bullock Island Branch	513
Homebush-Waratah Junction arrangements	100
Siding to Homeville Colliery (21 miles 57 chains)	70
Do at Singleton	30
Do at Willow Tree	77
Do at Tamworth	340
Do at Moonbi... .. .	74
Do at Llangothlin	120
Do at Sandy Flat	120
Total	1,484

ACCOUNT

ACCOUNT of Permanent way Rails turned, renewed, and broken, from the opening of the various extensions, Great Northern Railway, to 31st December, 1887:—

Extensions.	Length.	Date when opened for traffic.	Time opened for traffic up to 31st December, 1887.	Rails.		
				Number turned.	Number renewed.	Number broken.
	ms. chs.		yrs. ms.			
Newcastle to Murrurundi, including Morpeth and Bullock Island Branches	124 69	.....	.....	1,873	501	12
Murrurundi to Quirindi	24 78	13 Aug., 1877	10 4½	2	1,937	.....
Quirindi to Tamworth	37 23	15 Oct., 1878	9 2½	.....	416	.....
Tamworth to Moonbi	12 0	9 Jan., 1882	6 0	.....	14	.....
Moonbi to Uralla	51 57	2 Aug., 1882	5 5	.....	.....	.....
Uralla to Armidale	14 72	1 Feb., 1883	4 11	.....	.....	.....
Armidale to Glen Innes	64 0	19 Aug., 1884	3 4½	.....	7	2
Glen Innes to Tenterfield	57 40	1 Sept., 1886	1 4	.....	.....	.....
Newcastle to Tenterfield, including Morpeth and Bullock Island Branches	387 19	.....	.....	1,875	2,875	14
Werris Creek to Gunnedah	40 40	11 Sept., 1879	8 3½	.....	169	.....
Gunnedah to Boggabri	24 5	11 July, 1882	5 5½	.....	.....	.....
Boggabri to Narrabri	32 0	4 Oct., 1882	5 3	.....	.....	.....
Werris Creek to Narrabri	96 45	.....	.....	.....	169	.....

The following shows the number of men per mile of single line engaged in the maintenance of permanent way:—

	Men per mile.
Newcastle to Murrurundi, including Morpeth and Bullock Island Branches	0.65
Murrurundi to Tamworth	0.84
Tamworth to Glen Innes	0.74
Glen Innes to Tenterfield	0.68
Werris Creek to Narrabri	0.78

GENERAL REMARKS.

RAILWAYS.

THE permanent way on all the lines has, with few exceptions, been kept in good repair, but in consequence of the very wet season we have passed through, some portions at times could only be kept up by employing extra hands; and I should strongly recommend that the Suburban Line be ballasted with blue metal, as the constant packing on this heavily worked line pulverises the sandstone very quickly and soon chokes the drainage, which is a great drawback to keeping a good road. A considerable amount of relaying with steel rails has been done, and in most cases new sleepers have been put in, but a very considerable amount of this work will have to be continued through 1888 to keep the road in good running order.

The Mudgee line has given a very considerable amount of trouble and annoyance in the way of slips, and boulders becoming detached in the wet weather and falling on to the line, making it dangerous to the running of trains. This I hope to minimise by several short deviations, which is the only way I see out of the difficulty, as no amount of time will make the slopes of these cuttings safe.

Some renewals have been carried out to some of our underbridges; some of the timber tops have been renewed with iron girders, and some that were entirely timber structures have been renewed with brick and iron; and I shall have to recommend more of this work in 1888. Our large iron bridges have been neglected for a very long time, but I hope before the end of 1888 to have them in fair repair and condition.

Nothing as yet has been settled as to the shipping of coal, &c., from Sydney. All the lines will now soon be completed, and there is still no provision made for the outlet of our valuable minerals. In my opinion this provision should have been made simultaneously with the making of the lines, and before the lines can be expected to be worked to advantage it must be done.

The locomotive workshops at Eveleigh will soon all be completed, and, although they are all good, sound, roomy buildings, they have not been extravagantly costly, and for convenience and appearance may be compared with any in the world of their size.

The interlocking at the several stations and sidings has been increased from 78 last year to 103 this year, and I have no doubt with very beneficial results; and I shall be glad to see this work completed throughout the lines.

I have, &c.,

GEORGE COWDERY,

Engineer for Existing Railways.

TRAMWAYS FOR 1887.

EXISTING LINES.

Lines.	Opened for Public Traffic.	Length of Single Line.		Length of Double Line.		Total Length.	
		ms.	chs.	ms.	chs.	ms.	chs.
Redfern to Hunter-street	15th September, 1879.....	.....	.....	1	39-29	1	39-29
Hunter-street to Bridge-street	15th August, 1882 .....	.....	.....	0	19-99	0	19-99
Liverpool-street to Randwick Racecourse	14th September, 1880.....	.....	.....	2	41	2	41
Racecourse to Randwick	19th March, 1881.....	.....	.....	1	2-09	1	2-09
Randwick to Coogee.....	25th January, 1883.....	.....	.....	1	50-76	1	50-76
Darlinghurst to Ocean-street	12th March, 1881.....	0	6-80	1	40-36	1	47-16
Ocean-street to Waverley	13th April, 1881	0	51-84	0	54	1	25-84
Waverley to Randwick	4th June, 1887	1	30	.....	.....	1	30
Waverley Tea Gardens to Bondi	24th May, 1884 .....	.....	.....	1	13	1	13
Bondi to the Aquarium	28th September, 1887.....	0	30	.....	.....	0	30
Woollahra Line.....	17th May, 1881	0	65-22	.....	.....	0	65-22
Crown-street Line.....	15th September, 1881.....	0	68-91	.....	.....	0	68-91
Redfern to Junction of George-street West and Glebe Road.	15th August, 1882 .....	.....	.....	0	43-94	0	43-94
George-street West to Glebe Point	15th August, 1882	0	72-75	0	4-85	0	77-60
Junction of George-street West and Glebe Road to Forest Lodge.	15th August, 1882	0	57-06	0	6-53	0	63-59
University Gates to Johnstone-street, Leichhardt ...	18th June, 1883 .....	.....	.....	1	21-41	1	21-41
Johnstone-street to Short-street, Leichhardt	1st May, 1884 .....	.....	.....	1	9	1	9
Short-street, Leichhardt, to Terminus	10th December, 1887 .....	.....	.....	0	38-93	0	38-93
George-street West to Newtown Bridge	2nd October, 1882.....	.....	.....	1	27-09	1	27-09
Newtown to Marrickville.....	31st December, 1881	1	26-68	0	42-25	1	68-93
Redfern to Botany	17th May, 1882	2	52-09	4	14-03	6	66-12
Campbelltown to Camden	10th March, 1882.....	7	33	.....	.....	7	33
North Shore Tramway (Cable Line)	22nd May, 1886 .....	.....	.....	1	31	1	31
Kogarah to Sans Souci.....	10th September, 1887	4	71	.....	.....	4	71
Newcastle to Plattsburg	19th July, 1887	7	30	.....	.....	7	30
	Total	29	35-35	21	19-52	50	54-87

Metropolitan Lines.—All the lines have been well maintained, but nothing but a heavy road will stand the traffic we have. That portion in Devonshire-street, and that from Hunter-street to the Terminus, which are laid with 70-lb. rails and strong guards, are the only portions in the city at all adequate, and these have stood the traffic very well. I hope soon to have the whole of this road from Hunter-street to the Railway relaid, when the cost of maintenance will be reduced considerably.

The North Shore Cable Line is working satisfactorily.

No improvement has been made with regard to the expenses imposed on the tramways by the several municipalities in the way of repairs to sides of streets outside the lines, and the watering and cleaning of same.

The Waverley to Randwick, and the Kogarah to Sans Souci Lines have both been completed and opened for traffic, also the Newcastle to Plattsburg.

I have, &c.,

GEORGE COWDERY,

Engineer for Tramways.

The

The following sidings have been laid in during the year :—

	feet.
<i>Redfern to Macquarie-street—</i>	
Siding in Bridge-street yard	245
<i>Kogarah to Sans Souci—</i>	
Through road, loop, and dead end at Kogarah	871
Loop at 2 miles	645
Loop and dead end at Sandringham	672
Through road, Sandringham	156
Sidings to Engine Shed, Sandringham	591
<i>Bondi to the Aquarium—</i>	
Loop Siding	561
<i>Leichhardt Line—</i>	
Through road to main "up" and "down" lines	125
<i>Newcastle to Wallsend and Plattsburg—</i>	
Sidings to running shed and turntable, Newcastle	930
Siding for cars Honeysuckle Point	432
Triangle extended, Lambton	60
Total	5,288

PERMANENT WAY RELAID.

	1881.	1882.	1883.	1884.	1885.	1886.	1887.	Totals.
	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
Redfern to Macquarie-street	4,620	9,961	.....	384	555	4,396	.....	19,916
Liverpool-street to Darlinghurst.....	2,932	5,570	.....	.....	.....	.....	.....	8,502
Darlinghurst to Moore Park.....	1,140	652	506	2,626	.....	.....	.....	4,924
Crown-street Line.....	.....	153	2,587	1,125	42	1,131	.....	5,038
Darlinghurst to Waverley.....	386	7,716	5,564	1,383	525	33	.....	15,607
Woollahra Line .....	.....	542	368	2,193	.....	336	.....	3,439
Redfern to Botany.....	.....	384	8,610	8,715	6,685	5,125	3,189	32,708
Moore Park to Randwick .....	.....	.....	420	2,004	774	714	.....	3,912
Redfern to Glebe Point and Forest Lodge .....	.....	.....	4,650	2,947	930	843	.....	9,370
Newtown to Marrickville .....	.....	.....	3,499	4,956	1,161	480	.....	10,096
Parramatta-street to Newtown.....	.....	.....	.....	671	568	.....	.....	1,239
University Gates to Leichhardt .....	.....	.....	.....	1,645	6,801	2,236	.....	10,682
	9,078	24,978	26,204	28,649	18,041	15,294	3,189	125,433

The following sleepers have been used for renewals of main lines during the year :—

Redfern to Macquarie-street	283
Liverpool-street to Randwick and Coogee	63
Darlinghurst to Waverley and Woollahra	22
Redfern to Botany	12
Total	380

APPENDIX TO REPORT ON RAILWAYS—1887.

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The following sleepers have been used in new sidings laid during the year :—

Siding, Bridge-street yard	75
Sidings, Kogarah to Sans Souci	1,028
Do Bondi to the Aquarium	212
Do Leichhardt extension	40
Do Newcastle to Plattsburg	523
Total	1,878

The following quantities of ballast have been used for maintenance of the various lines during the year :—

Section.	Sandstone Ballast.	Blue Metal.	Screenings.
	Tons cwt. qrs. lb.	Tons cwt. qrs. lb.	Tons cwt. qrs. lb.
Redfern to Macquarie-street.....		412 4 1 0	628 18 3 8
Redfern to Glebe and Forest Lodge		659 18 3 0	270 9 3 20
Redfern Junction to Botany		1,195 2 1 0	574 2 0 19
Liverpool-street to Randwick and Coogee		334 0 0 14	379 4 0 15
Darlinghurst to Waverley and Woollahra		1,638 14 2 0	795 3 2 26
Parramatta-street to Newtown and Marrickville		1,153 6 1 5	119 18 3 13
University Gates to Leichhardt		1,433 1 2 0	224 12 0 21
North Shore Cable Tramway		76 2 3 0	234 13 3 3
Waverley to Randwick.....			2 0 1 15
Campbelltown to Camden.....	21 5 0 0		
Total	21 5 0 0	6,902 10 1 19	3,229 4 0 0

The following shows the number of men per mile of single line engaged in the maintenance of the permanent way :—

	Men per mile.
Redfern to Macquarie-street	0·86
Liverpool-street to Randwick	1·17
Randwick to Coogee	0·98
Crown-street Line	1·16
Darlinghurst to Waverley and Woollahra	1·54
Waverley Tea Gardens to Bondi Aquarium	0·39
Redfern to Botany	0·64
Redfern to Glebe Point and Forest Lodge	1·00
George-street West to Marrickville	1·18
Leichhardt Line	0·70
Campbelltown to Camden	0·54
North Shore Cable Line	0·72
Waverley to Randwick	0·73
Kogarah to Sans Souci	0·41
Newcastle to Wallsend and Plattsburg... ..	0·81

No. 2.

The Locomotive Engineer to The Commissioner for Railways.

Department of Public Works, Railway Branch,

Locomotive Engineer's Office, Sydney.

Sir,

I have the honor to report as follows on matters connected with the Locomotive Branch for the year ending 31st December, 1887:—

ADDITIONAL ENGINES and other ROLLING STOCK received during the year.

Classification.	No.	Remarks.
Engines... ..	20	
Passenger stock	70	1 of these to replace 1 destroyed at Cootamundra.
Goods stock	506	74 of these to replace others worn out.

NOTE.—The cost of replacing this stock—worn out or destroyed—was charged to working expenses.

ABSTRACT of ROLLING STOCK with Average per Mile open for Traffic, on 31st December, 1887.

Classification.	Total in Stock.		No. under Repair.		No. awaiting Repairs.		No. available for Traffic.		Average No. available per mile open for Traffic.	
	Pas-senger.	Goods.	Pas-senger.	Goods.	Pas-senger.	Goods.	Pas-senger.	Goods.	Pas-senger.	Goods.
Engines	226	200	22	39	3	6	201	155	·010	·008
Vehicles	1,007	8,798	74	498	...	...	933	8,300	·458	4·077

Total mileage of engines for the year 8,306,999 miles.

Total number of engines 426.

Average mileage per engine (all engines) 19,711 miles.

“ “ available for traffic 23,587 „

THE mileage of engines under steam during the year was as follows:—

Number of Engines.	Mileage Run.
8	Nil (under or awaiting repairs).
56	Under 10,000 miles.
143	10 to 20,000 „
164	20 to 30,000 „
53	30 to 40,000 „
2	Over 40,000 „
426	...

NATURE of principal repairs to Engines, Passenger, and Goods Stock during the year.

Engines.

Thoroughly overhauled.	Extensively repaired.	Boilers thoroughly examined and repaired.	No. of new Boilers fitted.	No. of new Cylinders fitted.	No. of new Pistons fitted.	No. of new Crank Axles fitted.	No. of new Slide Valve faces fitted.	No. of new Tyres fitted.	No. of new Spark Arresters fitted.	Fitted with Westinghouse Brake gear.
165	447*	81	5	7	44	6	14	218	30	4

* Some under repairs more than once during the year.

Passenger Stock.

Thoroughly repaired in Woodwork.	Minor Woodwork Repairs.	Thoroughly painted.	Continuous Draw-gear applied.	New Turton Buffers fitted.	Pairs of wheels put under with turned-up Tyres.	Pairs of wheels put under with new Tyres.	Pairs of new wheels put under.	New Axles put under.	New Brasses fitted.	New Cushions.	New Westinghouse Brake gear complete, fitted.	Through Air-pipes and Hose connections made.	Cocks and gauges fitted in Brake Vans.	New Brake release gear fitted.
165	641	159	23	80	156	23	17	...	522	1,739	74	27	64	295
<i>Goods Stock.</i>														
597	2,626	724	117	801	1,048	130	235	70	2,309	...	...	17	...	...

WATER SUPPLIES.

Depôt or Location.	Nature of Additions and Improvements during the year.
Queanbeyan ...	New watering station.
Michelago ...	" " "
Harden ...	Dam deepened.
Molong ...	New watering station.
Bluff River ...	" "
Wye ...	" "
Wyong ...	" "
Newcastle, tram-yard	Standpipe
Lambton ...	"
Adamstown Road ...	Tank and connections
Wallsend Junction...	" "
	} Appliances for working Platsburg tramway.

GAS WORKS.

Depôt.	Gas manufactured for lighting station, yards, shops, sheds, &c.	Do. for lighting carriages.	No. of vehicles fitted with gas apparatus during the year.	No. of vehicles fitted with improved lamps during the year.
	c. ft.	c. ft.		
Sydney ...	8,240,000	5,152,000	42	82
Bathurst ...	2,058,000	570,000	.....	.....
Junee ...	1,299,863	935,132	.....	.....
Newcastle ...	.....	861,000	.....	.....

REMARKS.

GENERAL REMARKS.

The locomotive, carriage, and waggon stock and machinery have been maintained in good working order.

We have been able to occupy the whole of Nos. 1 to 15 shops at Eveleigh during the year, but are still greatly inconvenienced by the non-completion of the carriage and waggon repairing shops.

The water supplies have been maintained in a state of efficiency owing to the copious rainfall.

It is of vital importance that my previous recommendations for increasing the number of passenger and goods engines should receive due and timely consideration.

I have, &c.,
W. SCOTT,
Locomotive Engineer,
19/5/88.

LIST OF MACHINERY ADDED TO STOCK DURING THE YEAR 1887.

No.	Description.	Remarks.
GREAT SOUTHERN AND WESTERN RAILWAYS.		
322	Axle and tyre testing machine	General at Eveleigh.
326	Case-hardening furnace	No. 1 shop, Eveleigh.
327	Roots blower	
328	Tiring furnace	
330	40-cwt. steam-hammer	
331	Jib crane for above	
332	Old locomotive boiler and furnace	
333	Crane for above	
334	5-cwt. steam-hammer	
335	Small jib crane	
336	Do	
300	10-ton steam-hammer	
337	5-ton do	
339	Spring furnace	
340	Do	
341	Spring buckle machine	No. 2 shop, Eveleigh.
342	Spring tapering machine... ..	
343	Spear-point slotting and nibbing machine	
348	Hot-iron saw	
350	5-cwt. steam-hammer	
353	3-cwt. do	
355	30 h.-p. hydraulic engine	
357	40 h.-p. tubular boiler	
361	Fire-box tapping machine	
362	Do do	
363	Plate-edge planing machine	No. 3 shop, Eveleigh.
365	Circular shearing machine	
366	Hydraulic flanging press	
367	Hydraulic crane for above	
370	Hydraulic angle-iron punching machine	
371	Do do and shearing machine... ..	
372	Tube-plate boring machine	
373	Horizontal do	
375	Small grindstone and trough	
376	Portable hydraulic riveter and furnace... ..	
377	Fixed hydraulic riveter lift	No. 4 shop, Eveleigh.
378	10-ton travelling crane	
379	Pan mill	
380	Root's blower	
381	Cupola	Gas-works, Sydney.
383	Old locomotive boiler	
384	5½-in. screw cutting lathe	
385	Punching and shearing machine	Machine shop, Penrith.
386	Tinsmith's roller	
387	Shaping machine	No. 14 shop, Eveleigh.
388	Slotting do	
389	10 h.-p. vertical engine and boiler	
390	30 h.-p. wall engine	No. 9 shop, Eveleigh.
391	30 h.-p. do	
392	Tubular boiler—40 h.-p.	
393	Do 40 h.-p.	
394	Old locomotive boiler	

APPENDIX TO REPORT ON RAILWAYS—1887.

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LIST OF MACHINERY ADDED TO STOCK—*continued.*

No.	Description.	Remarks.
<i>GREAT SOUTHERN AND WESTERN RAILWAYS—continued.</i>		
395	6-ft. wheel lathe	} No. 9 Shop, Eveleigh.
396	6-ft. do	
397	6-ft. do	
398	6-ft. do	
399	6-ft. do	
400	30-in. chuck lathe... ..	
401	18-in. lathe	
402	18-in. do	
403	12-in. screw-cutting lathe	
404	12-in. do	
405	12-in. do	
406	10-in. do	
407	12-in. do	
408	12-in. do	
409	Plug grinding machine	
410	Turret lathe	
411	Universal brass-finishing lathe	
412	Brass nut shaping machine	
413	Mandrill press	
414	Grindstone and trough	
415	Large planing machine	
416	do do	
417	do do	
418	Small slotting machine	
419	do do	
391	1 pair of 30-h.p. Wall engines	
420	Small vertical cotter-hole drilling machine	
421	Drilling machine	
422	Radial do	
423	Drilling do	
424	Small do	
425	Stud lathe... ..	
426	Screwing machine... ..	
427	Cylinder boring machine... ..	
428	Tyre boring lathe... ..	
429	Cotter-hole drilling machine	
430	14-in. shaping machine	
431	Double cotter-hole drilling machine	
432	Small planing machine	
433	do do	
434	Piston-rod grinding machine	
435	Quadruple drilling machine	
436	Whitworth's boring lathe	
437	9-in. screw-cutting lathe... ..	
438	9-in. do do	
439	Slide rest grinding machine	
440	Axle-box drilling machine	
441	Profile milling machine	
442	Group of six 7-in. lathes	
443	10-in. shaping machine	
444	8-in. screw-cutting lathe... ..	
445	5-in. shaping machine	
446	Universal milling machine	
447	Cotter grinding machine	
448	5-ton overhead travelling crane	
449	5-ton do do	
450	5-ton do do	
451	25-ton do do	
452	Steam ground traverser	
453	25-ton overhead travelling crane... ..	
454	25-ton do do	
455	Pair emery wheels	
456	Large grindstone and trough	
457	do do	
458	Tube-cleaning machine	
459	Truck weighbridge	
460	Tube-boring machine	
461	Pair emery wheels	
462	Gas-brazing machine	
463	Drop press	
464	Pipe-cutting machine	
465	Rollers and foulers combined	
466	Steam ground traverser	
		} No. 10 Shop, Eveleigh.
		} Tool Shop, Eveleigh.
		} No. 9 Shop, Eveleigh.
		" 10 do.
		" 11 do.
		" 5 do.
		" 7 do.
		" 6 do.
		" 8 do.
		} General, at Eveleigh.
		} Coppersmiths' Shop, Eveleigh.
		} Tinsmiths' Shop, Eveleigh.
		do do.
		} No. 13 Shop, Eveleigh.

LIST OF MACHINERY ADDED TO STOCK—*continued.*

No.	Description.	Remarks.	
GREAT SOUTHERN AND WESTERN RAILWAYS— <i>continued.</i>			
467	15-ft. turntable	} General, at Eveleigh.	
468	15-ft. do		
469	15-ft. do		
470	13-ft. do		
471	13-ft. do		
472	13-ft. do		
473	13-ft. do		
474	13-ft. do		
475	15-ft. do		
476	13-ft. do		
477	15-ft. do		
478	15-ft. do		} No. 15 Shop, Eveleigh.
479	Oil-testing machine		
GREAT NORTHERN LINE.			
103	Radial drilling machine	} In boiler shop, H.S. Point.	
104	Vertical do		
105	Plate-edge planing machine		
106	Punching and shearing machine		
107	Plate-binding machine		
108	16-ton overhead travelling crane		
109	Plate-heating furnace		
112	4-ft. planing machine		} Replacing No. 13 (sold) in machine shop, H.S. Point. Cost charged against revenue.
113	Endless bed-planing machine		
114	Style borer and mortiser... ..		} In carriage shop, H.S. Point.
115	Locomotive steam-travelling crane		
116	Stowe's flexible shaft-drilling machine	General, at do	
117	6-in. screw-cutting lathe... ..	In boiler shop, do	
118	Emery grinding machine (for coppersmiths)	In machine shop, do	
GASWORKS, NEWCASTLE.			
21	4" improved compressor	In blacksmith's shop, do	

PUMPING MACHINERY ADDED TO STOCK DURING THE YEAR 1887.

No.	Place.	Description.	Remarks.	
GREAT SOUTHERN, WESTERN, AND RICHMOND LINES.				
274	Molong	Tangye steam pump, 8" x 4"	} New extension of line.	
275	Do	20,000-gallon tank with jib-crane attached		
276	Cowther's Creek	6-h.p. horizontal engine and vertical boiler with 3 4½ deep-well pumps		
277	Do	20,000-gallon tank with jib-crane attached		
278	Queanbeyan	6-h.p. horizontal engine and vertical boiler with 3 4½ deep-well pumps		
279	Do	20,000 gallon tank with jib-crane attached		
280	Michelago	Tangye steam pump, 8" x 4"		
281	Do	20,000-gallon tank with jib-crane attached		
282	Mullet Creek	Tangye steam pump, 8" x 5"		
283	Do	20,000-gallon tank with jib-crane attached		
284	Minimurra (North Kiama)	Tangye steam pump, 6" x 3"		
285	Peat's Ferry	20,000-gallon tank with jib-crane attached		
GREAT NORTHERN LINE.				
76	Bluff River	7" x 5" Tangye engine-boiler, and pumps		Addition to water supply works. The steam and water cylinders from No. 70 pump, at Deepwater, were fixed to this pump by Construction Department, and 8" and 4" cylinders substituted.
77	do.	20,000-gallon tank, with jib-crane attached... ..		Addition to water supplies.
78	Wyee	8" x 4" Tangye engine-boiler, and pump	New extension of line.	
79	do.	20,000-gallon tanks, with jib-crane attached... ..	do.	
80	Wyong	6-h.p. horizontal engine, and 3 4½" deep well pumps.	do.	
81	do.	20,000-gallon tank, with jib crane attached... ..	do.	

No. 2—continued.

GREAT SOUTHERN, WESTERN, AND RICHMOND RAILWAYS.

LIST AND CONDITION OF LOCOMOTIVE ENGINES AND TENDERS ON 31ST DECEMBER, 1887.

Stock No.	Maker's Name.	Maker's No.	Class.	Description.	Cylinders.			Number of wheels on Engine.	Coupled or single Wheels.	Diameter of Wheels.			Commenced to run.	Condition.
					Position.	Diameter.	Length of stroke.			Leading.	Driving.	Trailing.		
					inches			ft. in.						
1	Beyer, Peacock, & Co.....	1892	Goods	Tender engine	Inside...	18	24	6	All coupled	4 0	4 0	4 0	April, 1880...	Requires repairs.
2	Do	1893	do	do	do	18	24	6	do	4 0	4 0	4 0	do	Good.
3	Do	1894	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do
4	Do	1895	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do
5	Hawthorne & Sons	944	Passenger.	do	do	14	22	6	4-coupled	4 6	4 6	3 6	Nov., 1856...	Fair.
10	Do	1	do	do	do	17	24	6	do	3 6	5 6	5 6	June, 1870...	do
13	Railway Works, Sydney	43	do	do	Outside	16	22	6	do	3 6	5 0	5 0	Jan., 1863...	Good.
14	Beyer, Peacock, & Co.....	541	do	do	Inside...	16	20	6	Single.....	3 6	6 0	3 6	Nov., 1865...	do
15	Do	543	do	do	do	16	20	6	do	3 6	6 0	3 6	Jan., 1866...	do
16	Do	542	do	do	do	16	20	6	do	3 6	6 0	3 6	Dec., 1865...	do
17	R. Stephenson & Sons	1541	Goods	do	do	18	24	6	4-coupled	4 0	4 0	4 0	May, 1865...	Fair.
18	Do	1542	do	do	do	18	24	6	do	4 0	4 0	4 0	Sept., 1866...	Good.
19	Do	1543	do	do	do	18	24	6	do	4 0	4 0	4 0	„ 1865...	do
20	Do	1547	do	do	do	18	24	6	do	4 0	4 0	4 0	Jan., 1867...	do
21	Do	1548	do	do	do	18	24	6	do	4 0	4 0	4 0	do	Fair.
22	Do	1549	do	do	do	18	24	6	do	4 0	4 0	4 0	do	Good.
23	Beyer, Peacock, & Co.....	443	Passenger.	2-wheel bogie and tender	Outside	18	24	6	do	3 0	5 9	5 9	April, 1867...	do
24	Do	444	do	do	do	18	24	6	do	3 0	5 9	5 9	Feb., 1867...	Fair.
25	Do	445	do	do	do	18	24	6	do	3 0	5 9	5 9	April, 1867...	Under repairs.
26	Do	449	do	do	do	18	24	6	do	3 0	5 9	5 9	Oct., 1865...	Good.
27	Do	450	do	do	do	18	24	6	do	3 0	5 9	5 9	Nov., 1866...	Fair.
28	Do	451	do	do	do	18	24	6	do	3 0	5 9	5 9	Mar., 1867...	Good.
29	Manning, Wardle, & Co.....	88	do	Tank engine	Inside...	11	17	6	6-coupled	3 0	3 0	3 0	„ 1864...	Fair.
30	Do	109	do	do	do	11	17	6	do	3 0	3 0	3 0	Aug., 1864...	Requires repairs.
31	Do	89	do	do	do	11	17	6	do	3 0	3 0	3 0	do	Fair.
32	Beyer, Peacock, & Co.....	928	do	2-wheel bogie and tender	Outside	18	24	6	4-coupled	3 0	5 6	5 6	Nov., 1870...	do
33	Do	929	do	do	do	18	24	6	do	3 0	5 6	5 6	do	Good.
34	Do	930	do	do	do	18	24	6	do	3 0	5 6	5 6	Dec., 1870...	do
35	Do	931	do	do	do	18	24	6	do	3 0	5 6	5 6	do	Requires repairs.
36	Mort & Co.	1	do	Tender engine	Inside...	16	24	6	do	5 6	5 6	3 6	Sept., 1870...	Fair.
37	Do	2	do	do	do	16	24	6	do	5 6	5 6	3 6	Nov., 1870...	do
38	Do	3	do	do	do	16	24	6	do	5 6	5 6	3 6	Dec., 1870...	do
39	Do	4	do	do	do	17	24	6	do	5 6	5 6	3 6	Feb., 1871...	do
40	Vale and Lacy	5	Goods	do	do	18	24	6	All coupled	4 0	4 0	4 0	Dec., 1870...	Waiting for repairs.
41	Do	6	do	do	do	18	24	6	do	4 0	4 0	4 0	Jan., 1871...	Good.
42	Do	7	do	do	do	18	24	6	do	4 0	4 0	4 0	Mar., 1871...	Fair.
43	Do	8	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do
44	R. Stephenson & Sons.....	1981	do	do	do	18	24	6	do	4 0	4 0	4 0	Dec., 1870...	Good.
45	Do	1982	do	do	do	18	24	6	do	4 0	4 0	4 0	Feb., 1871...	do
46	Do	1983	do	do	do	18	24	6	do	4 0	4 0	4 0	Mar., 1871...	Under repairs.
47	Do	1984	do	do	do	18	24	6	do	4 0	4 0	4 0	do	Fair.
48	Do	2181	do	do	do	19	26	6	do	4 0	4 0	4 0	Dec., 1874...	Good.

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No. 2—continued.
List and Condition of Locomotive Engines and Tenders, &c.—continued.

Stock No.	Maker's Name.	Maker's No.	Class.	Description.	Cylinders.			Number of wheels on Engine.	Coupled or single Wheels.	Diameter of Wheels.			Commenced to run.	Condition.
					Position.	Diameter.	Length of stroke.			Leading.	Driving.	Trailing.		
49	R. Stephenson & Sons.....	2182	Goods	Tender engine	Inside...	inches	inches	6	All coupled	ft. in.	ft. in.	ft. in.	Dec., 1874...	Under repairs.
50	Do	2183	do	do	do	19	26	6	do	4 0	4 0	4 0	do	Good.
51	Do	2184	do	do	do	19	26	6	do	4 0	4 0	4 0	do	do
52	Do	2348	do	do	do	18	24	6	do	4 0	4 0	4 0	July, 1879...	Fair.
53	Do	2185	do	do	do	19	26	6	do	4 0	4 0	4 0	Feb., 1875...	Good.
54	Do	2187	do	do	do	19	26	6	do	4 0	4 0	4 0	May, 1875...	do
55	Do	2188	do	do	do	19	26	6	do	4 0	4 0	4 0	do	do
56	Do	2189	do	do	do	19	26	6	do	4 0	4 0	4 0	Aug., 1875...	Fair.
57	Do	2190	do	do	do	19	26	6	do	4 0	4 0	4 0	July, 1875...	do
58	Do	2191	do	do	do	19	26	6	do	4 0	4 0	4 0	Aug., 1875...	Good.
59	Do	2192	do	do	do	19	26	6	do	4 0	4 0	4 0	do	do
60	Do	2194	do	do	do	19	28	6	do	5 0	5 0	5 0	Oct., 1874...	Fair.
61.	Do	2193	do	do	do	19	28	6	do	5 0	5 0	5 0	Nov., 1874...	Waiting for repairs.
62	Do	2195	do	do	do	19	28	6	do	5 0	5 0	5 0	Dec., 1874...	Under repairs.
63	Do	2196	do	do	do	19	28	6	do	5 0	5 0	5 0	do	Good.
64	Do	2198	do	do	do	19	28	6	do	5 0	5 0	5 0	do	do
65	Do	2197	do	do	do	19	28	6	do	5 0	5 0	5 0	do	do
66	Manning, Wardle, & Co.....	182	Passenger	Tank engine	do	12	17	6	do	3 0	3 0	3 0	Jan., 1875...	do
67	Mort & Co.	15	do	do	do	13	20	6	do	4 0	4 0	4 0	Feb., 1874...	Under repairs.
68	Do	16	do	do	do	13	20	6	do	4 0	4 0	4 0	Mar., 1875...	Good.
69	Do	17	do	do	do	13	20	6	do	4 0	4 0	4 0	do	do
70	Do	18	do	do	do	13	20	6	do	4 0	4 0	4 0	July, 1875...	do
71	Vale & Lacy	Nil.	do	do	do	13	20	6	do	4 0	4 0	4 0	do	do
72	Do	do	do	do	do	13	20	6	do	4 0	4 0	4 0	do	do
73	Do	do	do	do	do	13	20	6	do	4 0	4 0	4 0	do	do
74	Do	do	do	do	do	13	20	6	do	4 0	4 0	4 0	do	do
75	Railway Works	do	do	Tender engine	do	16	24	6	4-coupled	5 6	5 6	3 9	Aug., 1875...	Requires repairs.
76	Do	do	do	do	do	16	24	6	do	5 6	5 6	3 9	„ 1876...	Fair.
77	Do	do	do	do	do	17	24	6	do	5 6	5 6	3 9	April, 1877...	Good.
78	Do	do	do	do	do	17	24	6	do	5 6	5 6	3 9	Sept., 1877...	Fair.
79	Beyer, Peacock, & Co.....	1624	do	4-wheel bogie and tender	Outside	18	24	8	do	5 6	5 6	3 9	Dec., 1877...	Under repairs.
80	Do	1625	do	do	do	18	24	8	do	3 0	5 6	5 6	May, 1877...	Fair.
81	Do	1626	do	do	do	18	24	8	do	3 0	5 6	5 6	do	Good.
82	Do	1627	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do
83	Do	1628	do	do	do	18	24	8	do	3 0	5 6	5 6	April, 1877...	do
84	Do	1629	do	do	do	18	24	8	do	3 0	5 6	5 6	June, 1877...	do
85	Do	1630	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do
86	Do	1631	do	do	do	18	24	8	do	3 0	5 6	5 6	do	Fair.
87	Do	1632	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do
88	Do	1633	do	do	do	18	24	8	do	3 0	5 6	5 6	do	Good.
89	Do	1634	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do
90	Do	1635	do	do	do	18	24	8	do	3 0	5 6	5 6	do	Requires repairs.
91	Do	1636	do	do	do	18	24	8	do	3 0	5 6	5 6	do	Good.
92	Do	1637	do	do	do	18	24	8	do	3 0	5 6	5 6	Sept., 1877...	do
													do	Requires repairs.

List and Condition of Locomotive Engines and Tenders, &c.—continued.

Stock No.	Maker's Name.	Maker's No.	Class.	Description.	Cylinders.			Number of wheels on Engine.	Coupled or single Wheels.	Diameter of Wheels.			Commenced to run.	Condition.
					Position.	Diameter.	Length of Stroke.			Leading.	Driving.	Trailing.		
93	Beyer, Peacock, & Co.....	1643	Goods ...	Tender engine	Inside...	18	24	6	All coupled	4 0	4 0	4 0	Aug., 1877...	Good.
94	Do	1644	do ...	do	do ...	18	24	6	do	4 0	4 0	4 0	do ...	Under repairs.
95	Do	1645	do ...	do	do ...	18	24	6	do	4 0	4 0	4 0	do ...	do
96	Do	1646	do ...	do	do ...	18	24	6	do	4 0	4 0	4 0	do ...	Good.
97	Do	1647	do ...	do	do ...	18	24	6	do	4 0	4 0	4 0	July, 1877...	do
98	Do	1648	do ...	do	do ...	18	24	6	do	4 0	4 0	4 0	do ...	do
99	Do	1675	do ...	do	do ...	18	24	6	do	4 0	4 0	4 0	do ...	do
100	Do	1676	do ...	do	do ...	18	24	6	do	4 0	4 0	4 0	do ...	do
101	Do	1683	do ...	do	do ...	18	24	6	do	4 0	4 0	4 0	Nov., 1877...	Waiting for repairs.
102	Do	1684	do ...	do	do ...	18	24	6	do	4 0	4 0	4 0	do ...	Good.
103	Stephenson & Sons	2349	do ...	do	do ...	18	24	6	do	4 0	4 0	4 0	July, 1879...	do
104	Beyer, Peacock, & Co.....	1686	do ...	do	do ...	18	24	6	do	4 0	4 0	4 0	Nov., 1877...	do
105	Baldwin Locomotive Works.	4074	Passenger	4-wheel bogie and tender	Outside	18	24	8	4-coupled	2 6	5 3	5 3	Oct., 1877...	Waiting for repairs.
106	Beyer, Peacock, & Co.....	1753	Goods ...	Tender engine	Inside...	18	24	6	All coupled	4 0	4 0	4 0	Aug., 1878...	Fair.
107	Do	1754	do ...	do	do ...	18	24	6	do	4 0	4 0	4 0	Sept., 1878...	Under repairs.
108	Do	1755	do ...	do	do ...	18	24	6	do	4 0	4 0	4 0	do ...	Good.
109	Do	1756	do ...	do	do ...	18	24	6	do	4 0	4 0	4 0	do ...	Fair.
110	Do	1757	do ...	do	do ...	18	24	6	do	4 0	4 0	4 0	Aug., 1878...	Good.
111	Do	1758	do ...	do	do ...	18	24	6	do	4 0	4 0	4 0	do ...	Under repairs.
112	Do	1759	do ...	do	do ...	18	24	6	do	4 0	4 0	4 0	Dec., 1878...	Good.
113	Do	1760	do ...	do	do ...	18	24	6	do	4 0	4 0	4 0	do ...	do
114	Do	1761	do ...	do	do ...	18	24	6	do	4 0	4 0	4 0	do ...	Requires repairs.
115	Do	1762	do ...	do	do ...	18	24	6	do	4 0	4 0	4 0	do ...	Good.
116	Do	1763	do ...	do	do ...	18	24	6	do	4 0	4 0	4 0	do ...	do
117	Do	1764	do ...	do	do ...	18	24	6	do	4 0	4 0	4 0	do ...	do
118	Do	1765	Passenger	4-wheel bogie and tender	Outside	18	24	8	4-coupled	3 0	5 6	5 6	Sept., 1878...	Fair.
119	Do	1766	do ...	do	do ...	18	24	8	do	3 0	5 6	5 6	do ...	Under repairs.
120	Do	1767	do ...	do	do ...	18	24	8	do	3 0	5 6	5 6	do ...	Good.
121	Do	1768	do ...	do	do ...	18	24	8	do	3 0	5 6	5 6	do ...	do
122	Do	1769	do ...	do	do ...	18	24	8	do	3 0	5 6	5 6	do ...	Under repairs.
123	Do	1770	do ...	do	do ...	18	24	8	do	3 0	5 6	5 6	do ...	Good.
124	Do	1772	do ...	do	do ...	18	24	8	do	3 0	5 6	5 6	Jan., 1879...	do
125	Do	1774	do ...	do	do ...	18	24	8	do	3 0	5 6	5 6	do ...	Fair.
126	Do	1776	do ...	do	do ...	18	24	8	do	3 0	5 6	5 6	do ...	Good.
127	Vulcan Foundry Co.....	833	do ...	Tank engine	Inside...	12	17	6	All coupled	3 0	3 0	3 0	April, 1879...	Fair.
128	Do	834	do ...	do	do ...	12	17	6	do	3 0	3 0	3 0	do ...	Good.
129	Do	835	do ...	do	do ...	12	17	6	do	3 0	3 0	3 0	do ...	Fair.
130	Baldwin Locomotive Works	4395	do ...	4-wheel bogie and tender	Outside	18	24	8	4-coupled	2 6	5 3	5 3	do ...	Requires repairs.
131	Do	4405	Goods ...	2-wheel bogie and tender	do ...	20	24	10	8-coupled	2 6	4 0	4 0	do ...	Good.
132	Do	4414	do ...	do	do ...	20	24	10	do	2 6	4 0	4 0	do ...	do
133	Do	4525	do ...	do	do ...	20	24	10	do	2 6	4 0	4 0	Sept., 1879...	do
134	Do	4526	do ...	do	do ...	20	24	10	do	2 6	4 0	4 0	do ...	do
135	Do	4527	do ...	do	do ...	20	24	10	do	2 6	4 0	4 0	Aug., 1879...	Waiting for repairs.
136	Do	4528	do ...	do	do ...	20	24	10	do	2 6	4 0	4 0	Sept., 1879...	do

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APPENDIX TO REPORT ON RAILWAYS—1887.

No. 2—continued.

List and Condition of Locomotive Engines and Tenders, &c.—continued.

Stock No.	Maker's Name.	Maker's No.	Class.	Description.	Cylinders.			Number of wheels on Engine.	Coupled or single Wheels.	Diameter of Wheels.			Commenced to run.	Condition.
					Position.	Diameter.	Length of stroke.			Leading.	Driving.	Trailing.		
					inches				ft. in.					
137	Baldwin Locomotive Works	4529	Goods ...	2-wheel bogie and tender	Outside	20	24	10	8-coupled	2 6	4 0	4 0	Sept., 1879...	Fair.
138	Do	4530	do	do	do	20	24	10	do	2 6	4 0	4 0	do	Good.
139	Do	4531	do	do	do	20	24	10	do	2 6	4 0	4 0	Aug., 1879...	Waiting for repairs.
140	Do	4533	do	do	do	20	24	10	do	2 6	4 0	4 0	Sept., 1879...	Requires repairs.
141	Do	4535	do	do	do	20	24	10	do	2 6	4 0	4 0	do	Waiting for repairs.
142	Beyer, Peacock, & Co.	1890	do	Tender engine	Inside...	18	24	6	All coupled	4 0	4 0	4 0	Dec., 1879...	Good.
143	Dubs & Co.	1275	Passenger	4-wheel bogie and tender	Outside	18	24	8	4-coupled	3 0	5 6	5 6	April, 1880...	do
144	Do	1269	do	do	do	18	24	8	do	3 0	5 6	5 6	Mar., 1880...	do
145	Do	1270	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do
146	Do	1271	do	do	do	18	24	8	do	3 0	5 6	5 6	do	Under repairs.
147	Do	1272	do	do	do	18	24	8	do	3 0	5 6	5 6	do	Good.
148	Do	1273	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do
149	Do	1274	do	do	do	18	24	8	do	3 0	5 6	5 6	do	Under repairs.
150	Do	1276	do	do	do	18	24	8	do	3 0	5 6	5 6	April, 1880...	Good.
151	Do	1277	do	do	do	18	24	8	do	3 0	5 6	5 6	do	Under repairs.
152	Do	1278	do	do	do	18	24	8	do	3 0	5 6	5 6	do	Good.
153	Do	1279	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do
154	Do	1285	do	do	do	18	24	8	do	3 0	5 6	5 6	May, 1880...	Fair.
155	Do	1286	do	do	do	18	24	8	do	3 0	5 6	5 6	do	Good.
156	Do	1287	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do
157	Do	1288	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do
158	Beyer, Peacock, & Co.	1909	do	4-wheel bogie and tank	Inside...	16	24	8	do	3 0	5 0	5 0	Sept., 1880...	do
159	Do	1910	do	do	do	16	24	8	do	3 0	5 0	5 0	Aug., 1880...	do
160	Do	1911	do	do	do	16	24	8	do	3 0	5 0	5 0	do	Under repairs.
161	Do	1912	do	do	do	16	24	8	do	3 0	5 0	5 0	Sept., 1880...	Good.
162	Do	1913	do	do	do	16	24	8	do	3 0	5 0	5 0	do	do
163	Do	1914	do	do	do	16	24	8	do	3 0	5 0	5 0	July, 1880...	do
164	Do	1930	Goods	Tender engine	Outside	18	24	6	All coupled	4 0	4 0	4 0	Sept., 1880...	do
165	Dubs & Co.	1430	Passenger	4-wheel bogie and tender	do	18	24	8	4-coupled	3 0	5 6	5 6	April, 1881...	do
166	Do	1431	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do
167	Do	1432	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do
168	Do	1433	do	do	do	18	24	8	do	3 0	5 6	5 6	Mar., 1881...	do
169	Do	1434	do	do	do	18	24	8	do	3 0	5 6	5 6	April, 1881...	do
170	Do	1435	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do
171	Beyer, Peacock, & Co.	2060	do	do	do	18	24	8	do	3 0	5 6	5 6	Nov., 1881...	Fair.
172	Do	2061	do	do	do	18	24	8	do	3 0	5 6	5 6	do	Good.
173	Do	2062	do	do	do	18	24	8	do	3 0	5 6	5 6	do	Under repairs.
174	Do	2063	do	do	do	18	24	8	do	3 0	5 6	5 6	do	Good.
175	Atlas Company, Sydney	1	do	do	do	18	24	8	do	3 0	5 6	5 6	Jan., 1882...	do
176	Do	2	do	do	do	18	24	8	do	3 0	5 6	5 6	Mar., 1882...	do
177	Do	3	do	do	do	18	24	8	do	3 0	5 6	5 6	Feb., 1882...	do
178	Do	4	do	do	do	18	24	8	do	3 0	5 6	5 6	Mar., 1882...	Under repairs.
179	Do	5	do	do	do	18	24	8	do	3 0	5 6	5 6	Sept., 1882...	do
180	Do	6	do	do	do	18	24	8	do	3 0	5 6	5 6	Oct., 1882...	Fair.

No. 2—continued.

List and Condition of Locomotive Engines and Tenders, &c.—continued.

Stock No.	Maker's Name.	Maker's No.	Class.	Description.	Cylinders.			Number of wheels on Engine.	Coupled or single Wheels.	Diameter of Wheels.			Commenced to run.	Condition.
					Position.	Diameter.	Length of stroke.			Leading.	Driving.	Trailing.		
						inches.	inches.							
						ft. in.	ft. in.	ft. in.						
181	Atlas Company, Sydney.....	7	Passenger.	4-wheel bogie and tender	Outside	18	24	8	4 coupled	3 0	5 6	5 6	Dec., 1882...	Fair.
182	Do	8	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do
183	Beyer, Peacock, & Co.....	2064	Goods	Tender engine	Inside...	18	24	6	All coupled	4 0	4 0	4 0	Oct., 1881...	Good.
184	Do	2065	do	do	do	18	24	6	do	4 0	4 0	4 0	do	Under repairs.
185	Do	2066	do	do	do	18	24	6	do	4 0	4 0	4 0	do	Good.
186	Do	2067	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do
187	Do	2068	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do
188	Do	2069	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do
189	Do	2070	do	do	do	18	24	6	do	4 0	4 0	4 0	Nov., 1881...	Under repairs.
190	Do	2071	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do
191	Henry Vale, Sydney	16	do	do	do	18	24	6	do	4 0	4 0	4 0	April, 1882...	do
192	Do	17	do	do	do	18	24	6	do	4 0	4 0	4 0	May, 1882...	Fair.
193	Do	18	do	do	do	18	24	6	do	4 0	4 0	4 0	July, 1882...	do
194	Do	19	do	do	do	18	24	6	do	4 0	4 0	4 0	do	Under repairs.
195	Do	20	do	do	do	18	24	6	do	4 0	4 0	4 0	Mar., 1883...	Requires repairs.
196	Do	21	do	do	do	18	24	6	do	4 0	4 0	4 0	do	Fair.
197	Do	22	do	do	do	18	24	6	do	4 0	4 0	4 0	do	Good.
198	Do	23	do	do	do	18	24	6	do	4 0	4 0	4 0	do	Requires repairs.
199	Do	24	do	do	do	18	24	6	do	4 0	4 0	4 0	April, 1884...	Good.
200	Do	25	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do
201	Do	26	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do
202	Do	27	do	do	do	18	24	6	do	4 0	4 0	4 0	Sept., 1884...	Under repairs.
203	Do	28	do	do	do	18	24	6	do	4 0	4 0	4 0	do	Good.
204	Do	29	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do
205	Beyer, Peacock, & Co.....	2073	do	2-wheel bogie and tender	Outside	18	26	8	6-coupled	2 9	4 0	4 0	Jan., 1882...	Under repairs.
206	Do	2074	do	do	do	18	26	8	do	2 9	4 0	4 0	do	Fair.
207	Do	2075	do	do	do	18	26	8	do	2 9	4 0	4 0	do	Good.
208	Do	2076	do	do	do	18	26	8	do	2 9	4 0	4 0	do	Fair.
209	Do	2077	do	do	do	18	26	8	do	2 9	4 0	4 0	Feb., 1882...	Good.
210	Do	2078	do	do	do	18	26	8	do	2 9	4 0	4 0	do	do
211	Do	2079	do	do	do	18	26	8	do	2 9	4 0	4 0	Mar., 1882...	Under repairs.
212	Do	2080	do	do	do	18	26	8	do	2 9	4 0	4 0	Feb., 1882...	do
213	Do	2081	do	do	do	18	26	8	do	2 9	4 0	4 0	Mar., 1882...	Good.
214	Do	2082	do	do	do	18	26	8	do	2 9	4 0	4 0	do	Fair.
215	Do	2083	do	do	do	18	26	8	do	2 9	4 0	4 0	April, 1882...	Good.
216	Do	2084	do	do	do	18	26	8	do	2 9	4 0	4 0	do	Fair.
217	Do	2085	do	do	do	18	26	8	do	2 9	4 0	4 0	do	Good.
218	Do	2086	do	do	do	18	26	8	do	2 9	4 0	4 0	do	Under repairs.
219	Do	2091	do	do	do	18	26	8	do	2 9	4 0	4 0	May, 1882...	Fair.
220	Do	2092	do	do	do	18	26	8	do	2 9	4 0	4 0	do	Good.
225	Do	2308	do	do	do	18	26	8	do	2 9	4 0	4 0	Sept., 1883...	do
226	Do	2309	do	do	do	18	26	8	do	2 9	4 0	4 0	do	do
227	Do	2310	do	do	do	18	26	8	do	2 9	4 0	4 0	do	do
228	Do	2311	do	do	do	18	26	8	do	2 9	4 0	4 0	do	do

No. 2—continued.

List and Condition of Locomotive Engines and Tenders, &c—continued.

Stock No	Maker & Name	Maker's No	Class	Description	Cylinders			Number of wheels on Engine	Coupled or single Wheels	Diameter of Wheels			Commenced to run	Condition
					Position	Diameter	Length of stroke			Leading	Driving	Trailin.		
						inches	inches							
229	Beyer, Peacock, & Co	2312	Goods	2-wheel bogie and ten lei	Outside	18	26	8	6-coupled	2 9	4 0	4 0	Sept 1883	Good.
230	Do	2313	do	do	do	18	26	8	do	2 9	4 0	4 0	do	Under repairs.
231	Do	2322	do	do	do	18	26	8	do	2 9	4 0	4 0	May, 1884	Good
240	Do	2323	do	do	do	18	26	8	do	2 9	4 0	4 0	do	do
241	Do	2324	do	do	do	18	26	8	do	2 9	4 0	4 0	do	Requires repairs.
242	Do	2325	do	do	do	18	26	8	do	2 9	4 0	4 0	do	Fair.
243	Do	2326	do	do	do	18	26	8	do	2 9	4 0	4 0	July, 1884	do
244	Do	2327	do	do	do	18	26	8	do	2 9	4 0	4 0	do	Good
245	Do	2328	do	do	do	18	26	8	do	2 9	4 0	4 0	do	do
246	Do	2329	do	do	do	18	26	8	do	2 9	4 0	4 0	do	do
247	Do	2330	do	do	do	18	26	8	do	2 9	4 0	4 0	do	Under repairs.
248	Do	2331	do	do	do	18	26	8	do	2 9	4 0	4 0	do	Fair
249	Do	2332	do	do	do	18	26	8	do	2 9	4 0	4 0	Aug, 1884	do
250	Do	2333	do	do	do	18	26	8	do	2 9	4 0	4 0	do	Good
251	Do	2334	do	do	do	18	26	8	do	2 9	4 0	4 0	do	do
252	Do	2335	do	do	do	18	26	8	do	2 9	4 0	4 0	do	Under repairs.
253	Do	2336	do	do	do	18	26	8	do	2 9	4 0	4 0	do	Good.
254	Do	2337	do	do	do	18	26	8	do	2 9	4 0	4 0	do	do
255	Do	2150	Passenger	4-wheel bogie and tender	Inside	17	26	8	4-coupled	3 6	6 0	6 0	Nov, 1882	do
256	Do	2151	do	do	do	17	26	8	do	3 6	6 0	6 0	Dec, 1882	do
257	Do	2152	do	do	do	17	26	8	do	3 6	6 0	6 0	do	Fair.
258	Do	2153	do	do	do	17	26	8	do	3 6	6 0	6 0	Jan, 1883	Under repairs.
259	Do	2154	do	do	do	17	26	8	do	3 6	6 0	6 0	do	Fair
260	Do	2155	do	do	do	17	26	8	do	3 6	6 0	6 0	do	Waiting for repairs.
265	Dubs & Co	1764	do	do	do	18	26	8	do	3 6	6 0	6 0	Jan, 1884	Good.
266	Do	1765	do	do	do	18	26	8	do	3 6	6 0	6 0	do	do
267	Do	1766	do	do	do	18	26	8	do	3 6	6 0	6 0	do	do
268	Do	1767	do	do	do	18	26	8	do	3 6	6 0	6 0	do	Under repairs.
269	Do	1768	do	do	do	18	26	8	do	3 6	6 0	6 0	do	Good.
270	Do	1769	do	do	do	18	26	8	do	3 6	6 0	6 0	do	do
271	Do	1770	do	do	do	18	26	8	do	3 6	6 0	6 0	do	do
272	Do	1771	do	do	do	18	26	8	do	3 6	6 0	6 0	Dec, 1883	do
273	Do	1772	do	do	do	18	26	8	do	3 6	6 0	6 0	Jan, 1884	do
274	Do	1773	do	do	do	18	26	8	do	3 6	6 0	6 0	Dec, 1883	do
275	Do	1774	do	do	do	18	26	8	do	3 6	6 0	6 0	Mar, 1884	do
276	Do	1775	do	do	do	18	26	8	do	3 6	6 0	6 0	do	do
277	Do	1776	do	do	do	18	26	8	do	3 6	6 0	6 0	do	do
278	Do	1777	do	do	do	18	26	8	do	3 6	6 0	6 0	do	do
279	Do	1778	do	do	do	18	26	8	do	3 6	6 0	6 0	April, 1884	do
280	Do	1779	do	do	do	18	26	8	do	3 6	6 0	6 0	do	do
281	Do	1780	do	do	do	18	26	8	do	3 6	6 0	6 0	do	do
282	Do	1781	do	do	do	18	26	8	do	3 6	6 0	6 0	do	Fair.
283	Do	1782	do	do	do	18	26	8	do	3 6	6 0	6 0	do	do
284	Do	1783	do	do	do	18	26	8	do	3 6	6 0	6 0	do	Good.

No. 2—continued.

LIST and Condition of Locomotive Engines and Tenders, &c.—continued.

Stock No.	Maker's Name.	Maker's No.	Class.	Description.	Cylinders.			Number of wheels on Engine	Coupled or single Wheels.	Diameter of Wheels.			Commenced to run.	Condition.
					Position	Diameter.	Length of stroke.			Leading.	Driving.	Trailing.		
285	Vulcan Foundry Company...	992	Passenger	Tank Engine	Inside...	inches	inches	6	All coupled	ft. in.	ft. in.	ft. in.	April, 1884	Good.
286	Do	993	do	do	do	15	22	6	do	4 0	4 0	4 0	do ..	do
287	Do	994	do	do	do	15	22	6	do	4 0	4 0	4 0	May, 1884...	Under repairs.
288	Do	995	do	do	do	15	22	6	do	4 0	4 0	4 0	do ..	Good.
289	Do	996	do	do	do	15	22	6	do	4 0	4 0	4 0	do ..	do
290	Do	997	do	do	do	15	22	6	do	4 0	4 0	4 0	do ..	do
294	Baldwin Loco. Works	7387	Goods	Single bogie (Mogul class) and tender.	Outside.	19	24	8	6-coupled	2 6	4 0	4 0	Mar., 1885...	Fair.
295	Do	7388	do	do	do ..	19	24	8	do	2 6	4 0	4 0	do ..	do
296	Do	7389	do ..	do ..	do ..	19	24	8	do	2 6	4 0	4 0	April, 1885	do
297	Do	7390	do ..	do ..	do ..	19	24	8	do	2 6	4 0	4 0	Feb., 1885...	do
298	Do	7391	do ..	do ..	do ..	19	24	8	do	2 6	4 0	4 0	do ..	do
299	Do	7392	do ..	do ..	do ..	19	24	8	do	2 6	4 0	4 0	do ..	do
300	Do	7394	do ..	do ..	do ..	19	24	8	do	2 6	4 0	4 0	Mar., 1885...	do
301	Do	7395	do ..	do ..	do ..	19	24	8	do	2 6	4 0	4 0	do ..	do
302	Do	7396	do ..	do ..	do ..	19	24	8	do	2 6	4 0	4 0	Feb., 1885	Good.
303	Do	7398	do ..	do ..	do ..	19	24	8	do ..	2 6	4 0	4 0	do	do
304	Do	7417	Passenger.	do ..	do ..	18	26	8	do ..	3 0	5 1	5 1	July, 1885	Under repairs.
305	Do	7418	do ..	do ..	do ..	18	26	8	do ..	3 0	5 1	5 1	do	Good.
306	Do	7424	do ..	do ..	do ..	18	26	8	do ..	3 0	5 1	5 1	Aug., 1885...	Under repairs.
307	Do ..	7425	do ..	do ..	do ..	18	26	8	do ..	3 0	5 1	5 1	Mar., 1885	Good.
308	Do ..	7426	do ..	do ..	do ..	18	26	8	do ..	3 0	5 1	5 1	April, 1885	Fair.
309	Do ..	7428	do ..	do ..	do ..	18	26	8	do ..	3 0	5 1	5 1	Sept., 1885	Good.
310	Do ..	7430	do ..	do ..	do ..	18	26	8	do ..	3 0	5 1	5 1	April, 1885	do
311	Do ..	7431	do ..	do ..	do ..	18	26	8	do ..	3 0	5 1	5 1	Mar., 1885	Requires repairs.
312	Do ..	7435	do ..	do ..	do ..	18	26	8	do ..	3 0	5 1	5 1	July, 1885	Good.
313	Do ..	7437	do ..	do ..	do ..	18	26	8	do ..	3 0	5 1	5 1	Mar., 1885	do
314	Beyer, Peacock, & Co.	2547	Goods	do	do ..	18	26	8	do ..	2 9	4 0	4 0	June, 1885...	Under repairs.
315	Do	2548	do ..	do ..	do ..	18	26	8	do ..	2 9	4 0	4 0	do	Requires repairs.
316	Do ..	2549	do ..	do ..	do ..	18	26	8	do ..	2 9	4 0	4 0	do ..	Fair.
317	Do	2550	do ..	do ..	do ..	18	26	8	do ..	2 9	4 0	4 0	do ..	Good.
318	Do	2551	do ..	do ..	do ..	18	26	8	do ..	2 9	4 0	4 0	July, 1885	do
319	Do	2552	do ..	do ..	do ..	18	26	8	do ..	2 9	4 0	4 0	do ..	do
320	Do	2553	do ..	do ..	do ..	18	26	8	do ..	2 9	4 0	4 0	do ..	Fair.
321	Do	2554	do ..	do ..	do ..	18	26	8	do ..	2 9	4 0	4 0	do ..	Requires repairs.
322	Do	2560	do ..	do ..	do ..	18	26	8	do ..	2 9	4 0	4 0	Sept., 1885...	Under repairs.
323	Do ..	2561	do ..	do ..	do ..	18	26	8	do ..	2 9	4 0	4 0	do ..	do
324	Do	2562	do ..	do ..	do ..	18	26	8	do ..	2 9	4 0	4 0	Oct., 1885	Fair.
325	Do ..	2563	do ..	do ..	do ..	18	26	8	do ..	2 9	4 0	4 0	do ..	Good.
326	Do ..	2564	do ..	do ..	do ..	18	26	8	do ..	2 9	4 0	4 0	do ..	do
327	Do	2565	do ..	do ..	do ..	18	26	8	do ..	2 9	4 0	4 0	do ..	Requires repairs.
328	Do	2566	do ..	do ..	do ..	18	26	8	do ..	2 9	4 0	4 0	do ..	Under repairs.
341	Dubs & Co.	2136	Passenger	Express: double bogie and tender with Joy's patent valve gear.	Inside.	18	26	8	4-coupled	3 6	6 0	6 0	Nov., 1885...	Good.
342	Do ..	2137	do ..	do ..	do ..	18	26	8	do ..	3 6	6 0	6 0	do ..	do

No. 2—continued.

List and Condition of Locomotive Engines and Tenders, &c.—continued.

Stock No.	Maker's Name.	Maker's No.	Class.	Description.	Cylinders.			Number of wheels on engine.	Coupled or single wheels.	Diameter of wheels.			Commenced to run.	Condition.
					Position.	Diameter.	Length of stroke.			Leading.	Driving.	Trailing.		
343	Dubs & Co.	2138	Passenger.	Express double bogie and tender with Joy's patent valve gear.	Inside...	inches 18	inches 26	8	4-coupled ...	ft. in. 3 6	ft. in. 6 0	ft. in. 6 0	Oct., 1885...	Good.
344	Do	2139	do	do	do	18	26	8	do	3 6	6 0	6 0	Dec., 1885	do
345	Do	2147	do	do	do	18	26	8	do	3 6	6 0	6 0	Feb., 1886	do
346	Do	2148	do	do	do	18	26	8	do	3 6	6 0	6 0	Jan., 1886...	do
347	Do	2140	do	do	do	18	26	8	do	3 6	6 0	6 0	Mar., 1886...	do
348	Do	2150	do	do	do	18	26	8	do	3 6	6 0	6 0	Feb., 1886...	do
349	Do	2151	do	do	do	18	26	8	do	3 6	6 0	6 0	Mar., 1886...	do
350	Do	2152	do	do	do	18	26	8	do	3 6	6 0	6 0	Feb., 1886...	do
351	Beyer, Peacock, & Co.....	2657	do	2-wheel bogie and tank..	do	15	22	6	do	3 6	5 1	5 1	Dec., 1885	do
352	Do	2658	do	do	do	15	22	6	do	3 6	5 1	5 1	Nov., 1885	do
353	Do	2659	do	do	do	15	22	6	do	3 6	5 1	5 1	do	do
354	Do	2660	do	do	do	15	22	6	do	3 6	5 1	5 1	do	do
355	Do	2661	do	do	do	15	22	6	do	3 6	5 1	5 1	Dec., 1885...	do
356	Do	2662	do	do	do	15	22	6	do	3 6	5 1	5 1	do	do
357	Do	2663	do	do	do	15	22	6	do	3 6	5 1	5 1	Feb., 1886	do
358	Do	2664	do	do	do	15	22	6	do	3 6	5 1	5 1	Mar., 1886..	do
359	Do	2665	do	do	do	15	22	6	do	3 6	5 1	5 1	do	do
360	Do	2666	do	do	do	15	22	6	do	3 6	5 1	5 1	Feb., 1886...	do
361	Do	2667	do	do	do	15	22	6	do	3 6	5 1	5 1	Jan., 1886	do
362	Do	2668	do	do	do	15	22	6	do	3 6	5 1	5 1	Mar., 1886...	do
363	Henry Vale	36	do	do	do	15	22	6	do	3 6	5 1	5 1	April, 1887...	do
364	Do	37	do	do	do	15	22	6	do	3 6	5 1	5 1	do	do
365	Do	38	do	do	do	15	22	6	do	3 6	5 1	5 1	May, 1887...	do
366	Do	39	do	do	do	15	22	6	do	3 6	5 1	5 1	June, 1887...	do
367	Do	40	do	do	do	15	22	6	do	3 6	5 1	5 1	do	do
368	Do	41	do	do	do	15	22	6	do	3 6	5 1	5 1	July, 1887 ..	do
369	Do	31	Goods	Tender engine	do	18	24	6	All coupled	4 0	4 0	4 0	Feb., 1886	do
370	Do	32	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do
371	Do	33	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do
372	Do	34	do	do	do	18	24	6	do	4 0	4 0	4 0	Jan., 1886	do
373	Vulcan Foundry Co.	1164	Passenger.	4-wheel bogie and tender	Outside.	19	26	8	4-coupled	3 6	5 6½	5 6½	May, 1887	do
374	Do	1165	do	do	do	19	26	8	do	3 6	5 6½	5 6½	June, 1887...	do
375	Do	1166	do	do	do	19	26	8	do	3 6	5 6½	5 6½	do	Under repairs.
376	Do	1167	do	do	do	19	26	8	do	3 6	5 6½	5 6½	do	Good.
377	Do	1168	do	do	do	19	26	8	do	3 6	5 6½	5 6½	July, 1887	do
378	Do	1169	do	do	do	19	26	8	do	3 6	5 6½	5 6½	do	do
379	Do	1170	do	do	do	19	26	8	do	3 6	5 6½	5 6½	do	do
380	Do	1171	do	do	do	19	26	8	do	3 6	5 6½	5 6½	do	do
381	Do	1172	do	do	do	19	26	8	do	3 6	5 6½	5 6½	Aug., 1887..	do
382	Do	1173	do	do	do	19	26	8	do	3 6	5 6½	5 6½	do	do
383	Do	1174	do	do	do	19	26	8	do	3 6	5 6½	5 6½	Sept., 1887...	do
384	Do	1175	do	do	do	19	26	8	do	3 6	5 6½	5 6½	do	do
385	Beyer, Peacock, & Co.....	2047	Goods	Tender engine	Inside...	18	24	6	All coupled	4 0	4 0	4 0	April, 1887...	do
386	Do	2072	do	do	do	18	24	6	do	4 0	4 0	4 0	Nov., 1887...	do

No. 2—continued.

GREAT NORTHERN RAILWAY.

List and Condition of Locomotive Engines and Tenders on 31st December, 1887.

Stock No.	Maker's Name.	Maker's No.	Class.	Description.	Cylinders.			Number of wheels on Engine.	Coupled or single Wheels.	Diameter of Wheels.			Commenced to run.	Condition.
					Position.	Diameter.	Length of Stroke.			Leading.	Driving.	Trailing.		
1	Fairbairn & Sons	...	Passenger	Tender engine	Inside...	inches 16	inches 24	6	4-coupled	ft. in. 5 6	ft. in. 5 6	ft. in. 3 9	Mar., 1857...	Good.
2	Do	...	do	do	do	16	24	6	do	5 6	5 6	3 9	do	Fair.
3	Do	...	do	do	do	16	24	6	do	5 6	5 6	3 9	do	Good.
4	Do	...	do	do	do	14	22	6	do	4 6	4 6	3 0	Mar., 1856...	do
6	Manning, Wardle, & Co.	39	Goods	4-wheel bogie and tank...	Outside	16	24	6	do	3 0	4 6	4 6	Mar., 1863...	Fair.
7	Do	38	do	do	do	16	24	6	do	3 0	4 6	4 6	do	Good.
9	Do	32	do	Tank engine	Inside...	12	17	6	All-coupled	3 0	3 0	3 0	June, 1864...	do
10	Do	42	do	2-wheel bogie and tender	Outside	16	22	6	4-coupled	3 6	5 0	5 0	Sept., 1864...	Fair.
11	Stephenson & Co.	1544	do	Tender engine	Inside...	18	24	6	All-coupled	4 0	4 0	4 0	July, 1865...	Good.
12	Do	1545	do	do	do	18	24	6	do	4 0	4 0	4 0	do	Requires repairs.
13	Do	1546	do	do	do	18	24	6	do	4 0	4 0	4 0	do	Good.
14	Beyer, Peacock, & Co.	446	do	2-wheel bogie and tender	Outside	18	24	6	4-coupled	3 0	5 9	5 9	Sept., 1865...	do
15	Do	447	do	do	do	18	24	6	do	3 0	5 9	5 9	do	do
16	Do	448	do	do	do	18	24	6	do	3 0	5 9	5 9	do	Requires repairs.
18	Mort & Co.	8	do	Tender engine	Inside...	18	24	6	All-coupled	4 0	4 0	4 0	May, 1871...	Good.
19	Do	9	do	do	do	18	24	6	do	4 0	4 0	4 0	do	Fair.
20	Kittson & Co.	1620	do	Tank engine	do	16	24	6	do	4 0	4 0	4 0	June, 1872...	Requires repairs.
21	Vale & Lacy	...	do	Tender engine	do	18	24	6	do	4 0	4 0	4 0	Nov., 1873...	Good.
22	Do	...	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do
23	Mort & Co.	12	do	do	do	18	24	6	do	3 9	3 9	3 9	July, 1874...	do
24	Do	14	do	do	do	18	24	6	do	3 9	3 9	3 9	Aug., 1874...	Fair.
25	Do	11	do	do	do	18	24	6	do	3 9	3 9	3 9	June, 1875...	Good.
26	Do	13	do	do	do	18	24	6	do	3 9	3 9	3 9	do	do
27	Beyer, Peacock, & Co.	1620	Passenger	4-wheel bogie and tender	Outside	18	24	8	4-coupled	3 0	5 6	5 6	July, 1877...	do
28	Do	1621	do	do	do	18	24	8	do	3 0	5 6	5 6	Aug., 1877...	do
29	Do	1622	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do
30	Do	1623	do	do	do	18	24	8	do	3 0	5 6	5 6	do	Requires repairs.
31	Do	1677	Goods	Tender engine	Inside...	18	24	6	All-coupled	4 0	4 0	4 0	Oct., 1877...	Good.
32	Do	1678	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do
33	Do	1679	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do
34	Do	1680	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do
35	Do	1681	do	do	do	18	24	6	do	4 0	4 0	4 0	Sept., 1877...	Requires repairs.
36	Do	1682	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do
37	Do	1771	Passenger	4-wheel bogie and tender	Outside	18	24	8	4-coupled	3 0	5 6	5 6	Feb., 1879...	Good.
38	Do	1773	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do
39	Do	1775	do	do	do	18	24	8	do	3 0	5 6	5 6	do	Fair.
40	Do	1887	Goods	Tender engine	Inside...	18	24	6	All-coupled	4 0	4 0	4 0	Feb., 1880...	Good.
41	Do	1888	do	do	do	18	24	6	do	4 0	4 0	4 0	do	Requires repairs.
42	Do	1889	do	do	do	18	24	6	do	4 0	4 0	4 0	do	Good.

No. 2—continued.

List and Condition of Locomotive Engines and Tenders, &c.—continued.

Stock No	Maker's Name.	Maker's No.	Class.	Description.	Cylinders			Number of wheels on Engine	Coupled or single Wheels	Diameter of Wheels			Commenced to run.	Condition.	
					Position	Diameter	Length of stroke			Leading	Driving	Trailing			
						inches	inches				ft. in	ft. in	ft. in		
43	Beyer, Peacock, & Co	1896	Goods	Tender engine	Inside	18	24	6	All coupled	4 0	4 0	4 0	May, 1880	Under repairs.	
44	Do	1897	do	do	do	18	24	6	do	4 0	4 0	4 0	June, 1880	Fair	
45	Do	1898	do	do	do	18	24	6	do	4 0	4 0	4 0	Aug., 1880	Requires repairs.	
46	Do	1899	do	do	do	18	24	6	do	4 0	4 0	4 0	do	do	
47	Dubs & Co.	1280	Passenger	4-wheel bogie and tender	Outside	18	24	8	4 coupled	3 0	5 6	5 6	Dec., 1880	Good.	
48	Do	1281	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do	
49	Do	1282	do	do	do	18	24	8	do	3 0	5 6	5 6	Jan., 1881	do	
50	Do	1283	do	do	do	18	24	8	do	3 0	5 6	5 6	do	do	
51	Do	1284	do	do	do	18	24	8	do	3 0	5 6	5 6	Feb., 1881	do	
221	Beyer, Peacock, & Co	2087	Goods	2-wheel bogie and tender	do	18	26	8	6 coupled	2 9	4 0	4 0	May, 1882	do	
222	Do	2088	do	do	do	18	26	8	do	2 9	4 0	4 0	do	do	
223	Do	2089	do	do	do	18	26	8	do	2 9	4 0	4 0	do	do	
224	Do	2090	do	do	do	18	26	8	do	2 9	4 0	4 0	do	do	
231	Do	2314	do	do	do	18	26	8	do	2 9	4 0	4 0	Oct., 1883	Requires repairs.	
232	Do	2315	do	do	do	18	26	8	do	2 9	4 0	4 0	do	Good.	
233	Do	2316	do	do	do	18	26	8	do	2 9	4 0	4 0	do	do	
234	Do	2317	do	do	do	18	26	8	do	2 9	4 0	4 0	do	Fair.	
235	Do	2318	do	do	do	18	26	8	do	2 9	4 0	4 0	Nov., 1883	Under repairs.	
236	Do	2319	do	do	do	18	26	8	do	2 9	4 0	4 0	do	Good.	
237	Do	2320	do	do	do	18	26	8	do	2 9	4 0	4 0	Dec., 1883	do	
238	Do	2321	do	do	do	18	26	8	do	2 9	4 0	4 0	do	do	
261	Dubs & Co.	1760	Passenger	4-wheel bogie and tender	Inside	18	26	8	4-coupled	3 6	6 0	6 0	Oct., 1883	Fair.	
262	Do	1761	do	do	do	18	26	8	do	3 6	6 0	6 0	do	Good.	
263	Do	1762	do	do	do	18	26	8	do	3 6	6 0	6 0	do	do	
264	Do	1763	do	do	do	18	26	8	do	3 6	6 0	6 0	do	do	
291	Beyer, Peacock, & Co	1891	Goods	Tender engine	do	18	24	6	All coupled	4 0	4 0	4 0	Feb., 1883	Fair	
329	Do	2555	do	Single bogie (Mogul class)	Outside	18	26	8	6-coupled	2 9	4 0	4 0	Sept., 1885	Good.	
330	Do	2556	do	and tender	do	18	26	8	do	2 9	4 0	4 0	Aug., 1885	Under repairs.	
331	Do	2557	do	do	do	18	26	8	do	2 9	4 0	4 0	do	Requires repairs.	
332	Do	2558	do	do	do	18	26	8	do	2 9	4 0	4 0	do	do	
333	Do	2559	do	do	do	18	26	8	do	2 9	4 0	4 0	do	do	
334	Dubs & Co.	2132	Passenger	Express, 4 wheel bogie and tender, with Joy's patent valve gear.	Inside	18	26	8	4 coupled	3 6	6 0	6 0	Oct., 1885	Good.	
335	Do	2133	do	do	do	18	26	8	do	3 6	6 0	6 0	do	do	
336	Do	2134	do	do	do	18	26	8	do	3 6	6 0	6 0	do	do	
337	Do	2135	do	do	do	18	26	8	do	3 6	6 0	6 0	do	do	
338	Do	2164	do	do	do	18	26	8	do	3 6	6 0	6 0	Jan., 1886	do	
339	Do	2165	do	do	do	18	26	8	do	3 6	6 0	6 0	Feb., 1886	do	
340	Do	2166	do	do	do	18	26	8	do	3 6	6 0	6 0	do	do	

No. 3.

The Superintendent of Tramway Rolling-stock to The Commissioner for Railways.

Sir,

Tramway Works, Randwick, 1 June, 1888.

I have the honor to submit the following report upon the working of the Tramway Locomotive Branch for the year 1887:—

The total rolling-stock available for working the traffic of the city and suburban tramways at the beginning of the year consisted of:—96 engines, 127 cars, 16 service trucks, and 2 travelling water-tanks. One travelling water-tank has been added since.

During the year the rolling-stock was reduced by the following vehicles transferred from the city lines to the Newcastle-Plattsburg tramway:—8 engines, 13 cars, and 2 service trucks.

The whole of the machinery and rolling-stock has been maintained in good working order, and strenuous efforts have been put forth to bring the engines up to a thoroughly efficient condition, and it is with some considerable degree of satisfaction that I am able to report that although it was found necessary to maintain a staff of about forty workmen more during the year than in 1886—the wages cost being thereby increased by nearly £4,000—yet the total expenditure of the branch has been kept within the limits of that of the previous year. I indicated in my last report that the staff would probably have to be added to, to cope with the large arrears of work in the shape of engines lying idle for the want of necessary repairs, as large a number as thirty-eight “dead” engines and twenty-five boilers, in addition to about sixteen engines actually undergoing repairs, being stacked on one side in Randwick yard in October, 1886, when I was placed in charge of the Tramway Locomotive Branch. What I mean by “dead” engines is, engines in such a bad state for want of proper and timely repairs that there could be no immediate prospect of their being made available for service. That considerable improvement has taken place, however, may be gauged from the fact that the “dead” engines were reduced from thirty-eight in October, 1886, to twenty-one in December, 1887; and although the total engine stock was reduced during the year by the eight engines transferred to the Plattsburg tramway, no difficulty has been experienced in supplying ample motive power to work the increased traffic.

* * * * *

North Shore Cable Tramway.

The rolling-stock and machinery on this line have been maintained in good working order. It was found necessary to put in a new wire rope (by Whitecross Co.) in September, the original rope (by Bullivant & Co.) supplied by the contractors for this line having become too much worn for further service. This rope, however, has given very good results, it having commenced work in May, 1886, and been continuously in use till September, 1887, running in traffic within that period 52,414 miles. During the year the third wire rope for this line was obtained through Messrs. Drysdale & Co., of Sydney.

Attached are the usual detailed returns.

I have, &c.,

THOS. MIDELTON.

* The portion of this report, which is represented by asterisks, has reference to certain errors made by Mr. Downe in his minute replying to Mr. Midelton's report of 30th May, 1887, both of which appeared in my 1886 report. Mr. Midelton's criticisms are of a hostile and acrimonious nature, and I cannot consent to correspondence of this kind appearing in my report. At the same time I must state, in justice to Mr. Midelton, that Mr. Downe did fall into error in assuming that 31 and 38 engines respectively were to be accepted as representing the numbers in the repairing shops on each occasion referred to. These numbers represented engines requiring such extensive repairs as to be actually lost to the traffic. The number which Mr. Downe should have taken as representing the percentage of engines laid aside for repairs is 45·58, and on his assumption that 25 per cent. of the total stock is a fair proportion to be under repairs, the comparison against the Department would be 21·58 instead of 6 and 14 respectively, as represented by Mr. Downe.—CH.A.G.

No. 3—continued.

LIST OF TRAMWAY MOTORS ON HAND ON 31ST DECEMBER, 1887.

Stock No	Maker's Name.	Maker's No	Class.	Description.	Cylinders			Number of wheels on Motor.	Coupled or Single Wheels.	Diameter of Wheels			Commenced to run.	Condition.
					Position	Diameter.	Length of stroke			Leading	Driving	Trailing		
1	Baldwin Co	4 16 C 19	Passenger	Motor, 4 wheels ..	Outside	inches. 11	inches. 16	4	Coupled	ft in. 2 11	ft. in 2 11	ft. in.	15 Sept., 1879	Will soon require a general overhaul.
2	Do	" 18	do	do ..	do	11	16	4	do ..	2 11	2 11	.....	15 do 1879	do do
3	Do	" 16	do	do ..	do	11	16	4	do ..	2 11	2 11	.....	15 do 1879	do do
4	Do	" 17	do	do ..	do	11	16	4	do ..	2 11	2 11	.....	15 do 1879	do do
5	Do	" 22	do	do ..	do	11	16	4	do ..	2 11	2 11	.....	15 do 1879	In good order.
6	Do	" 21	do	do ..	do	11	16	4	do ..	2 11	2 11	.....	6 Dec., 1880	In for general overhaul.
7	Do	" 20	do	do ..	do	11	16	4	do ..	2 11	2 11	.....	6 do 1880	do do
8	Do	" 23	do	do ..	do	11	16	4	do ..	2 11	2 11	.....	6 do 1880	In shop for repairs to frame, &c.
9	Do	" 24	do	do ..	do	11	16	4	do ..	2 11	2 11	.....	12 do 1880	do do
10	Do	" 25	do	do ..	do	11	16	4	do ..	2 11	2 11	.....	19 do 1880	Requires general overhaul
11	Do	4 14 C 29	do	do ..	do	11	16	4	do ..	2 11	2 11	.....	5 do 1880	In fair running order.
12	Do	6 16 1/2 C 2	do	Motor, 6 wheels ..	do	10	14	4	do ..	2 11	2 11	.....	25 April, 1881	Waiting for new boiler.
13	Do	4 14 C 28	do	Motor, 4 wheels ..	do	11	16	4	do ..	2 11	2 11	.....	17 do 1881	Receiving general overhaul
14	Do	6 16 1/2 C 1	do	Motor, 6 wheels ..	do	10	14	4	do ..	2 11	2 11	.....	18 do 1881	Waiting for new boiler.
15	Do	4 14 C 30	do	Motor, 4 wheels ..	do	11	16	4	do ..	2 11	2 11	.....	20 April, 1881	In good order.
16	Do	" 31	do	do ..	do	10	14	4	do ..	2 11	2 11	.....	9 June, 1881	do
17	Do	" 32	do	do ..	do	10	14	4	do ..	2 11	2 11	.....	11 do 1881	Waiting for new boiler.
18	Do	" 33	do	do ..	do	10	14	4	do ..	2 11	2 11	.....	6 July, 1881	do do
19	Do	6 16 1/2 C 9	do	do ..	do	11	16	4	do ..	2 11	2 11	.....	13 do 1881	In fair running order.
20	Do	" 6	do	Motor, 6 wheels ..	do	11	16	6	do ..	2 11	2 11	2 0	15 do 1881	In good order. Altered from 6 to 4-wheel motor.
21	Do	" 5	do	do ..	do	11	16	6	do ..	2 11	2 11	2 0	23 do 1881	Being fitted with 16 parallel boiler
22	Do	" 8	do	do ..	do	11	16	6	do ..	2 11	2 11	2 0	23 do 1881	In good order.
23	Do	" 3	do	do ..	do	11	16	6	do ..	2 11	2 11	2 0	31 do 1881	Receiving new boiler
24	Do	" 7	do	do ..	do	11	16	6	do ..	2 11	2 11	2 0	2 Aug., 1881	Waiting for general overhaul, and boiler repairs
25	Do	" 4	do	do ..	do	11	16	6	do ..	2 11	2 11	2 0	31 July, 1881	In good order.
26	Do	4 14 C 34	do	Motor, 4 wheels ..	do	10	14	4	do ..	2 11	2 11	2 0	2 Aug., 1881	Waiting for general overhaul
27	Do	4 11 C 45	do	do ..	do	9	12	4	do ..	2 11	2 11	.....	4 do 1881	Stopped with loose tyres.
28	Do	" 59	do	do ..	do	9	12	4	do ..	2 8	2 8	.....	28 Oct., 1881	Waiting for repairs.
29	Do	" 56	do	do ..	do	9	12	4	do ..	2 8	2 8	.....	28 Dec., 1881	do do
30	Do	" 60	do	do ..	do	9	12	4	do ..	2 8	2 8	.....	16 do 1881	do do
31	Do	" 55	do	do ..	do	9	12	4	do ..	2 8	2 8	.....	26 Jan., 1882	do do
32	Do	" 58	do	do ..	do	9	12	4	do ..	2 8	2 8	.....	26 do 1882	do do
33	Do	" 57	do	do ..	do	9	12	4	do ..	2 8	2 8	.....	26 do 1882	do do
34	Do	4 16 C 35	do	do ..	do	9	16	4	do ..	2 8	2 8	.....	16 Feb., 1882	do do
35	Do	" 38	do	do ..	do	11	16	4	do ..	2 11	2 11	.....	1 July, 1882	In good order.
36	Do	" 36	do	do ..	do	11	16	4	do ..	2 11	2 11	.....	1 do 1882	do
37	Do	" 37	do	do ..	do	11	16	4	do ..	2 11	2 11	.....	20 June, 1882	do
38	Do	" 32	do	do ..	do	11	16	4	do ..	2 11	2 11	.....	3 July, 1882	do
39	Do	" 31	do	do ..	do	11	16	4	do ..	2 11	2 11	.....	25 Aug., 1882	Receiving general overhaul.
40	Do	" 33	do	do ..	do	11	16	4	do ..	2 11	2 11	.....	22 do 1882	In fair running order.
41	Do	" 34	do	do ..	do	11	16	4	do ..	2 11	2 11	.....	25 do 1882	In good order.
42	Kitson & Co.	— 59	do	do ..	do	11 1/2	18	4	do ..	2 6	2 6	.....	24 do 1882	In fair running order.
43	Do	— 60	do	do ..	do	11 1/2	18	4	do ..	2 6	2 6	.....	2 Oct., 1882	Requires general overhaul
44	Baldwin Co	4 14 C 37	do	do ..	do	10	14	4	do ..	2 6	2 6	.....	21 do 1882	do do
										2 11	2 11	.....	14 Dec., 1882	Waiting general overhaul.

No. 3—continued.

List of Tramway Motors on hand on 31st December, 1887—continued.

Stock No.	Maker's Name.	Maker's No.	Class.	Description.	Cylinders.			No. of Wheels on Motor.	Coupled or Single Wheels.	Diameter of Wheels.			Commenced to run:	Condition.
					Position.	Diameter.	Length of stroke.			Leading.	Driving.	Trailing.		
45	Baldwin Co.	4 14 C 36	Passenger	Motor, 4 wheels	Outside	10	14	4	Coupled	2 II	2 II		16 Dec., 1882	In good order.
46	Do	" 38	do	do	do	10	14	4	do	2 II	2 II		1 Mar., 1883	Will soon require general overhaul.
47	Do	" 40	do	do	do	10	14	4	do	2 II	2 II		3 do 1883	do do
48	Do	" 39	do	do	do	10	14	4	do	2 II	2 II		6 do 1883	In fair running order.
49	Do	" 41	do	do	do	10	14	4	do	2 II	2 II		6 do 1883	In fair running order; will soon require repairs.
50	Kitson & Co.		do	Combined motor and car	Inside	8½	12	4	do	2 4½	2 4½		11 Nov., 1882	Unserviceable.
51	Baldwin Co.	4 14 C 47	do	Motor, 4 wheels	Outside	10	14	4	do	2 II	2 II		28 April, 1883	In good order.
52	Do	" 45	do	do	do	10	14	4	do	2 II	2 II		28 do 1883	In fair running order.
53	Do	" 44	do	do	do	10	14	4	do	2 II	2 II		1 May, 1883	do do
54	Do	" 46	do	do	do	10	14	4	do	2 II	2 II		1 do 1883	do do
55	Merryweather	— 41	do	do	Inside	7½	12	4	do	2 3½	2 3½		6 June, 1883	Waiting for overhaul.
56	Baldwin Co.	4 14 C 42	do	do	Outside	10	14	4	do	2 II	2 II		16 do 1883	In fair running order.
57	Do	" 43	do	do	do	10	14	4	do	2 II	2 II		18 do 1883	In good running order.
58	Do	4 16 C 41	do	do	do	11	16	4	do	2 II	2 II		19 Jan., 1884	In fair running order.
59	Do	" 42	do	do	do	11	16	4	do	2 II	2 II		19 do 1884	In good running order.
60	Do	" 43	do	do	do	11	16	4	do	2 II	2 II		21 do 1884	In fair running order.
61	Do	" 44	do	do	do	11	16	4	do	2 II	2 II		21 do 1884	In shop for temporary repairs.
62	Do	" 45	do	do	do	11	16	4	do	2 II	2 II		25 June, 1884	In good order.
63	Do	" 46	do	do	do	11	16	4	do	2 II	2 II		25 do 1884	In shop for temporary repairs.
64	Do	" 47	do	do	do	11	16	4	do	2 II	2 II		21 do 1884	In fair running order.
65	Do	" 48	do	do	do	11	16	4	do	2 II	2 II		24 do 1884	In good order.
66	Do	" 49	do	do	do	11	16	4	do	2 II	2 II		12 April, 1884	Receiving general overhaul.
67	Do	" 50	do	do	do	11	16	4	do	2 II	2 II		12 do 1884	In good order.
68	Do	" 51	do	do	do	11	16	4	do	2 II	2 II		12 do 1884	In fair running order.
69	Do	" 52	do	do	do	11	16	4	do	2 II	2 II		7 July, 1884	In good running order.
77	Do	" 55	do	do	do	11	16	4	do	2 II	2 II		29 Aug., 1885	do do
78	Do	" 56	do	do	do	11	16	4	do	2 II	2 II		20 do 1885	do do
79	Do	" 57	do	do	do	11	16	4	do	2 II	2 II		22 do 1885	Receiving general overhaul.
80	Do	" 58	do	do	do	11	16	4	do	2 II	2 II		20 do 1885	In good order.
81	Do	" 59	do	do	do	11	16	4	do	2 II	2 II		22 do 1885	do do
82	Do	" 72	do	do	do	11	16	4	do	2 II	2 II		24 May, 1885	do do
83	Do	" 73	do	do	do	11	16	4	do	2 II	2 II		24 do 1885	In for general overhaul
84	Do	" 74	do	do	do	11	16	4	do	2 II	2 II		24 do 1885	In fair running order.
85	Do	" 60	do	do	do	11	16	4	do	2 II	2 II		6 April, 1885	do do
86	Do	" 61	do	do	do	11	16	4	do	2 II	2 II		6 do 1885	do do
87	Do	" 62	do	do	do	11	16	4	do	2 II	2 II		6 do 1885	In good order.
88	Do	" 63	do	do	do	11	16	4	do	2 II	2 II		6 do 1885	In fair order.
89	Do	" 64	do	do	do	11	16	4	do	2 II	2 II		6 do 1885	In good order.
90	Do	" 65	do	do	do	11	16	4	do	2 II	2 II		29 Aug., 1885	In fair running order,
91	Do	" 66	do	do	do	11	16	4	do	2 II	2 II		15 do 1885	will soon require new
92	Do	" 67	do	do	do	11	16	4	do	2 II	2 II		15 do 1885	tyres.
93	Do	" 68	do	do	do	11	16	4	do	2 II	2 II		22 do 1885	In good order.
94	Do	" 69	do	do	do	11	16	4	do	2 II	2 II		22 do 1885	do do
95	Do	" 70	do	do	do	11	16	4	do	2 II	2 II		24 May, 1885	In fair running order.
96	Do	" 71	do	do	do	11	16	4	do	2 II	2 II		24 do 1885	do do

During the year Motors Nos. 70, 71, 72, 73, 74, 75, 76, and 97 were sent to Newcastle for the Newcastle-Plattsburg Tramway.

No. 3—continued.

LIST OF CARS ON HAND ON 31ST DECEMBER, 1887.

Class.	Numbers.	Description.	Number of wheels.	To carry.	Remarks.
A	3, 4, 6, 7, 8.	Double-deck	Two 4-wheel bogies...	90 passengers..	In safe working order; to be altered to 70 passenger cars as they are stopped for repairs.
	5	Single-deck	" "	70 "	In good order, altered from double-deck 90 passenger car.
A1	1	Double-deck	" "	90 "	In safe running order; used by workmen only.
	2, 42, 43, 44, 45, 46, 21, 24, 25, 26, 27, 28, 29, 30, 34, 35, 37, 38, 39, 40, 41, 47	Single-deck	" "	70 "	In good running order.
A2	22, 31, 37, 33, 36, 107	Double-deck	" "	90 "	Showing signs of decay; sole bars are perished at foot of corner pillars; to be altered to 70 passenger cars, as they are taken in for repairs.
		Single-deck	" "	70 "	In good order; have been altered from double-decked 90 passenger cars.
A3	48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94	Double-deck	" "	60 "	Sole bars more or less fractured at foot of corner pillars and showing signs of decay. These cars with one or two exceptions are all safe to run, but will soon require very extensive repairs or renewals.
A4					
A5	95, 96, 97, 98.	"	" "	60 "	Similar in all respects to cars 51 to 94.
B	9	Single-deck	" "	48 "	In first-class order and condition.
B1	11	"	" "	48 "	
	13, 14, 15, 23	"	" "	56 "	Have been broken up.
C	10, 99	"	" "	48 "	In good condition.
	17, 19, 20	"	" "	80 "	In safe running order, timbers perished and showing signs of general decay.
C1	18, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 126, 127, 128.	"	" "	70 "	Has been broken up.
	125	"	" "	60 "	Sent to Newcastle for Newcastle Plattsburg Tramway.
D	50	Combined car, Kitson type.	4 wheels	60 "	In safe working order; several of these cars require painting having originally been varnished only.
D1	100 to 106 inclusive.	Combined cars	"	60 "	The body of this car was destroyed by fire; rebuilt at Randwick.
				80 "	Unserviceable.
					Sent to Newcastle for Newcastle Plattsburg Tramway.

LIST OF GOODS-TRUCKS AND WATER-TANKS ON HAND ON 31ST DECEMBER, 1887.

Description.	No.	Name of Maker.	Carrying Capacity.	Weight.	Diameter of Wheels	No. of Wheels.	Condition.
Trucks	1, 2, 3, 4 ...	Permanent-way Railways...	10 tons	T. c. q.	Feet.	8	Much worn; kept for yard use and light work.
Do	5, 6	Tram Works, Randwick ...	10 "	4 0 0	2	8	Sent to Newcastle.
Do	7, 8, 9, 10, 11, 12, 13, 14, 15, 16...	do do ...	10 "	4 0 0	2	8	In good order and Condition.
Water-tank ...	1	Thomas Wearne	1,000 gals.	7 6 0	2	8	
Do ...	2	do	2,625 "	16 3 2	2	8	In safe working order; showing signs of decay.
Do ...	3	Cooke & Webb	2,625 "	16 3 2	2	8	In good running order.
							do

LIST OF MACHINERY AT RANDWICK ON 31ST DECEMBER, 1887.

No.	1.	1	10-h.p. vertical boiler with horizontal cross tubes and all fittings complete.
"	2.	1	8-h.p. horizontal engine, with force pump complete.
"	3.	1	Wheel lathe, 4' 6" centres.
"	4.	1	Screw-cutting lathe, 10 $\frac{1}{2}$ " centres, 16 feet bed, with gap and change wheels complete.
"	5.	1	do 9 $\frac{1}{2}$ " do 16 do do do
"	6.	1	do 9 $\frac{1}{4}$ " do 15 do do do
"	7.	1	do 8 $\frac{1}{4}$ " do 15 do do do
"	8.	1	do 8" do 16 do do do
"	9.	1	do 8" do 14 do do do
"	10.	1	Brass-finisher's lathe, 6" centres and 5 feet bed.
"	11.	1	do 6" do 6 do
"	12.	1	Planing machine, 6' \times 2'.
"	13.	1	Slotting machine, 8" stroke.
"	14.	1	Double-table shaping machine, 14" stroke.
"	15.	1	do do
"	16.	1	Vertical drilling machine, 18" space, with round movable table.
"	17.	1	do 15" do do
"	18.	1	Small vertical drilling machine, with hand-power attached.
"	19.	1	Screwing machine.
"	20.	1	Wood-turner's lathe (headstock only), fixed on bed No. 9.
"	21.	1	Small screwing machine, with hand-power.
"	22.	1	Grindstone, 5 feet diameter, on wooden frame.
"	23.	1	2 $\frac{1}{2}$ -cwt. steam-hammer.
"	24.	1	No. 2 patent silent fan.
"	26.	1	Screw-cutting lathe, 7 $\frac{1}{2}$ " centres, with gap and change wheels complete.
"	32.	1	Punching and shearing machine.
"	34.	1	Whitworth screw-cutting lathe, 10" centres, with change wheels complete.
"	35.	1	do do 10" do do
"	36.	1	Double-table shaping machine, 12" stroke (Whitworth's).
"	37.	1	Hydraulic press.
"	38.	1	Set bending rolls, 4' 4" in diameter, fitted for hand or power.
"	39.	1	Planing machine, 6' \times 2' \times 6".
"	40.	1	Overhead travelling crane.
"	41.	1	Wheel lathe.
"	42.	1	Radial drilling machine (large).
"	43.	2	do do (small).
"	44.	1	Plate bending machine.
"	45.	1	Slotting machine.
"	46.	1	Hydraulic wheel press, with pump complete.
"	47.	17	Smith's forges with the iron complete (single).
"	48.	1	do do do (double).
"	49.	3	Screw cutting lathes, 10" centres, 12' bed.
"	50.	2	do 8" do 9' do
"	51.	1	do 6" do 16' do
"	52.	2	do 12" do 16' do
"	53.	1	Small punching and shearing machine on wheels.
"	54.	2	Large size shaping machines.
"	55.	1	Flexible shaft, and tools for boring and tapping.
"	56.	1	14-h.p. vertical boiler and engine complete.
"	57.	1	20-h.p. semi-portable engine complete.
"	58.	1	Surface plane.
"	58.	1	Band saw setting and filing machine.
"	60.	5	Band saw blades, extra.
"	61.	1	Band saw machine.
"	62.	1	Automatic knife grinder.
"	63.	1	Standard saw bench.
"	64.	1	Emery grinder.

- No. 65. 16 Emery wheels.
 „ 66. 1 Morticing and boring machine.
 „ 67. Chisels and bits, extra.
 „ 68. 1 Moulder and shaper.
 „ 69. 1 Four side planing machine.
 „ 70. 1 Set knives, extra.
 „ 71. 1 Steam travelling crane.

MACHINERY IN PITT-STREET WORKSHOPS.

- No. 25. 1 6-h.p. vertical boiler, with engine attached.
 „ 27. 1 Screw-cutting lathe, 7½" centres, 8 feet bed, with gap and change wheels complete.
 „ 28. 1 do 6" do 6 do do do
 „ 29. 1 Shaping machine, 6" stroke.
 „ 30. 1 vertical drilling machine, 15" space, with round movable table.
 „ 31. 1 Grindstone on wooden frame.
 „ 33. 1 Screw-cutting lathe, 8" centres, 10 feet bed, with gap and change wheels complete.

LIST OF PUMPS, CRANES, &C., ON TRAMWAY LINES, 31ST DECEMBER, 1887.

Bridge-street ...	1 Stand-pipe, 1 crane.	Newtown Road ...	1 Tank and connections.
Botany ...	1 Pump and boiler and tank.	Railway ...	3 Stand-pipes.
Crown-street ...	1 Hydrant.	Randwick Yard...	1 Tank and connections.
Coogee ...	1 Tank and connections.	Racecourse ...	1 do do
Enmore ...	1 Hydrant.	Waterloo ...	1 Crane.
Forest Lodge ...	1 Stand-pipe.	Trafalgar-street...	1 Hydrant.
Glebe Point ...	1 Crane.	Waverley Line ...	1 Tank and connections, 1 stand-pipe, and 1 crane.
Leichhardt ...	1 Crane, tank, and connections.	Woollahra ...	1 Crane.
Moore Park ...	1 Stand-pipe.	Bondi Junction...	1 Stand-pipe.
Cricket Ground...	3 Stand-pipes.		

All the above are in good order.

NORTH SHORE CABLE TRAMWAY.

RETURN OF ROLLING STOCK AND MACHINERY ON HAND ON 31ST DECEMBER, 1887:—

- 8 4-wheeled cars, to seat 16 passengers each.
 8 „ dummies, to seat 22 passengers each.
 1 pair H.P. horizontal engines, with boilers, driving gear, and shafting, complete.
 1 steel wire rope (in use), by Whitecross Co.
 1 „ „ (in reserve), by Ryland Bros., Warrington; obtained from Briscoe, Drysdale, & Co.
 Cars numbered 1, 2, 3, and 4 were imported from America by the contractors for the line, and those numbered 5, 6, 7, and 8 were built in Sydney by Mr. T. Wearne.
 1 truck for removing cables.

TRAIN MILEAGE YEAR ENDED 31ST DECEMBER, 1887:—

Dummy No.	1	2	3	4	5	6	7	8	Total	Miles.	Chains.
	...	...	...	...	...	...	...	...	...	9,612	0
„	2	...	...	...	...	...	...	...	...	10,073	56
„	3	...	...	...	...	...	...	...	...	11,030	76
„	4	...	...	...	...	...	...	...	...	9,865	48
„	5	...	...	...	...	...	...	...	...	5,641	72
„	6	...	...	...	...	...	...	...	...	9,683	16
„	7	...	...	...	...	...	...	...	...	2,859	24
„	8	...	...	...	...	...	...	...	...	10,266	16
										69,032	68

No. 4.

—DATES of OPENING, and the length in miles of the different sections of Railway Lines, from the commencement to 31st December, 1887.

Date of opening.	To where opened.	Southern Line.	Western Line.	Northern Line.	All Lines.
26 Sept., 1855	Parramatta	14			14
26 Sept., 1856	Liverpool	9			9
	Total, 1856	23			23
5 April, 1857	East Maitland			17	17
	Total, 1857	23		17	40
19 Mar., 1858	Newcastle			1	1
17 May, 1858	Campbelltown	12			12
27 July, 1858	West Maitland			2	2
	Total, 1858, 1859	35		20	55
2 July, 1860	Lochinvar			7	7
4 July, 1860	Blacktown		8		8
	Total, 1860	35	8	27	70
12 Dec., 1861	Rooty Hill		3		3
	Total, 1861	35	11	27	73
24 Mar., 1862	Branxton			8	8
1 May, 1862	South Creek		5		5
7 July, 1862	Penrith		5		5
1 Sept., 1862	Menangle	6			6
	Total, 1862	41	21	35	97
7 May, 1863	Singleton			14	14
1 July, 1863	Picton	13			13
	Total, 1863	54	21	49	124
2 May, 1864	Morpeth			3	3
1 Dec., 1864	Richmond		16		16
	Total, 1864, 1865, 1866	54	37	52	143
1 Mar., 1867	Mittagong	24			24
11 July, 1867	Weatherboard		28		28
2 Dec., 1867	Sutton Forest	9			9
	Total, 1867	87	65	52	204
1 May, 1868	Mount Victoria		15		15
6 Aug., 1868	Marulan	28			28
	Total, 1868	115	80	52	247
19 May, 1869	Muswellbrook			31	31
27 May, 1869	Goulburn	20			20
18 Oct., 1869	Bowenfels		20		20
	Total, 1869	135	100	83	318
1 Mar., 1870	Wallerawang		8		8
1 July, 1870	Rydal		6		6
20 Oct., 1870	Aberdeen			7	7
	Total, 1870	135	114	90	339
17 April, 1871	Scone			9	9
1 Aug., 1871	Wingen			10	10
	Total, 1871	135	114	109	358
1 Jan., 1872	Sidings, Collingwood, &c.	1			1
5 April, 1872	Murrumbidgee			14	14
22 April, 1872	Locke's Platform		19		19
1 July, 1872	Macquarie Plains		5		5
	Total, 1872	136	138	124	398
4 Mar., 1873	Raglan		5		5
	Total, 1873, 1874	136	143	124	403
4 Feb., 1875	Kelso		3		3
9 Nov., 1875	Gunning	31			31
	Total, 1875	167	146	124	437
4 April, 1876	Bathurst		2		2
3 July, 1876	Bowning				
1 Nov., 1876	Binalong	29			29
1 Nov., 1876	Blayney	14			14
	Total, 1876	210	175	124	509

No. 4—continued.

Date of opening.	To where opened.	Southern Line	Western Line.	Northern Line	All Lines.
	Total, 1876	210	175	124	509
12 Mar., 1877	Murrumburrah	20	.....	.....	20
19 April, 1877	Orange .....	.....	20	.....	20
13 Aug., 1877	Quirindi .....	.....	.....	24	24
1 Nov., 1877	Cootamundra	25	.....	.....	25
	Total, 1877	255	195	148	598
2 April, 1878	Bullock Island Branch .....	.....	.....	1½	1½
15 April, 1878	Bethungra	15	.....	.....	15
6 July, 1878	Junee	18	.....	.....	18
3 Sept., 1878	North Wagga Wagga	18	.....	.....	18
14 Oct., 1878	Tamworth .....	.....	.....	38	38
	Total, 1878	306	195	187½	688½
25 Mar., 1879	Breca .....	.....	.....	15	15
1 Sept., 1879	South Wagga Wagga	5	.....	.....	5
11 Sept., 1879	Gunnedah .....	.....	.....	26	26
	Total, 1879	311	195	228½	734½
1 June, 1880	Wellington .....	.....	56	.....	56
1 Sept., 1880	Gerogery	59	.....	.....	59
	Total, 1880	370	251	228½	849½
1 Feb., 1881	Dubbo .....	.....	30	.....	30
3 Feb., 1881	Albury	18	.....	.....	18
28 Feb., 1881	Narrandera	60	.....	.....	60
1 Sept., 1881	Darlington	38	.....	.....	38
	Total, 1881	486	281	228½	995½
9 Jan., 1882	Moonbi .....	.....	.....	12	12
1 Mar., 1882	Carathool	34	.....	.....	34
15 May, 1882	Capertee .....	.....	23	.....	23
4 July, 1882	Hay	34	.....	.....	34
11 July, 1882	Boggabri .....	.....	.....	24	24
2 Aug., 1882	Uralla .....	.....	.....	51	51
1 Oct., 1882	Narrabri .....	.....	.....	32	32
20 Oct., 1882	Nevertire .....	.....	63	.....	63
	Total, 1882	554	367	347½	1,268½
3 Feb., 1883	Armidale .....	.....	.....	15	15
9 June, 1883	Nyngan .....	.....	36	.....	36
14 June, 1883	River Murray	1	.....	.....	1
	Total, 1883	555	403	362½	1,320½
3 Jan., 1884	Tarago	20	.....	.....	20
9 June, 1884	Rylstone .....	.....	31	.....	31
19 Aug., 1884	Glen Innes .....	.....	.....	63	63
2 Sept., 1884	Byrock .....	.....	78	.....	78
10 Sept., 1884	Mudgee .....	.....	32	.....	32
16 Sept., 1884	Jerilderie	65	.....	.....	65
15 Oct., 1884	Hurstville	9	.....	.....	9
	Total, 1884	649	514	425½	1,618½
4 Mar., 1885	Bungendore	20	.....	.....	20
26 Mar., 1885	Young	18	.....	.....	18
3 Sept., 1885	Bourke .....	.....	48	.....	48
21 Dec., 1885	Molong .....	.....	22	.....	22
26 Dec., 1885	Sutherland	6	.....	.....	6
	Total, 1885	693	614	425½	1,732½
9 Mar., 1886	Waterfall	9	.....	.....	9
1 June, 1886	Gundagai	34	.....	.....	34
1 Sept., 1886	Tenterfield .....	.....	.....	57	57
17 Sept., 1886	Hornsby .....	.....	.....	14	14
1 Nov., 1886	Cowra	43	.....	.....	43
	Total, 1886	779	614	496½	1,889½
7 April, 1887	Hawkesbury .....	.....	.....	15	15
21 June, 1887	Wollongong	12½	.....	.....	12½
15 Aug., 1887	Waratah .....	.....	.....	50	50
8 Sept., 1887	Queanbeyan	17½	.....	.....	17½
9 Nov., 1887	North Kiama	21½	.....	.....	21½
7 Dec., 1887	Michlago	30½	.....	.....	30½
	Total, 1887	860½	614	561½	2,036

No. 5.—TABLE A.

ABSTRACT of the total Quantity and Cost of Land taken for Railway Purposes to the 31st December, 1887, under the Government Railways Act of 1858.

Railway Lines.	Length.	Quantity taken.				Total.	Amount claimed.	Amount paid.				Probable Amounts to be paid.	Total Cost.	Rate.											
		Private.		Crown.				For Land and Buildings.	Severance.	As costs of Arbitration.	Claimants' Costs on Conveyances.			Per Mile of Line.	Per Acre.										
GREAT WESTERN LINE.																									
Granville to Bathurst.....	131 30	1,346	2 27	1,600	2 25 ¹ / ₂	2,947	1 12 ¹ / ₂	88,463	19 1	42,054	3 2	5,888	8 5	199	6 2	1,874	19 5	749	18 2	50,766	15 4	386	8 6 ¹ / ₂	37	13 11 ¹ / ₂
Bathurst to Orange	47 75	611	2 33	141	3 5	753	1 38	37,684	11 0	13,573	15 3	2,804	7 3	987	11 5	709	9 9	237	0 0	18,312	3 8	382	0 0 ¹ / ₂	29	18 8 ¹ / ₂
Orange to Dubbo	85 25 ¹ / ₂	342	3 8	920	3 25	1,263	2 33	34,611	6 6	13,744	10 3	1,342	12 5	170	7 0	669	16 0	818	5 2	16,745	10 10	196	5 5	48	16 11 ¹ / ₂
Dubbo to Nyngan	99 49 ¹ / ₂	39	1 1 ¹ / ₂	2,325	3 4	2,365	0 5 ¹ / ₂	2,987	10 0	1,660	12 4	93	7 6	.....	.....	59	0 2	.....	.....	1,813	0 0	18	4 0	46	3 7 ¹ / ₂
Nyngan to Bourke	125 49	6	0 0	3,180	2 30	3,186	2 30	55	0 0	38	4 0	.....	.....	.....	.....	4	16 0	.....	.....	43	0 0	0	6 10 ¹ / ₂	7	3 4
Wallerawang to Mudgee	84 54	734	2 6 ¹ / ₂	1,166	1 29	1,900	3 35 ¹ / ₂	25,399	7 5	13,821	1 2	1,114	16 7	158	12 6	948	17 11	269	3 3	16,312	11 5	192	12 11 ¹ / ₂	22	4 1 ¹ / ₂
Richmond Branch	16 11 ¹ / ₂	127	1 11 ¹ / ₂	17	1 29 ¹ / ₂	144	3 1	8,057	16 8	3,540	3 9	1,744	13 1	.....	.....	303	15 7	274	16 10	5,863	9 3	363	4 0 ¹ / ₂	46	1 0 ¹ / ₂
Orange to Molong	22 61 ¹ / ₂	415	3 38 ¹ / ₂	80	3 39	496	3 37 ¹ / ₂	20,806	6 1	10,015	6 2	1,251	12 6	12	14 6	140	16 5	2,837	6 9	14,257	16 4	626	4 0 ¹ / ₂	34	5 5 ¹ / ₂
TOTAL, GREAT WESTERN...	613 35³/₄	3,624	1 6	9,434	2 27¹/₂	13,058	3 33¹/₄	218,065	16 9	98,447	16 1	14,239	17 9	1,528	11 7	4,711	11 3	5,186	10 2	124,114	6 10	202	6 5¹/₂	34	4 10¹/₂
GREAT NORTHERN LINE.																									
Newcastle to Murrurundi	119 44	1,479	1 20	374	2 15 ¹ / ₂	1,853	3 35 ¹ / ₂	170,676	0 0	60,022	7 1	8,396	11 11	647	14 9	1,924	16 3	1,021	9 3	72,012	19 3	602	7 4	48	13 6 ¹ / ₂
Murrurundi to Tamworth	62 36	503	0 13	381	0 1	884	0 14	14,134	6 7	5,181	6 7	1,755	11 8	.....	.....	280	2 2	74	18 3	7,291	18 8	116	15 3 ¹ / ₂	14	9 10 ¹ / ₂
Tamworth to Uralla	63 44	435	0 14	261	3 25 ¹ / ₂	696	3 39 ¹ / ₂	47,577	3 0	23,231	14 8	2,793	9 4	1,789	2 2	810	5 4	33	14 8	28,658	6 2	450	19 1 ¹ / ₂	65	17 4 ¹ / ₂
Uralla to Glen Innes	78 36	681	3 34	1,144	2 26	1,826	2 20	41,440	19 0	12,475	12 3	2,860	12 6	774	11 8	486	15 6	117	3 10	16,714	15 9	213	1 3	24	10 2 ¹ / ₂
Glen Innes to Tenterfield	57 45 ¹ / ₂	310	1 20	743	0 9	1,053	1 29	32,517	18 2	3,939	13 2	818	6 10	5	5 0	175	2 4	734	8 5	5,672	15 9	98	10 10 ¹ / ₂	18	5 6 ¹ / ₂
Tenterfield to Queensland Border ..	10 76 ¹ / ₂	52	3 16	159	3 1	212	2 17	2,321	17 1	647	16 11	385	0 0	.....	.....	36	2 6	101	0 0	1,169	19 5	106	15 1 ¹ / ₂	22	2 9
Morpeth Branch	3 35 ¹ / ₂	34	3 22 ¹ / ₂	1	2 28 ¹ / ₂	36	2 11	32,367	4 10	18,088	0 9	1,506	16 3	605	16 2	368	7 11	62	17 11	20,631	19 0	5,991	2 7	591	7 2
Bullock Island Branch	1 25 ¹ / ₂	19	2 18 ¹ / ₂	6	2 32 ¹ / ₂	26	1 11 ¹ / ₂	14,710	2 0	9,465	16 3	.....	.....	156	0 6	161	14 5	8	16 0	9,792	7 2	7,425	9 8 ¹ / ₂	499	3 2 ¹ / ₂
TOTAL, GREAT NORTHERN...	397 23	3,517	0 38¹/₂	3,073	1 19¹/₂	6,590	2 17¹/₂	355,745	10 8	133,052	7 8	18,516	8 6	3,978	10 3	4,243	6 5	2,154	8 4	161,945	1 2	407	12 6¹/₂	46	0 10¹/₂
GREAT SOUTHERN LINE.																									
Sydney to Granville	13 50	325	2 27	40	3 3	366	1 30	222,371	10 4	174,263	15 11	1,458	18 1	1,642	15 7	865	16 4	4,782	9 3	183,013	15 2	13,132	4 0 ¹ / ₂	561	19 3
Granville to Goulburn	120 51	1,316	2 39 ¹ / ₂	751	1 0	2,067	3 39 ¹ / ₂	80,802	3 0	32,810	13 9	7,295	2 10	680	13 3	1,571	15 4	2,337	2 6	44,695	7 8	370	9 1 ¹ / ₂	33	18 10 ¹ / ₂
Goulburn to Yass	54 21	549	1 12 ¹ / ₂	226	2 35	776	0 7 ¹ / ₂	42,389	3 9	16,314	17 2	2,482	10 3	317	13 6	596	17 5	1,103	0 0	20,814	18 4	383	11 11 ¹ / ₂	37	17 10
Yass to Cootamundra	64 55	469	3 23	511	3 26 ¹ / ₂	981	3 9 ¹ / ₂	14,893	9 3	6,615	0 3	561	19 1	175	10 6	295	15 11	323	6 0	7,971	11 9	123	4 7 ¹ / ₂	16	19 3 ¹ / ₂
Cootamundra to Wagga Wagga	55 35	210	3 21	566	3 9 ¹ / ₂	777	2 30 ¹ / ₂	12,266	9 6	6,801	1 0	738	14 3	.....	.....	235	11 11	199	12 10	7,975	0 0	143	17 1 ¹ / ₂	37	16 4 ¹ / ₂
Wagga Wagga to Albury	77 49	591	2 8	637	0 12	1,228	2 20	60,847	4 0	22,289	13 10	6,428	6 4	25	0 0	389	5 2	264	9 6	29,396	14 10	378	15 3	49	13 10 ¹ / ₂
Albury to the River Murray	1 31 ¹ / ₂	47	0 25	.....	.....	47	0 25	33,576	10 0	11,326	14 10	1,522	1 3	.....	.....	123	3 6	120	15 0	13,092	14 7	9,414	19 11	275	11 3 ¹ / ₂
Murrumburrah to Young	17 66	230	3 8	133	2 5	364	1 13	51,406	1 5	14,880	7 4	1,451	16 1	68	1 8	414	0 9	21	19 6	16,836	5 4	944	10 7	72	18 11 ¹ / ₂
Young to Blayney	91 66	1,060	0 28	681	0 6	1,741	0 34	46,751	3 9	10,010	6 9	3,103	16 7	71	14 6	605	2 0	6,071	3 0	19,862	2 10	216	6 1	18	14 8 ¹ / ₂
Goulburn to Bungendore	39 32 ¹ / ₂	642	0 38	76	2 23	718	3 21	40,153	6 2	11,914	9 2	2,195	11 8	697	15 2	389	9 10	272	14 2	15,469	19 11	390	10 11	24	1 9
Bungendore to Michelago	47 55	553	2 26	281	1 18	835	0 4	22,760	5 11	6,240	19 2	1,822	10 0	21	0 0	437	6 0	1,045	0 6	9,566	15 8	202	12 3 ¹ / ₂	17	5 6 ¹ / ₂
Michelago to Cooma	38 70 ¹ / ₂	486	3 14	203	3 5	690	2 19	24,093	3 9	2,406	7 8	930	0 0	15	15 0	139	16 10	3,073	19 10	6,565	19 4	168	17 5 ¹ / ₂	13	9 8 ¹ / ₂
Cootamundra to Gundagai	33 17 ¹ / ₂	518	2 19	158	2 31	677	1 10	38,761	14 2	5,896	19 8	944	1 7	15	15 0	333	16 2	5,017	4 6	12,207	16 11	367	10 8	23	10 9 ¹ / ₂
TOTAL, GREAT SOUTHERN...	656 39¹/₂	7,003	2 9¹/₂	4,269	2 14	11,273	0 23¹/₄	691,072	5 0	321,771	16 5	30,935	8 0	3,731	4 2	6,397	17 2	24,632	16 7	387,469	2 4	590	4 1¹/₂	55	6 5¹/₂

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APPENDIX TO REPORT ON RAILWAYS—1887.

No. 5—TABLE A—continued.

ABSTRACT of the total Quantity and Cost of Land taken for Railway purposes—continued.

Railway Lines.	Length.	Quantity taken.		Total.	Amount claimed.	Amount paid.				Probable Amounts to be paid.	Total Cost.	Rate.	
		Private.	Crown.			For Land and Buildings.	Severance.	As costs of Arbitration.	Claimants' Costs on Conveyances.			Per Mile of Line.	Per Acre.
	Miles chns.	a. r. p.	a. r. p.	a. r. p.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
DARLING HARBOUR BRANCH.	1 11½	17 1 16	.....	17 1 16	59,150 12 6	46,242 10 6	.....	348 15 0	354 5 3	2,194 12 2	49,140 2 11	42,964 1 2½	2,832 5 8½
NORTH-WESTERN LINE.													
Werris Creek to Gunnedah ...	41 22	402 3 28	378 3 3	781 2 31	10,242 11 7	6,632 3 5	382 8 6	717 5 0	170 9 0	280 19 3	8,183 5 2	198 5 2½	20 6 2½
Gunnedah to Narrabri	55 43	234 3 14	1,407 3 4	1,642 2 18	5,280 1 10	2,593 17 11	581 0 0	133 3 6	88 3 4	.....	3,396 4 9	61 3 0½	14 9 3
TOTAL, NORTH-WESTERN ..	96 65	637 3 2	1,786 2 7	2,424 1 9	15,522 13 5	9,226 1 4	963 8 6	850 8 6	258 12 4	280 19 3	11,579 9 11	119 12 1¼	18 3 1½
SOUTH COAST RAILWAY.													
Sydney to Bottle Forest	24 18¼	268 0 3	119 0 10	387 0 13	283,296 11 8	146,893 1 2	13,016 10 3	3,275 2 11	2,851 1 0	1,212 6 0	167,248 1 4	6,903 1 1	624 0 4
Bottle Forest to Coal Cliff ...	9 31¼	107 0 15	94 0 26	201 1 1	104,479 18 0	11,014 3 4	20 0 0	160 0 0	123 7 2	100 0 0	11,417 10 6	1,215 16 10¼	106 12 3
Coal Cliff to Macquarie River	26 20	486 3 0	13 1 25	500 0 25	334,662 10 6	58,349 4 0	9,016 19 2	1,261 18 5	1,797 12 10	3,276 3 7	73,701 18 0	2,807 13 10	151 8 4
Macquarie River to Kiama ...	10 30	199 3 26	10 3 38	210 3 24	29,688 10 3	1,113 10 3	447 4 3	663 19 5	23 6 8	5,650 8 9	7,898 9 4	761 5 11½	39 10 2½
TOTAL, SOUTH COAST	70 19½	1,061 3 4	237 2 19	1,299 1 23	752,127 10 5	217,369 18 9	22,500 13 8	5,361 0 9	4,795 7 8	10,238 18 4	260,265 19 2	3,705 3 8	245 2 5½
SOUTH-WESTERN LINE.													
Junce to Narrandera	61 32¼	110 3 32	1,314 2 24	1,425 2 16	5,852 12 11	2,739 16 3	364 5 0	.....	49 6 2	.....	3,153 7 5	51 7 0	28 8 5¼
Narrandera to Hay	106 57¼	519 1 3	648 0 6	1,167 1 9	17,048 0 0	4,891 2 8	4,662 5 0	5 5 0	31 3 6	640 13 0	10,230 9 2	95 17 2½	19 14 0½
Narrandera to Jerilderie	64 71¼	821 3 19	721 1 31	1,543 1 10	24,086 9 4	7,531 7 5	1,643 15 0	5 5 0	102 5 9	199 9 1	9,482 2 3	146 2 5½	11 10 9
TOTAL, SOUTH-WESTERN ...	233 1¼	1,452 0 14	2,684 0 21	4,136 0 35	46,987 2 3	15,162 6 4	6,670 5 0	10 10 0	182 15 5	840 2 1	22,865 18 10	98 2 6¾	15 14 11¼
SOUTHERN AND NORTHERN JUNCTION RAILWAY.													
Homebush to Hawkesbury River	28 55¼	326 2 36	265 3 24	592 2 20	98,879 13 4	41,173 13 2	8,607 16 5	225 11 0	951 8 3	6,523 5 4	57,481 14 2	2,003 1 3½	175 18 8
Hawkesbury River to Hamilton Platform.	63 78½	751 1 15	521 3 6	1,273 0 21	323,364 15 11	34,922 6 9	2,744 13 3	2,378 10 0	621 14 6	12,957 13 10	53,624 18 4	838 2 8¼	71 7 5¼
TOTAL, SOUTHERN AND NORTHERN JUNCTION RAILWAY	92 54¼	1,078 0 11	787 2 30	1,865 3 1	422,244 9 3	76,095 19 11	11,352 9 8	2,604 1 0	1,573 2 9	19,480 19 2	111,106 12 6	1,198 16 10½	103 1 2½
GREAT NORTHERN BRANCH RAILWAY.													
Pearce's Corner to St. Leonards	10 69¼	181 2 32	30 3 28	212 2 20	74,606 4 4	.....	.....	.....	.....	37,323 7 11	37,323 7 11	3,434 19 11½	205 8 3
TOTAL ON ALL LINES TO 31ST DECEMBER, 1887	2,171 79¼	18,573 3 12½	22,304 2 6	40,878 1 18½	2,635,522 4 7	908,142 15 8	104,215 2 7	17,562 12 9	22,258 5 11	102,051 14 9	1,154,230 11 8	531 8 3½	62 2 10¼

No. 5—continued.

TABLE B.

ABSTRACT of the total Quantity and Cost of Land taken for Railway purposes to the 31st December, 1887, under the Public Railways Land Resumption Act of 1874.

Railway Lines	Length.	Quantity taken.	Amount paid.			For Appraisalment.	Probable Amounts to be paid.	Total Cost.	Rate.	
			For Land.	For Improvements.	Claimants' Costs on Conveyances.				Per Mile of Line.	Per Acre.
	Miles chns.	a. r. p.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
GREAT WESTERN LINE.										
Orange to Dubbo	85 25½	6 1 35	3 4 7	90 0 0	.....	.....	.....	93 4 7	1 1 10½	14 8 3
Dubbo to Nyngan	99 49½	60 2 26	126 18 5	17 2 6	4 4 2	.....	.....	148 5 1	1 9 9½	2 8 10½
Wallerawang to Mudgee	84 54	117 0 2	129 0 0	847 17 6	63 17 6	.....	4 11 3	1,045 6 3	12 6 10½	8 18 8
Orange to Molong	22 61½	16 2 34	4 3 1	79 5 0	.....	.....	9 17 10	93 5 11	4 1 11½	5 11 7½
Total, Great Western	292 30½	200 3 17	263 6 1	1,034 5 0	68 1 8	.....	14 9 1	1,380 1 10	4 14 4½	6 17 5
GREAT NORTHERN LINE.										
Tamworth to Uralla	63 44	219 3 10	160 16 4	228 4 3	80 15 4	5 5 0	93 12 0	568 12 11	8 18 11½	2 11 8½
Uralla to Glen Innes	78 36	94 1 21	55 16 7	24 10 0	0 5 0	.....	32 14 6	113 6 1	1 8 10½	1 4 0
Glen Innes to Tenterfield	57 45½	34 1 7	5 12 0	.....	.....	.....	54 6 2	59 18 2	1 0 9½	1 14 11½
Tenterfield to Queensland Border	10 76½	15 2 20	.....	.....	.....	.....	26 17 1	26 17 1	2 9 0	1 14 4½
Total, Great Northern	210 42	364 0 18	222 4 11	252 14 3	81 0 4	5 5 0	207 9 9	768 14 3	3 13 0½	2 2 2½
GREAT SOUTHERN LINE.										
Goulburn to Bungendore	39 32½	68 1 9	27 6 11	40 7 6	.....	.....	21 12 8	89 7 1	2 5 4½	1 6 2
Bungendore to Michelago	47 55	96 1 38	42 10 6	198 5 0	16 17 0	.....	7 18 8	265 11 2	5 11 4½	2 15 0½
Michelago to Cooma	38 70½	71 1 9	7 5 2	16 5 0	4 7 2	.....	85 6 0	113 3 4	2 18 2½	1 11 9
Young to Blayney	91 66	9 3 11	4 17 10	.....	0 18 6	.....	0 0 3	5 16 7	0 1 3½	0 11 10½
Cootamundra to Gundagai	33 17½	19 1 33	.....	.....	.....	.....	38 18 3	38 18 3	1 3 5½	2 0 0
Total, Great Southern	251 1½	265 1 20	82 0 5	254 17 6	22 2 8	.....	153 15 10	512 16 5	2 0 10½	1 18 7½
SOUTH-WESTERN LINE.										
Junee to Narrandera	61 32½	238 0 16½	320 2 11	557 0 0	55 0 0	.....	145 15 0	1,077 17 11	17 11 1	4 10 6½
Narrandera to Hay	106 57½	1,223 3 13	2,369 12 1	1,540 7 6	45 3 2	.....	241 2 9	4,196 5 6	39 6 4½	3 8 7
Narrandera to Jerilderie	64 71½	114 3 4	99 12 3	.....	20 4 2	.....	103 9 0	223 5 5	3 8 9½	1 18 10½
Total, South-western	233 1¼	1,576 2 33½	2,789 7 3	2,097 7 6	120 7 4	.....	490 6 9	5,497 8 10	23 11 10	3 9 9
SOUTH COAST RAILWAY.										
Sydney to Bottle Forest	24 18½	29 3 14	.....	.....	.....	.....	59 8 3	59 8 3	2 9 0½	1 19 10
SOUTHERN AND NORTHERN JUNCTION RAILWAY.										
Homebush to Hawkesbury River	28 55½	24 0 21	47 11 0	458 17 0	21 10 11	.....	1 0 0	528 18 11	18 8 7½	21 18 4½
Hawkesbury River to Hamilton Platform	63 78½	49 0 36	50 1 2	.....	7 13 10	.....	17 7 2	75 2 2	1 3 5½	1 10 6½
Total, Southern and Northern Junction Railway	92 54½	73 1 17	97 12 2	458 17 0	29 4 9	.....	18 7 2	604 1 1	6 10 4½	8 4 8½
NORTH-WESTERN LINE.										
Gunnedah to Narrabri	55 43	105 0 30	166 12 9	38 15 0	14 6 2	.....	66 3 0	285 16 11	5 2 11½	2 14 4½
TOTAL ON ALL LINES TO 31ST DECEMBER, 1887	1,159 31	2,615 1 29½	3,621 3 7	4,136 16 3	335 2 11	5 5 0	1,009 19 10	9,108 7 7	7 17 1½	3 9 7½

RETURN of Permanent Way Material, Rails for Renewals, and Miscellaneous Articles imported during the Year ending 31st December, 1887

Date of Invoice	Name of Sh p	Rails		Fishplates		Bolts and Nuts.		Spikes		Screws		Name of Contractor	Rate per ton	Invoice Cost	Freight	English Charges	Colonial Charges	Total Cost	Cost per ton	Date of Arrival
		No	Tonnage	No	Tonnage	No	Tonnage	No	Tonnage	No	Tonnage									
Indent for Permanent Way Materials required for 647 miles of Railway Extensions, including Sidings, dated 9th October, 1882																				
1886			T c q lb		T c q lb		T c q lb				T c q lb		£ s d	£ s d	£ s d	£ s d	£ s d	£ s d	£ s d	1887
27 Aug } 2 Sept }	Essex	790	200 6 2 6									C Cammell & Co	5 8 0	1081 1 5	81 10 4	11 0 0	25 19 3	1200 5 0	5 19 10	9 Jan
15 "	Grassendale			10120	72 4 3 9							"	7 8 6	536 7 10	39 14 4	3 3 2	12 2 7	591 7 11	8 3 8	21 "
12 Nov	Pericles	1092	268 4 1 17									"	5 8 0	1448 7 9	103 18 9	11 6 6	98 2 5	1601 15 5	5 19 5	30 "
12 "	Star of Germany	822	198 8 1 0									"	5 8 0	1071 8 7	76 17 8	8 8 4	28 4 4	1184 18 11	5 19 5	13 March
10 "	Port Victor			30240	144 5 3 23							"	7 8 6	1071 8 2	83 10 1	8 2 0	23 1 6	1186 1 9	8 4 4	23 Jan
10 "	"	2073	500 4 0 27									"	5 8 0	2701 2 11	203 10 5	27 4 11	57 4 9	2939 3 0	5 19 6	23 "
22 "	Charlotte Croom			15120	72 4 0 18							"	7 8 6	536 2 10	39 13 11	3 3 2	12 2 8	591 2 7	8 3 8	6 March
22 "	"	851	200 3 1 11									"	5 8 0	1080 18 1	77 11 4	8 9 9	28 9 0	1195 8 2	5 19 5	6 "
22 "	Pecoles fechan	819	206 3 1 14									"	5 8 0	1080 18 2	77 11 4	8 9 9	28 9 0	1195 8 3	5 19 5	24 "
27 "	Iberia	670	160 9 3 8									"	5 8 0	866 13 1	65 6 0	8 16 10	19 16 7	960 12 6	5 19 8	13 Jan
11 "	Port Victor									225446	100 1 0 0	Patent Nut & Bolt Co	19 10 0	1950 19 6	59 10 1	20 19 4	26 4 8	2057 13 7	20 11 4	23 "
11 "	"											"	15 10 0	774 4 6	29 12 5	8 10 1	11 9 0	823 16 0	16 9 10	23 "
27 "	"	1017	258 4 1 9									C Cammell & Co	5 8 0	1286 7 4	96 18 6	13 1 1	32 9 1	1428 16 0	5 19 11	23 "
9 Dec	Chimborazo	432	102 0 1 6									"	5 8 0	560 17 8	41 10 1	5 13 6	12 11 11	610 13 2	5 19 8	27 "
1 "	County of Angsea	2470	599 2 0 0									"	5 8 0	3235 2 9	232 3 0	25 2 3	35 18 10	3578 6 10	5 19 5	19 March
13 "	Australasian			9884	47 2 3 20							"	7 8 6	350 1 3	27 4 5	2 14 11	6 15 9	386 16 4	8 4 1	10 Feb
22 "	Potosi	1058	256 3 2 27									"	5 8 0	1388 8 3	104 4 8	14 0 5	31 13 1	1533 6 5	5 19 8	8 "
28 "	The Hahnmann	825	200 2 0 9									"	5 8 0	1080 11 3	77 10 10	8 9 9	28 8 10	1195 0 8	5 19 5	20 April
9 "	Snowdon	821	200 0 3 7									"	5 2 0	1020 4 2	127 10 7	8 9 8	27 17 9	1184 2 2	5 18 4	22 "
30 "	Yeland Bros	412	100 0 0 10									"	5 8 0	540 0 5	38 15 0	4 6 4	14 4 8	597 6 5	5 19 5	6 May
30 "	Hubbuck	820	199 19 2 3									"	5 8 0	1079 17 6	81 7 4	10 19 7	27 4 10	1199 9 3	5 19 11	13 March
1887												"	5 8 0	1317 7 10	99 5 3	13 7 3	30 2 11	1460 3 3	5 19 8	22 Feb
5 Jan	Orient	1013	243 19 0 26									Patent Nut & Bolt Co	19 10 0	627 18 8	19 2 8	6 16 3	6 19 5	660 17 0	20 10 5	22 "
31 Dec	"					27558	16 0 1 21			72560	32 4 0 4	"	15 10 0	243 6 9	9 10 5	2 15 0	3 1 9	263 13 11	16 9 2	22 "
31 "	"					9030	5 5 0 0					"	14 0 0	73 10 0	3 2 5	0 16 5	0 19 4	73 8 2	14 18 9	22 "
31 "	Loch Troob	1259	301 15 1 15									C Cammell & Co	5 8 0	1629 11 0	116 18 8	12 14 5	24 8 5	1783 12 6	5 18 2	25 April
1887												"	5 8 0	540 0 5	38 15 0	4 6 4	14 4 8	597 6 5	5 19 5	6 May
28 Jan	Ethiopian	415	100 0 0 10									"	5 8 0	540 3 11	38 15 4	4 6 4	14 4 9	597 10 4	5 19 5	6 "
8 "	Ghensak	413	100 0 2 25									"	5 8 0	728 1 3	54 18 2	7 9 2	18 7 5	809 10 0	5 19 11	24 March
18 "	Abysinia	773	134 19 0 14									"	5 8 0	2242 2 8	168 18 8	22 12 10	51 6 7	2485 0 9	5 19 5	11 "
21 "	Garonne	1733	435 4 0 23									"	5 8 0	1349 19 6	96 17 2	10 11 3	35 10 7	1492 18 6	5 19 5	10 May
21 "	Balkamah	1048	249 19 3 17									"	5 8 0	812 3 10	61 3 9	7 8 11	18 12 0	899 8 6	5 19 7	2 April
14 Feb	Oroya	638	150 8 0 13									"	5 8 0	1173 16 3	84 4 8	9 4 1	30 18 2	1298 3 2	5 19 5	6 June
14 "	Dawpool	899	217 7 1 23									"	5 8 0	267 13 8	20 3 5	2 16 8	6 2 8	296 16 5	5 19 9	18 April
21 "	Orizaba	215	49 11 1 19									"	5 8 0	541 8 1	38 17 0	4 6 6	14 5 2	598 16 9	5 19 9	30 May
19 "	Patriarch	414	100 5 0 22									"	5 8 0	1080 0 10	77 10 1	8 9 8	28 8 7	1194 9 2	5 19 5	19 July
10 Mar	Derwent	854	200 0 0 19									"	5 8 0	541 11 6	38 17 3	4 6 6	14 5 2	599 0 5	5 19 5	25 "
17 "	Cimba	428	100 5 3 9									"	5 8 0	540 0 6	38 15 1	4 6 6	14 4 9	597 6 8	5 19 5	27 June
7 "	Blackadder	421	100 0 0 10									"	5 8 0	1077 2 4	77 5 10	8 9 2	28 6 11	1191 4 3	5 19 5	15 "
7 "	Ihcassalus	857	199 9 1 0									"	5 8 0	277 13 8	19 18 7	2 5 10	7 5 11	307 4 0	5 19 5	30 May
7 "	Patriarch	218	51 8 1 23									"	5 8 0	540 0 5	38 15 0	4 6 4	14 4 8	597 6 5	5 19 5	30 Aug
11 May	Saml Phmsoll	415	100 0 0 10									"	5 8 0	540 0 5	38 15 1	4 6 4	12 12 0	595 13 10	5 19 5	30 Oct
18 "	Port Jackson	411	100 0 0 10									"	5 8 0	540 0 5	38 15 1	4 6 4	13 7 5	595 14 4	5 19 5	13 "
11 "	Hawkesbury	410	99 17 2 3									"	5 8 0	539 6 9	38 14 1	4 6 2	12 11 0	595 11 3	5 19 1	3 "
18 "	Cairnbulg	412	100 0 0 9									"	5 8 0	540 0 5	38 15 1	4 4 10	12 10 11	595 11 2	5 19 1	3 "
1 June	"	411	100 0 0 9									"	5 8 0	540 0 5	38 15 0	4 4 10	12 10 11	595 11 2	5 19 1	3 "
14 "	Australasian	411	100 0 0 10									"	5 8 0	540 0 5	40 13 9	5 11 4	12 19 4	599 4 11	5 19 10	15 Aug
14 "	Yallaroo	620	149 17 1 0									"	5 8 0	1051 15 6	58 1 5	6 7 10	18 16 6	892 10 11	5 19 1	4 Nov
16 Sept	Iberia	814	194 15 1 25									"	5 8 0	809 5 2	79 5 0	10 14 1	20 17 4	1162 11 11	5 19 4	1 "
24 "	Parramatta	1268	305 4 1 7									"	5 8 0	1648 3 3	124 3 8	16 13 8	30 11 10	1819 12 5	5 19 2	11 "
11 Oct	Ornuz	630	150 14 1 27									"	5 8 0	813 18 3	61 6 7	8 6 4	16 2 10	899 14 0	5 19 4	21 "
29 Sept	Carthage	413	100 0 0 9									"	5 8 0	540 0 5	40 13 9	5 11 4	10 0 8	596 6 2	5 19 3	24 "
21 Oct	Orient	202	49 5 2 20									"	5 8 0	286 2 8	20 1 3	2 16 3	5 5 9	294 5 11	5 19 4	10 Dec
3 "	Rodney	416	100 0 0 10									"	5 8 0	540 0 6	38 15 0	4 6 4	12 11 4	595 13 2	5 19 1	26 "
1886												"	5 4 0	1508 8 11	228 8 11	12 6 5	14 9 0	1763 13 3	6 1 7	17 Feb
16 Oct	Nurnshire	1211	290 1 2 24									"	5 8 0	716 13 11	91 4 11	5 13 7	6 14 0	820 6 5	6 3 7	16 June
1887												"	5 8 0	716 13 11	91 4 11	5 13 7	6 14 0	820 6 5	6 3 7	16 June
11 Feb	La Querida	594	132 14 1 21									"	5 8 0	716 13 11	91 4 11	5 13 7	6 14 0	820 6 5	6 3 7	16 June
		35019	8410 19 0 9	70364	385 17 3 14	122502	71 4 1 21			298006	132 5 0 4			51470 1 5	3844 19 0	457 15 11	1154 0 3	56926 16 7		

Date of Invoice.	Name of Ship.	T. Rails.		Fishplates.		Fish Bolts.		Screws.		Switches.		Crossings.		Extras for Switches.		Name of Contractor.	Rate per Ton.	Invoice Cost.	Freight.	English Charges.	Colonial Charges.	Total Cost.	Cost per Ton.	Date of Arrival.	
		No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.										
Indent for Permanent Way Materials for Renewals Great Southern and Western Railways, dated 27th October, 1886.																									
1887.		T. c. q. lb.		T. c. q. lb.		T. c. q. lb.		T. c. q. lb.		T. c. q. lb.		T. c. q. lb.		T. c. q. lb.			£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	1887.
16 March	Port Adelaide.	800	199 17 2 13			15250	9 3 0 0									Ibbotson Bros. & Co.	18 0 0	104 14 0	5 8 4	1 18 11	2 1 5	174 2 3	19 0 7 1/2	11 June.	
23 April.	Parramatta.															Darlington Steel & Iron Co.	4 13 0	929 8 11	81 6 7	10 19 6	22 13 5	1044 8 5	5 4 6 24	24 "	
31 March	"							9750	4 4 3 13							Horton & Sons	17 0 0	72 2 9	2 10 5	1 0 5	0 15 5	76 9 0	18 0 4	24 "	
2 "	"			1625	7 15 0 19											C. Cammell & Co.	6 3 0	47 14 4	4 9 6	0 12 5	0 19 8	53 15 11	6 18 8	24 "	
30 April.	South Esk	2146	526 4 2 4													Darlington Steel & Iron Co.	4 7 0	2289 1 9	513 1 6	22 1 0	93 1 0	2917 5 3	5 10 10 1/2	29 Aug.	
15 June.	Illawarra										33					Patent Shaft & Axletree Co.	16 16 0	554 8 0	21 12 8	5 13 4	8 13 7	590 7 7	17 17 10 1/2	29 Sept.	
15 "	"									22	(spare.)					"	4 13 5	102 15 0	3 18 4	1 1 1	1 13 5	109 7 10	4 19 5 1/2	29 "	
27 "	Samoa	2637	598 12 1 19													Darlington Steel & Iron Co.	4 7 0	2604 0 0	583 13 0	25 3 10	95 18	13308 14	5 10 6 1/2	11 Oct.	
4 Aug.	Northbrook.											56				Vickers, Sons, & Co.	12 1 6 1/2	676 7 3	18 0 11	6 18 3	8 19 4	710 5 9	12 13 8	15 Dec.	
15 "	Aviimore											37				"	12 14 8 1/2	471 5 3	12 9 3	4 17 3	6 4 11	494 16 8	13 7 6	24 "	
		5583	1324 14 2 8	1625	7 15 0 19	15250	9 3 0 0	9750	4 4 3 13	65		93						7911 17 3	1246 10 6	80 6 0	241 0 3	9479 14 0			
Indent for Permanent Way Materials for Renewals, Great Southern and Western Railways, dated 27th October, 1886.																									
1887.		D.H. Rails.		Bolts and Nuts.		Chairs.		Extra for Switches.		Switches.		Crossings.					£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	1887.
12 Mar.	St. Cuthbert	320	80 2 0 12													Darlington Steel & Iron Co.	4 10 9	363 9 7	31 0 10	3 10 9	10 14 10	408 16 0	5 2 0 1/2	17 June.	
21 "	Port Adelaide.	400	96 15 1 4		12000	7 10 0 0										Ibbotson Bros. & Co.	18 0 0	135 0 0	4 8 11	1 13 0	1 14 0	142 15 11	19 0 9 1/2	11 "	
26 "	Bengal	400	96 15 1 4													Darlington Steel & Iron Co.	4 11 9	443 18 2	39 7 5	5 7 9	10 18 11	499 12 3	5 3 3 1/2	27 May.	
26 "	Iberia	813	204 0 3 20													"	4 11 9	936 1 3	83 0 5	11 4 0	24 5 1	1054 10 9	5 3 4 1/2	12 June.	
26 "	Thermopylae	391	99 18 1 16													"	4 11 9	458 7 8	38 14 5	4 6 3	13 8 10	514 17 2	5 3 0 1/2	23 July.	
30 April.	South Esk	4234	1073 16 3 4													"	4 4 9	4550 7 10	1046 19 10	45 0 1	187 15	35830 3 0	5 8 7	9 Aug.	
10 May	Cairnbulg										8000	94 11 1 0				Patent Nut and Bolt Co.	3 13 6	347 10 4	36 12 10	3 13 6	10 15 0	395 11 8	4 4 3 1/2	3 Oct.	
11 "	Tiverton			4000	20 10 2 24											Darlington Steel & Iron Co.	6 3 0	126 5 11	12 7 9	1 5 10	3 3 3	143 2 9	6 19 4	1 Aug.	
3 "	Potosi										6000	78 18 2 0				Patent Nut and Bolt Co.	3 13 6	260 13 0	28 17 0	3 12 10	8 1 0	301 3 10	4 4 11 1/2	11 July.	
4 July	Cairnbulg												59			Vickers, Sons, & Co.	14 18 9 1/2	881 11 0	28 6 8	8 19 3	12 8 2	931 5 1	15 15 8 1/2	3 Oct.	
6 "	"															Patent Shaft & Axletree Co.	15 5 0	366 0 0	16 19 5	3 16 2	5 18 4	392 13 11	16 7 3	3 "	
15 "	Brilliant												24			"	15 5 0	427 0 0	19 16 6	4 7 6	6 18 4	458 2 4	16 7 2 1/2	4 Dec.	
15 "	"												Spure J. 25			"	3 12 6	90 12 6	4 3 10	0 18 5	1 9 3	97 4 0	3 17 9 1/2	4 "	
15 "	"															"									
26 "	Northbrook.							450 chains, 250 bolts								"		101 10 0	4 14 0	1 0 10	1 12 0	108 16 10		4 "	
15 Aug.	Aviimore													45		Vickers, Sons, & Co.	14 15 1 1/2	664 1 9	21 7 6	6 15 9	9 6 11	701 11 11	15 11 10	15 "	
														51		"	14 18 11	762 4 9	25 0 11	7 15 5	10 16 2	805 17 3	15 14 10 1/2	24 "	
		6164	1554 13 2 0	4000	20 10 2 24	12000	7 10 0 0	14600	165 9 3 0	450 chains, 250 bolts	77		155					10914 13 9	1441 18 3	113 7 4	319 5 4	12789 4 8			
Indent for Permanent Way Materials for New Sidings, Great Southern and Western Railways, dated 27th October, 1886.																									
1887.																									1887.
20 April	Chimborazo	823	200 3 1 12													Darlington Steel & Iron Co.	4 13 0	980 15 7	81 8 11	11 1 10	23 17 1	1047 3 5	5 4 7 1/2	26 June.	
4 May	Dumfriesshire															Horton & Son	17 0 0	102 0 0	3 10 3	1 2 6	1 11 3	103 4 5	18 0 9	10 Sept.	
13 "	"															"	17 0 0	43 3 10	1 6 0	0 9 5	0 13 4	45 12 7	17 19 3	10 "	
17 "	Illawarra															Ranscmes & Rapier	16 11 0	662 0 0	28 14 5	6 15 4	11 6 6	78 16 3	17 14 4 1/2	29 "	
2 June	Orient															"	16 18 2 1/2	845 10 0	38 18 1	9 10 2	11 12 9	905 11 0	18 2 2 1/2	9 Aug.	
27 "	Samoa	1877	431 15 2 4													Darlington Steel & Iron Co.	4 7 0	1878 4 7	420 19 8	18 4 9	69 3 8	2386 12 8	5 10 6 1/2	11 Oct.	
20 July	Brilliant															Vickers, Sons, & Co.	12 9 7 1/2	786 8 3	20 15 6	8 0 3	10 7 9	825 11 9	13 2 1 1/2	4 Dec.	
1 Sept.	Iberia															"	12 0 6 1/2	685 11 0	19 4 5	7 9 0	6 14 10	718 19 3	12 12 3 1/2	1 Nov.	
2 Mar.	Chimborazo			7750	37 0 0 6											"									
28 April	"															C. Cammell & Co.	6 3 0	227 11 4	21 7 2	2 3 9	4 19 10	256 2 1	6 18 5	26 June.	
27 "	Dumfriesshire	807	200 2 2 25													Horton & Son	17 0 0	102 0 0	3 11 3	1 6 4	1 4 1	108 1 8	18 0 3 1/2	26 "	
Mar 16.	Port Adelaide					16500	9 18 0 0									Darlington Steel & Iron Co.	4 13 0	980 12 8	77 11 0	8 9 9	27 1 0	1043 14 5	5 4 3 1/2	10 Sept.	
																Ibbotson Bros. & Co.	18 0 0	178 4 0	5 17 4	2 1 7	2 5 0	188 7 11	19 0 7	11 June.	
		3507	832 1 2 13	7750	37 0 0 6	16500	9 18 0 0							120				7372 1 3	723 4 5	76 14 8	170 17 1	18342 17 5			

APPENDIX TO REPORT ON RAILWAYS—1887.

Date of Invoice	Name of Ship	Rails		Fishplates		Bolts and Nuts		Chairs		Screws		Name of Contractor	Rate per ton	Invoice Cost.	Freight	English Charges	Colonial Charges	Total Cost	Cost per ton	Date of Arrival
		No	Tonnage	No	Tonnage	No	Tonnage	No	Tonnage	No	Tonnage									
Indent for Permanent Way Materials for Renewals Great Northern Railway, dated 27th October, 1887																				
1887 9 April	C Paulsen		T c q lo	1500	T c q lb 7 14 0 2		T c q lb		T c q lb		T c q lb	Darlington Steel & Iron Co	£ s d 6 3 0	£ s d 47 7 2	£ s d 7 0 2	£ s d 0 9 5	£ s d 0 8 10	£ s d 55 5 7	£ s d 7 3 8½	1887 6 Sept
21 March 5 May	C Paulsen, and Thyatira					4000	2 10 0 0	4000	47 5 0 0			Ibbotson Bros & Co Patent Nut & Bolt Co	18 0 0 3 13 6	45 0 0 173 12 11	2 4 8 32 9 8	0 12 0 2 0 8	0 8 10 209 15 10	48 5 6 4 8 10	19 6 2 4 8 10	6 6
7 March	C Paulsen			1000	4 15 2 0							Darlington Steel & Iron Co	6 3 0	29 7 4	4 3 3	0 6 11	0 5 5	34 2 11	7 3 0½	6
15 "	St Cuthbert							2500	1 1 2 26			Horton & Sons	17 0 0	18 9 5	0 17 8	0 10 4	0 4 5	20 1 10	18 11 4	17 June
				2500	12 9 2 2	4000	2 10 0 0	4000	47 5 0 0	2500	1 1 2 26		313 16 10	46 15 5	3 19 4	3 0 1	367 11 8			
Indent for (say) 11,000 tons of Steel T. Rails (60lb per yard), and fastenings for a light line of Railways (say 117 miles), proposed line, Forbes to Wilcannia.																				
1887 8 Feb	Oroja					48000	22 10 0 0		Spikes			Bayliss, Jones, & Bayliss	15 10 0	348 15 0	13 13 2	3 16 11	4 7 8	370 12 9	16 9 5½	1887 2 April
8 "	"							115440	42 0 0 0	107800	45 0 0 0	"	17 5 0	776 5 0	27 9 2	3 9 9	9 5 4	821 9 3	18 5 1½	2 "
10 "	Dallam Tower	1176	252 7 3 24									C Cammell & Co	12 7 6	519 15 0	24 19 1	5 16 11	7 6 5	557 17 5	13 5 8	2 "
1 Mar 9 "	Onizaba Sussex	992	211 6 3 17	9324	42 0 3 8							Darlington Steel & Iron Co	3 18 3	937 10 2	160 18 1	10 15 0	32 7 8	1191 10 11	4 14 5	9 June
12 "	St Cathbert			20370	91 16 3 21							"	4 2 3	869 3 1	85 19 11	11 11 11	24 10 2	991 5 1	4 13 9½	18 April
29 "	Ligurna	1388	296 2 0 25	5544	24 19 3 22							"	5 12 6	236 9 7	24 13 0	2 9 6	5 17 2	269 9 3	6 8 2½	12 June
21 "	Francis Thorpe					12600	6 0 0 9					C Cammell & Co	5 12 6	516 12 9	51 5 9	3 19 6	14 0 1	585 18 1	6 7 7	17 "
21 "	Cimba							30856	11 8 0 0	35145	14 17 0 0	"	5 12 6	140 12 2	14 13 2	1 10 8	3 6 8	160 2 8	6 8 1½	17 May
8 "	Argus					16000	7 10 0 0					"	3 18 3	1158 10 8	188 15 6	12 9 9	30 0 10	1398 16 9	4 14 5½	9 July
8 "	"											Bayliss, Jones, & Bayliss	15 10 0	93 0 0	3 9 5	0 19 2	1 9 11	98 18 6	16 9 9	25 "
8 "	Eurydice					16000	7 10 0 0					"	17 5 0	256 3 6	8 12 7	2 12 8	3 13 11	271 7 5	18 5 5½	25 "
8 "	"							39168	14 8 0 0	77328	32 8 0 0	"	12 7 6	141 1 6	6 9 0	1 9 2	2 9 4	151 9 0	13 5 8½	25 "
8 "	"					16000	7 10 0 0					"	15 10 0	116 5 0	4 6 9	1 3 8	1 17 3	123 12 8	16 9 8	12 June
8 "	"											"	17 5 0	558 18 0	18 16 7	5 13 6	8 12 1	592 0 2	13 5 ½	12 "
8 "	"					16000	7 10 0 0					"	12 7 6	173 4 0	8 2 11	1 16 6	3 2 0	191 5 11	13 5 8½	12 "
8 "	"							39168	14 8 0 0	77328	32 8 0 0	"	15 10 0	116 5 0	4 6 9	1 3 5	1 17 3	123 12 5	16 9 8	7 "
8 "	"					15900	7 10 0 0					"	12 7 6	178 4 0	8 2 11	1 16 1	3 2 6	591 18 11	18 5 4½	7 "
8 "	"											"	17 5 0	558 18 0	18 16 7	5 12 8	8 11 8	591 18 11	18 5 4½	7 "
8 "	"					15900	7 10 0 0					"	12 7 6	178 4 0	8 2 11	1 16 0	3 2 6	591 19 0	18 5 4½	7 "
8 "	"							39012	14 8 0 0	76974	32 8 0 0	"	15 10 0	116 5 0	4 6 9	1 3 6	1 17 3	123 12 6	16 9 8	7 "
1 "	Lusitama	1231	263 11 0 7			10710	5 2 0 0					"	12 7 6	178 4 0	8 2 11	1 16 0	3 2 6	591 19 0	18 5 4½	7 "
25 "	Woolahra											"	4 2 3	1083 17 3	107 4 8	14 8 6	30 11 4	1236 1 9	4 13 9½	5 May
25 "	"											C Cammell & Co	15 10 0	79 1 0	2 18 11	0 16 9	1 5 5	84 2 1	16 9 10	17 July
2 "	Samuel Phmsoll			8148	36 14 3 3							Bayliss, Jones, & Bayliss	17 5 0	253 15 0	8 14 3	2 14 6	3 19 7	274 3 4	18 5 6½	17 "
31 Mar	"					6300	3 0 0 0					"	5 12 6	206 13 1	20 10 4	1 13 7	5 12 2	234 9 2	6 7 7½	30 August
31 "	"											Darlington Steel & Iron Co	15 10 0	46 10 0	1 14 9	0 9 7	0 14 4	49 8 8	16 9 7	23 July
2 April	Thermopylae			10206	46 0 1 13			40600	15 0 0 0	35500	15 0 0 0	"	17 5 0	258 15 0	8 14 4	2 13 2	3 19 5	274 1 11	18 5 5½	23 "
23 "	Mitredale	1426	900 8 2 8									"	12 7 6	185 12 6	8 9 9	1 18 5	3 4 5	199 5 1	13 5 8	23 "
23 "	Pannure	944	200 4 1 24			6300	3 0 0 0					"	5 12 6	258 17 1	25 13 11	2 7 4	7 0 3	293 12 7	6 7 7½	23 "
5 "	"											C Cammell & Co	3 18 3	1175 8 6	191 10 5	12 13 4	33 10 5	1418 2 8	4 14 4½	22 "
5 "	"											"	4 2 3	823 8 4	77 11 9	8 9 10	26 1 5	935 11 4	4 13 5½	10 August
6 "	"											Bayliss, Jones, & Bayliss	15 10 0	46 10 0	1 14 8	0 9 7	0 14 11	49 9 2	16 9 8½	10 "
13 "	"											"	17 5 0	258 15 0	8 14 4	2 13 6	3 19 10	274 2 8	18 5 6½	10 "
23 "	Samuel Phmsoll	470	100 3 0 4	10206	46 0 1 13							"	12 7 6	92 16 3	4 4 11	0 19 6	1 12 9	99 13 5	13 5 9½	10 "
16 "	Phasis			20456	92 4 2 21							Darlington Steel & Iron Co	5 12 6	258 17 1	25 13 11	1 19 10	7 0 4	293 11 2	6 7 7	10 "
16 "	Pannure	1048	221 0 3 18	15540	70 1 1 14							"	5 19 6	258 17 1	25 13 11	1 19 10	7 0 2	293 11 0	6 7 7	10 "
6 May	Sardhana					12600	6 0 0 0					C Cammell & Co	3 18 3	864 16 10	140 18 4	9 7 2	23 6 11	1043 9 3	4 14 5	30 "
21 April	Dumfrieshire											"	15 10 0	93 0 0	3 9 3	0 19 2	1 9 11	98 18 4	16 9 8½	10 Sept
21 "	do							16240	6 0 0 0	53250	22 10 0 0	"	17 5 0	388 2 6	13 1 7	3 19 8	5 19 4	411 3 1	18 5 5½	10 "
21 "	do											"	12 7 6	74 5 0	3 7 11	0 15 4	1 6 2	79 14 5	13 5 9	10 "
27 "	do					15750	7 10 0 0					"	15 10 0	116 5 0	4 6 9	1 3 9	1 17 3	123 12 9	16 9 8½	10 "
27 "	do											"	17 5 0	129 7 6	4 7 0	1 6 4	1 19 9	137 0 7	18 5 5	10 "

No. 6—continued.

Date of Invoice	Name of Ship	Rails		Fishplates		Bolts and Nuts		Spikes		Screws		Name of Contractor	Rate per Ton	Invoice Cost	Freight	English Charges	Colonial Charges	Total Cost	Cost per Ton	Date of Arrival
		No	Tonnage	No	Tonnage	No	Tonnage	No	Tonnage	No	Tonnage									
1887	Dumfriesshire		T c q lb		T c q lb		T c q lb	20300	T c q lb		T c q lb	Bayliss, Jones, & Bayliss	£ s d	£ s d	£ s d	£ s d	£ s d	£ s d	£ s d	1887
27 April	do					12600	6 0 0 0		7 10 0 0			"	12 7 6	92 16 3	4 4 8	0 19 1	1 12 6	99 12 6	13 5 8	10 Sept
4 May	do											"	15 10 0	93 0 0	3 9 5	0 19 0	1 9 11	98 18 4	16 9 8	10 "
4 "	do											"	17 5 0	129 7 6	4 7 4	1 6 5	1 19 8	137 0 11	18 5 5	10 "
4 "	do							18916	6 19 3 3		17750	"	12 7 6	86 9 9	3 19 3	0 17 10	1 10 4	92 17 2	13 5 9	10 "
19 "	Clynder	1319	290 10 0 0									C Cammell & Co	3 18 3	1097 9 2	178 16 5	11 18 9	81 6 1	1319 8 5	4 14 1	13 Oct
20 "	Carthage	996	210 2 2 20									"	4 2 3	864 3 6	85 10 0	11 10 8	23 6 2	984 10 4	4 13 8	7 July
20 "	Potosi	473	100 0 1 12									"	4 2 3	411 6 6	40 13 10	5 11 4	11 12 0	469 3 8	4 13 9	11 "
20 "	do					27240	12 19 1 20					Bayliss, Jones, & Bayliss	15 10 0	201 1 2	7 17 6	2 5 4	2 10 10	213 14 10	16 9 6	11 "
20 "	do											"	17 5 0	219 18 9	7 15 7	2 9 2	2 12 5	232 15 11	18 5 2	11 "
1 June	Massilia	950	200 18 1 16									C Cammell & Co	4 2 3	826 5 8	81 15 0	11 0 7	22 5 6	941 6 9	4 13 8	21 "
20 May	John Gambles	1057	222 9 2 16									"	3 18 3	870 9 3	141 16 8	9 9 10	28 11 2	1050 6 11	4 14 5	3 Sept
1 June	Smyrna	472	99 19 3 8									"	4 2 3	411 4 3	38 14 11	4 6 3	13 0 1	467 5 6	4 13 5	13 "
8 "	Ormuz	517	107 12 2 0									"	4 2 3	442 12 2	43 15 10	5 19 7	12 9 10	504 17 5	4 13 9	22 July
6 "	Illawarra	847	179 17 3 12									"	4 2 3	739 16 3	69 14 2	7 12 10	23 7 3	840 10 6	4 13 5	29 Sept
1 "	Port Jackson	1323	280 3 0 4									"	4 2 3	1152 2 6	108 11 1	11 16 5	31 15 9	1304 5 9	4 13 1	30 Oct
8 "	Gladstone	477	99 16 0 8									"	4 2 3	410 8 10	38 13 6	4 6 2	11 6 6	464 15 0	4 13 1	1 Dec
8 "	Australasian	472	100 2 2 0									"	4 2 3	411 15 4	40 14 10	5 11 5	12 1 0	470 2 7	4 13 1	15 Aug
1 "	Orient	473	100 1 3 24									"	4 2 3	411 13 1	40 14 6	5 11 4	11 12 1	469 11 0	4 13 10	9 "
29 "	Ballarat	947	199 19 2 16									"	4 2 3	822 8 6	81 7 4	10 19 7	22 3 6	996 18 11	4 13 8	18 "
13 "	Dee	1176	250 6 3 4									"	3 18 3	979 9 0	159 11 10	10 11 7	27 18 6	1177 10 11	4 14 1	19 Oct
1 July	Illawarra	243	52 1 1 20									"	4 2 3	214 2 10	20 3 7	2 6 4	6 14 10	243 7 7	4 13 5	29 Sept
29 "	Sophocles	469	100 1 1 20									"	4 2 3	411 10 11	38 15 7	4 6 4	11 6 11	465 19 9	4 13 1	11 Dec
8 "	Orontes	480	101 13 0 4									"	4 2 3	418 0 10	39 7 9	4 7 8	11 10 8	473 6 11	4 13 1	1 Nov
8 "	Hubbuck	724	152 10 1 12									"	4 2 3	627 4 8	62 1 1	6 10 1	18 7 10	714 3 8	4 13 8	18 Sept
26 Aug	Melbourne	802	170 5 2 4									"	4 2 3	700 5 3	65 19 8	7 4 10	19 6 9	792 16 6	4 13 1	27 Dec
26 "	Chusan	940	200 7 0 16									"	4 2 3	823 19 4	81 10 5	11 0 0	18 17 9	935 7 6	4 13 4	15 Oct
		23837	5054 5 1 7	110000	495 19 2 16	200000	94 11 1 20	380000	139 11 3 3	600000	252 6 0 0			30756 7 0	3013 2 11	337 15 7	789 12 1	34896 17 7		

Indent for Permanent Way Materials required for 13 miles of Road to be constructed between Tenterfield and the Queensland Border, Great Northern Railway Extension, dated 15th June, 1886

1886	Port Victor	1185	299 13 1 10									C Cammell & Co	4 1 3	1218 8 3	216 10 1	16 7 11	11 7 10	1462 14 1	4 17 6	1887
22 Nov	do											Patent Nut & Bolt Co	17 10 0	497 1 1	26 15 3	5 9 9	4 13 2	533 19 3	18 15 11	2 "
22 "	Chittagong	794	200 13 2 8									C Cammell & Co	4 1 3	815 5 1	187 19 4	8 10 2	7 12 4	969 6 11	4 16 7	24 April
20 "	Dunolly	712	180 10 3 0									"	3 17 3	697 6 6	160 4 7	7 14 0	24 19 10	890 4 11	4 18 7	5 "
27 "	do	127	32 2 3 12									"	3 17 3	124 3 0	28 10 6	1 7 5	4 8 10	168 9 9	4 18 7	5 "
17 Dec	Australasian					24000	14 4 2 9					Patent Nut & Bolt Co	17 10 0	249 0 2	13 8 1	2 17 4	1 15 2	267 0 9	18 15 4	3 Feb
1887	Candida	831	202 2 3 21									C Cammell & Co	3 17 3	780 15 10	179 8 2	8 12 8	7 6 3	976 2 11	4 16 7	6 May
29 Jan	Earl of Zetland	1241	299 10 0 4									"	3 17 3	1156 16 6	265 16 2	12 14 4	13 19 10	1449 6 10	4 16 9	28 June
7 Feb	La Querida			10000	49 2 0 16							Ebbw Vale Steel, Iron & Coal Co	5 15 0	282 7 4	42 18 4	2 3 11	2 13 0	330 2 7	6 14 5	16 "
10 "	Alemons	1015	245 16 3 17									C Cammell & Co	3 17 3	949 11 6	218 8 7	10 9 5	11 9 8	1189 19 2	4 16 9	10 July
11 "	do	36	9 0 0 3									"	3 17 3	34 15 4	7 14 11	0 7 8	0 8 10	43 6 9	4 16 3	10 "
25 Mar	C Paulsen			2000	16 10 1 12							Ebbw Vale Steel, Iron, & Coal Co	7 5 0	119 15 1	14 14 2	0 16 9	1 2 5	136 8 5	8 5 2	6 Sept
		5941	1469 15 1 19	12000	65 12 2 0	24000	14 4 2 9							6925 3 8	1312 8 2	77 11 4	91 17 2	8407 2 4		

Indent for Permanent Way Materials for Renewals Great Southern and Western Railways, dated 17th June, 1887.

1887	Northbrook					12000	7 10 0 0					Ibbotson Bros & Co	18 0 0	135 0 0	4 4 8	1 10 0	1 13 3	142 12 11	19 0 4	1887
5 Aug	do					15250	9 3 0 0					"	18 0 0	184 14 0	5 3 3	1 15 11	2 6 6	173 19 8	19 0 3	15 Dec
16 "	Avamore									9750	4 5 0 4	Horton & Son	17 0 0	72 5 7	2 8 2	0 17 5	1 1 0	76 12 2	18 0 6	24 "
						27250	16 13 0 0			9750	4 5 0 4			371 19 7	11 16 1	4 3 4	5 5 9	393 4 9		

Indent for Permanent Way Materials for New Sidings Great Southern and Western Railways, dated 17th June, 1887.

1887	Northbrook					16500	9 18 0 0					Ibbotson Bros & Co	18 0 0	178 4 0	5 11 9	1 18 7	2 10 7	188 4 11	19 0 3	1887
15 Aug	do																			15 Dec

Date of Invoice.	Name of Ship	Rails.		Fishplates.		Bolts and Nuts		Ferrules.		Screws.		Name of Contractor.	Rate per ton.	Invoice Cost.	Freight.	English Charges.	Colonial Charges.	Total Cost.	Cost per ton.	Date of Arrival.
		No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.									

Indent for Permanent Way Materials for Renewals of Tramways, dated 7th March, 1887.

Date of Invoice.	Name of Ship	T. c. q. lb.	T. c. q. lb.	T. c. q. lb.	T. c. q. lb.	T. c. q. lb.	T. c. q. lb.	T. c. q. lb.	Name of Contractor.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	Date of Arrival.
1887. 11 Oct.	Orient	20000	Patent Nut & Bolt Co. (Limited.)	18 10 0	73 10 3	2 7 7	0 16 3	0 15 7	77 9 8	19 10 0	..	1887. 10 Dec.	
11 "	"	..	..	40000	10 13 0 14	..	..	..	"	21 0 0	223 15 8	6 6 7	2 9 9	2 5 2	234 17 2	22 0 9½	10 "
11 "	"	..	..	20000	5 18 3 7	..	..	..	"	20 10 0	121 15 8	3 10 7	1 7 4	1 5 2	127 18 9	21 8 10½	10 "
11 "	"	..	..	..	..	..	..	10000	"	24 10 0	16 16 2	0 7 11	0 3 5	0 2 10	17 10 4	25 10 6½	10 "
9 Sept	Garonne & Iberia	2375	312 4 3 12	..	..	..	..	..	West Cumberland Iron and Steel Co.	4 15 0	1483 3 0	127 0 9	17 4 4	31 18 11	1659 7 0	5 6 3½	1 & 13 Nov.
9 "	"	..	..	10000	27 13 2 8	..	..	..	"	7 2 6	197 4 3	12 6 1	2 6 11	3 9 11	215 7 2	7 15 7½	1 & 18 "
		2375	312 4 3 12	10000	27 13 2 8	60000	16 11 3 21	10000											
								20000			216 5 0	151 19 6	24 8 0	39 17 7	2332 10 1				

Indent for Permanent Way Materials for relaying Tram-lines from Hunter-street to Regent-street, and from Elizabeth-street to College-street, dated 17th March, 1887.

Date of Invoice.	Name of Ship	Guard Rails.	Fishplates.	Bolts & Nuts.	Screws.	Name of Contractor.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	Date of Arrival.	
1887. 18 Aug	Northbrook	..	..	20000	11 4 0 15	Bayliss, Jones, & Bayliss	16 15 0	187 14 3	6 6 11	2 0 6	2 15 0	198 16 8	17 14 10	15 Dec.		
15 Sept	Aberdeen	197	50 6 0 12	..	..	Darlington Steel & Iron Co. (Ld)	4 15 0	238 19 0	20 9 4	2 17 6	5 3 11	267 9 9	5 6 4	20 "		
17 "	Garonne	783	199 18 3 16	..	..	"	4 15 0	949 14 9	81 7 1	10 19 8	20 12 3	1062 13 9	5 6 3½	18 Nov.		
15 "	Rodney	193	49 5 2 20	..	..	"	4 15 0	234 2 0	19 2 0	2 4 1	5 18 1	261 6 2	5 6 0½	26 Dec.		
29 "	Massiha	417	106 9 2 20	..	..	"	4 15 0	505 15 11	43 6 6	5 13 6	10 7 0	565 7 11	5 6 2½	8 "		
29 "	Britanna	54	13 15 3 4	..	..	"	4 15 0	65 10 0	5 12 2	0 15 3	1 6 10	73 4 3	5 6 2½	15 "		
29 "	"	..	..	673	79 15 1 14	"	6 5 0	498 11 1	32 9 2	4 9 2	8 6 3	543 15 8	6 16 4	15 "		
21 "	Carthage	356	90 18 0 16	..	..	"	4 15 0	431 16 2	36 19 11	5 1 5	8 16 8	482 14 2	5 6 2½	24 Nov.		
21 "	Orient	..	..	2000	9 5 2 24	"	6 5 0	58 0 9	5 8 0	0 10 4	1 1 6	65 0 7	7 0 0	24 "		
8 Oct.	Ormuiz	..	..	1327	157 5 2 22	"	6 5 0	983 0 7	63 19 9	8 13 5	17 12 6	1073 6 3	6 16 5½	10 Dec.		
6 "	"	..	..	..	..	Ibbotson Bros & Co.	17 0 0	364 9 8	12 14 3	4 1 10	4 0 5	385 6 2	17 19 5	21 Nov.
		2000	510 14 1 4	2000	237 1 0 8													
								34000										
								26000										
										4517 14 2	327 15 1	47 11 8	86 0 5	4979 1 4				

Date of Invoice.	Ship.	From whom purchased.	Description.	Tonnage.	Cost per Ton.	Cost each.	Invoice Cost.	Freight.	English Charges.	Colonial Charges.	Total Cost.	Cost per Ton.	Cost each.	Date of Arrival.
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Indent for Wrought and Cast Ironwork for Bridge over the Lachlan River, at Cowra, dated 31st July, 1885.

Date of Invoice.	Name of Ship	From whom purchased.	Description.	T. c. q. lb.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	Date of Arrival.
1886. 19 Sept.	Dumbartonshire	A. Lecoq	Wrought-iron superstructure.	674 14 1 17	12 10 0	..	8,434 1 6	..	113 17 2	169 17 0	8,717 15 8	12 18 4½	..	5 Jan.	
19 "	"	"	Steel	5 10 0 3	20 10 0	..	112 15 6	..	1 10 5	1 7 8	115 13 7	21 0 6½	..	5 "	
19 "	"	"	Cast-iron	62 2 0 0	10 0 0	..	621 0 0	..	8 7 8	15 12 8	645 0 4	10 7 8½	..	5 "	
1887. 22 Feb.	County of Anglesea	"	Wrought-iron	2 7 2 4	10 4 2½	..	24 5 5	..	0 8 6	0 7 1	25 1 0	10 10 9½	..	19 March.	
22 "	"	"	Cast-iron	11 9 1 11	8 3 11	..	93 19 8	..	1 13 0	1 14 5	97 7 1	8 9 9½	..	19 "	
1886. 23 March.	..	Stockton Forge Co.	3 sheet-iron templates.	..	..	1 16 8	5 10 0	..	..	..	5 10 0	..	1 16 8	19 "
				756 3 1 7	..	..	9,291 12 1	..	125 16 9	188 18 10	9,606 7 8	..	..

No. 6—continued.

Date of Invoice.	Ship.	From whom purchased.	Description.	Tonnage.	Cost per ton.	Cost each.	Invoice Cost.	Freight.	English Charges.	Colonial Charges.	Total Cost.	Cost per Ton.	Cost each.	Date of Arrival.
Return of Miscellaneous Articles imported for the Great Southern and Western Lines during the year 1887.														
1886.				T. c. q. lb.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	1887.
23 Aug. ...	Parramatta	Craven Brothers	50 pairs wheels			6 1 6								
7 Sept. ...	"	Vickers, Sons, & Co.	100 c.-s. tires for above	19 8 1 16	18 0 0		823 13 3	36 6 9	12 10 0	14 0 9	886 10 9		17 14 7 $\frac{1}{4}$	16 Jan.
7 " ...	"	"	50 c.-s. axles for above	9 9 1 4	18 0 0									
11 " ...	Grassendale	John Smith & Co.	36 No. 0 Roscoe's lubricators			0 12 10 $\frac{1}{2}$	23 2 3	0 5 0	0 10 9	0 5 4	24 3 4		0 13 5	21 "
11 " ...	"	"	24 No. 2 do do			1 1 3 $\frac{1}{2}$	25 11 5	0 5 6	0 11 8	0 5 5	26 14 0		1 2 3	21 "
9 " ...	"	Thomas Turton & Sons	1,500 c.-s. volute springs			0 3 4	250 0 0	12 3 0	5 3 0	4 14 9	272 0 9		0 3 7 $\frac{1}{2}$	21 "
23 " ...	"	Thomas Chatwin	84 sets taps, Whitworth threads			0 5 10 $\frac{1}{2}$	24 14 8	0 10 6	0 12 10	0 5 5	26 3 5		0 6 2 $\frac{1}{4}$	21 "
8 " ...	"	Craven Brothers	50 pairs wheels			6 1 6								
18 " ...	"	Vickers, Sons, & Co.	100 c.-s. tires for above	19 8 1 16	18 0 0		823 13 3	36 6 9	15 2 0	14 0 9	889 2 9		17 15 7 $\frac{1}{4}$	21 "
18 " ...	"	"	50 c.-s. axles for above	9 9 1 4	18 0 0									
21 " ...	"	Craven Brothers	50 pairs wheels			6 1 6								
30 " ...	"	Vickers, Sons, & Co.	100 c.-s. tires for above	19 8 1 16	18 0 0		823 13 3	36 6 9	16 12 5	14 0 10	890 13 3		17 16 3	21 "
30 " ...	"	"	50 c.-s. axles for above	9 9 1 4	18 0 0									
24 " ...	"	Patent Shaft and Axle-tree Co. (Limited.)	4 pairs wheels			6 5 0								
2 Oct. ...	"	Vickers, Sons, & Co.	8 c.-s. tires for above	1 11 0 8	18 0 0		66 11 10	2 16 11	1 9 7	1 2 2	72 0 6		18 0 1 $\frac{1}{2}$	21 "
2 " ...	"	"	4 c.-s. axles for above	0 15 0 16	18 0 0									
28 Sept.	"	Patent Shaft and Axle-tree Co. (Limited.)	Angle iron	13 18 2 5	8 15 0		121 17 3	8 10 8	2 10 5	3 5 7	136 3 11	9 15 7		21 "
28 " ...	"	"	Tee iron	1 0 2 10	9 5 0		9 10 6	0 12 7	0 3 11	0 5 1	10 12 1	10 6 1		21 "
28 " ...	"	"	Beading iron	0 16 0 12	8 15 6		7 0 11	0 9 10	0 3 0	0 3 9	7 17 6	9 15 6		21 "
28 " ...	"	"	Flat iron	2 0 1 18	8 5 0		16 13 5	1 4 8	0 6 11	0 9 5	18 14 5	9 5 5 $\frac{1}{2}$		21 "
28 " ...	"	"	Pan head rivets	4 6 3 0	13 14 0		59 8 5	2 16 5	1 4 6	1 5 6	64 14 10	14 18 6		21 "
26 Aug. ...	"	Vickers, Sons, & Co.	200 c.-s. tires	37 9 2 22	18 0 0		674 14 7	32 6 7	10 5 5	11 18 11	729 5 6	19 9 1		21 "
8 Sept.	"	Broughton Copper Co (Limited.)	Copper rods for stays	12 9 3 0	49 13 4		620 4 3	8 9 8	9 8 0	7 17 8	645 19 7	51 14 7		21 "
8 " ...	"	"	Copper rivets	5 0 0 0	59 0 0		295 0 0	3 10 3	4 9 6	3 12 5	306 12 2	61 6 5		21 "
4 Oct. ...	Windsor Castle	Craven Brothers	50 pairs wheels			6 1 6								
20 " ...	"	Vickers, Sons, & Co.	100 c.-s. tires for above	19 8 1 16	18 0 0		823 13 3	36 6 9	16 12 5	14 0 10	890 13 3		17 16 3	13 "
20 " ...	"	"	50 c.-s. axles for above	9 9 1 4	18 0 0									
11 " ...	Cluny Castle	Thomas Turton & Sons	500 c.-s. volute springs			0 3 4	83 6 8	4 1 10	1 16 4	1 11 9	90 16 7		0 3 7 $\frac{1}{2}$	6 Feb.
19 " ...	Jerusalem	Hyde, Archer, & Co.	794 $\frac{1}{2}$ yards silk vellum			0 1 3 $\frac{1}{2}$	51 8 10	0 8 0	1 1 1	0 12 8	53 10 7		0 1 4 $\frac{1}{2}$	31 Jan.
19 " ...	"	"	8 000 yards seaming lace			0 0 1 $\frac{1}{2}$	60 2 8	0 10 0	1 4 6	0 13 0	62 10 2		0 0 1 $\frac{1}{2}$	31 "
19 " ...	"	"	8,000 yards 2-in. straining web			0 0 2	68 9 4	0 11 0	1 8 0	0 16 9	71 5 1		0 0 2 $\frac{1}{2}$	31 "
19 " ...	"	"	8,000 yards 2 $\frac{1}{2}$ -in. do do			0 0 2 $\frac{1}{2}$	72 12 8	0 12 0	1 9 9	0 16 9	75 11 2		0 0 2 $\frac{1}{4}$	31 "
19 " ...	"	"	8,000 yards 2 $\frac{1}{2}$ -in. do do			0 0 2 $\frac{1}{2}$	76 16 0	0 12 2	1 11 5	0 16 9	79 16 4		0 0 2 $\frac{3}{4}$	31 "
12 " ...	"	John Wilkes, Mapplebeck, & Co.	200 brass tubes	2 16 2 5		0 15 2	151 14 7	1 18 0	3 3 8	1 18 5	158 15 2		0 15 10 $\frac{1}{2}$	31 "
29 Sept. ...	Sophocles	Shelton Iron & Steel Co., Ltd.	Wrought-iron plates	51 4 3 6	8 7 6		429 2 9	31 7 8	8 15 4	11 13 11	489 19 8	9 7 9		16 "
6 Oct.	Batavier	Thomas Turton & Sons	500 c.-s. volute springs			0 3 4	83 6 8	4 1 10	1 16 4	1 11 8	90 16 6		0 3 7 $\frac{1}{2}$	2 Feb.
7 " ...	"	Shelton Iron & Steel Co., Ltd.	Wrought-iron plates	19 7 2 12	8 10 0		164 14 8	11 17 4	3 8 7	4 9 1	184 9 8	9 10 5		2 "

99-N

APPENDIX TO REPORT ON RAILWAYS—1887.

Date of Invoice.	Ship.	From whom purchased.	Description.	Tonnage.	Cost per ton.	Cost each.	Invoice Cost.	Freight.	English Charges.	Colonial Charges.	Total Cost.	Cost per ton.	Cost each.	Date of Arrival.
Return of Miscellaneous Articles imported for the Great Southern and Western Lines during the year 1887—continued.														
1886.				T. c. q. lb.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	1887.
7 Oct.	Batavier	Shelton Iron & Steel Co., Ltd.	Iron rivets.....	1 0 0 0	16 10 0	.....	16 10 0	0 12 9	0 6 9	0 6 4	17 15 10	17 15 10	.....	2 Feb.
7 "	"	"	Angle iron.....	0 17 0 21	7 10 0	.....	6 8 11	0 10 6	0 2 8	0 3 9	7 5 10	8 9 2	.....	2 "
12 "	Jerusalem	Broughton Copper Co.	1,000 brass tubes.....	12 19 0 20	.....	0 13 11	695 9 3	10 8 6	14 1 2	8 13 10	728 12 9	.....	0 14 6 ³ / ₄	31 Jan.
14 "	"	Vickers, Sons, & Co.	Engine and tender axles...	12 15 0 21	33 3 4 ³ / ₄	.....	423 4 6	11 5 8	8 12 3	5 18 10	449 1 3	35 4 4	.....	31 "
22 Nov.	Charlotte Crown	G. D. Peters & Co.	185 yards tapestry curtain material.	.....	.....	0 4 8	43 3 4	0 10 6	1 0 3	0 9 9	45 3 10	.....	0 4 10 ¹ / ₂	16 Mar.
6 "	Star of Germany..	A. Kenyon & Co.	2 gross loco. gauge glasses, 8 ¹ / ₂ " x ⁹ / ₁₆".	.....	.....	1 7 6	2 15 0	0 2 1	0 1 9	0 0 6	2 19 4	.....	1 9 8	13 "
6 "	"	"	2 gross loco. gauge glasses, 9" x ⁹ / ₁₆".	.....	.....	1 7 6	2 15 0	0 2 1	0 1 9	0 0 7	2 19 5	.....	1 9 8 ¹ / ₂	13 "
6 "	"	"	2 gross loco. gauge glasses, 10 ¹ / ₂ " x ⁹ / ₁₆".	.....	.....	1 13 6	3 7 0	0 2 1	0 1 10	0 0 9	3 11 8	.....	1 15 10	13 "
6 "	"	"	2 gross loco. gauge glasses, 12" x ⁹ / ₁₆".	.....	.....	1 6 6	3 13 0	0 2 2	0 2 1	0 0 9	3 18 0	.....	1 19 0	13 "
6 "	"	"	2 gross loco. gauge glasses, 10" x ⁹ / ₁₆".	.....	.....	1 10 6	3 1 0	0 2 1	0 1 9	0 0 7	3 5 5	.....	1 12 8 ¹ / ₂	13 "
23 "	Port Victor	Allen Everitt & Sons.	Copper tube.....	1 5 2 16	66 17 5	.....	85 13 7	2 0 1	2 1 6	0 18 5	90 13 7	770 14 6 ¹ / ₂	.....	23 Jan.
24 "	"	Patent Nut & Bolt Co., Ltd.	Lowmoor iron rivets	4 10 0 0	30 10 0	.....	137 5 0	6 13 0	1 13 6	1 18 1	147 9 7	732 15 5 ¹ / ₂	.....	23 "
14 Dec.	Dunolly.....	Vulcan Foundry Co.	4 four-wheels coupled outside cylinder passenger bogie engines & tenders.	.....	.....	2435 10 0	9742 0 0	.....	175 7 1	.....	9917 7 1	.....	2473 6 9 ¹ / ₄	5 April.
30 Nov.	Ecclefechan	Ransomes & Rapier...	3 50-ft. engine turn-tables.....	.....	.....	328 0 0	984 0 0	98 12 7	19 16 7	18 16 11	1121 6 1	.....	373 15 4 ¹ / ₂	24 Mar.
17 Dec.	Moewe	Hale & Kilburn Manufacturing Co.	4,800 sq. ft. double canvas-lined cane seating.	.....	.....	0 1 4 ¹ / ₂	331 12 4	3 0 0	13 8 11	0 4 11	348 6 2	.....	0 1 5 ¹ / ₂	20 "
31 "	Snowdon	Vulcan Foundry Co.	2 four-wheels coupled outside cylinder passenger bogie engines & tenders.	.....	.....	2455 10 0	4911 0 0	.....	88 7 11	.....	4999 7 11	.....	2499 13 11 ¹ / ₂	22 April.
30 "	Orient	Smith, Beacock, & Tannett	1 4-jawed chuck, 2' 6" dia.....	.....	.....	21 0 0	21 0 0	0 15 7	0 12 11	0 3 8	22 12 2	.....	22 12 2	22 Feb.
30 "	"	"	1 full set of 22 change-wheels for 8" lathe.	.....	.....	7 5 0	7 5 0	0 5 5	0 4 4	0 1 3	7 16 0	.....	7 16 0	22 "
20 "	Leyland Bros.	Pontifex & Wood	Copper plates.....	4 17 1 0	52 3 3	.....	253 12 10	3 2 8	5 4 5	3 2 11	265 2 10	54 10 6 ³ / ₄	.....	6 May.
22 "	Loch Trool	Ransomes & Rapier...	3 50-ft. engine turn-tables.....	.....	.....	328 0 0	984 0 0	98 10 11	19 16 7	18 16 11	1121 4 5	.....	373 14 9 ³ / ₄	25 April.
28 "	Leyland Bros.	Jones & Foster.....	2,000 ft. silver-plated beading ..	.....	.....	0 0 5 ¹ / ₂	48 0 0	0 10 6	1 2 2	0 12 3	50 4 11	.....	0 0 6	6 May.
1887.														
14 Jan.	"	North British Rubber Co.	500 6" x 3" x 8" I.R. springs.....	.....	.....	0 18 4	458 6 8	2 7 6	9 6 4	4 12 4	474 12 10	.....	0 18 11 ¹ / ₂	6 "
20 "	Glensesk.....	India-rubber Gutta-percha Telegraph Works.	500 " " ".....	.....	.....	1 1 6	537 10 0	1 18 3	10 18 0	5 7 9	555 14 0	.....	1 2 2 ¹ / ₄	6 "
26 "	Ormuz	Craven Bros.....	1 bed and 4-jaw chuck for 2' 6" face-plate lathe.	.....	.....	38 0 0	38 0 0	4 4 5	1 1 2	0 7 11	43 13 6	.....	43 13 6	20 Mar.
25 "	"	Beyer Peacock, & Co.	1 pair second leading wheels with axles for bogie goods engines.	.....	.....	85 0 0	85 0 0	7 1 6	1 15 3	0 15 10	94 12 7	.....	94 12 7	20 "
25 "	"	"	1 pair driving wheels with axle and eccentrics for engines.	.....	.....	93 10 0	93 10 0	7 16 7	1 18 10	0 17 7	104 3 0	.....	104 3 0	20 "

No. 6—continued.

Date of Invoice.	Ship.	From whom purchased.	Description.	Tonnage.	Cost per Ton.	Cost each.	Invoice Cost.	Freight.	English Charges.	Colonial Charges.	Total Cost.	Cost per Ton.	Cost each.	Date of Arrival
Return of Miscellaneous Articles imported for the Great Southern and Western Lines during the year 1887—continued.														
1887.				T. c. q. lb.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	1887.
25 Jan.	Ormuz	Beyer & Peacock	1 pair trailing wheels with axle for engines.			85 0 0	85 0 0	7 1 6	1 15 3	0 15 10	94 12 7		94 12 7	20 Mar.
25 "	"	"	3 pairs bogie wheels with axles for engines.			45 0 0	135 0 0	10 16 5	2 16 0	1 4 11	149 17 4		49 19 1½	20 "
28 "	"	Joseph Whitworth & Co.	1 4-screw chuck 2' 6" for lathe.											
28 "	"	"	1 large back gear wheel and change wheel for 10" lathe.			24 2 0	24 2 0	1 1 0	0 15 7	0 3 8	26 2 3		26 2 3	20 "
31 "	"	Fairbairn, Naylor, M'Pherson, & Co.	1 4-jaw chuck and change wheels for 8½" lathe.			13 0 0	13 0 0	0 10 11	0 7 10	0 1 9	14 0 6		14 0 6	20 "
31 "	"	"	1 4-jaw chuck for 10" lathe			15 0 0	15 0 0	0 12 7	0 9 2	0 2 2	16 3 11		16 3 11	20 "
31 "	"	"	2 change wheels for 12" lathe.			0 10 0	1 0 0	0 1 0	0 0 7	0 0 2	1 1 9		0 10 10½	20 "
12 Feb.	Candida	Vulcan Foundry Co.	2 4-wheels coupled outside cylinder, passenger bogie engines and tenders.			2435 10 0	4871 0 0		87 13 7		4958 13 7		2479 6 9½	6 May
1 "	Balkamah	George Spencer & Co.	300 Spencer's arched body blocks.			0 1 11½	29 5 0	0 10 6	0 14 8	0 6 6	30 16 8		0 2 0½	10 "
19 "	Earl of Zetland.	Vulcan Foundry & Co.	4 4-wheels coupled outside cylinder passenger bogie engines and tenders.			2439 6 3	9757 5 0		175 13 2		9932 18 2		2483 4 6½	28 June
19 "	"	"	Extras for above, 3 axle boxes with brasses.			3 13 0	10 19 0		0 4 5		11 3 5		3 14 5½	28 "
19 "	"	"	Extras for above, 3 brasses fitted to above.			4 5 9	12 15 0		0 5 1		13 0 1		4 6 8½	28 "
19 "	"	"	Extras for above, 12 sets wire gauze for smoke boxes.			2 3 2	25 18 0		0 10 4		26 8 4		2 4 0½	28 "
19 "	"	"	Extras for above, 10 sets ashpan protectors, ready for fixing on engines.			6 5 0	62 10 0		1 5 0		63 15 0		6 7 6	28 "
15 Jan.	Orizaba	William Sugg & Co.	1 Joslin's indicator			1 16 3	1 16 3		0 0 8		1 16 11		1 16 11	18 April
24 Feb.	Patriarch	John Butler & Co.	2 50' engine turntables			330 0 0	660 0 0	66 9 6	13 7 0	12 2 10	751 19 4		375 19 8	30 May.
1886.														
16 July	Thessalus	Patent Shaft & Axletree Co.	4 pairs wheels			6 5 0								
22 "	"	Vickers, Sons & Co.	8 c.-s. tyres for above	1 11 0 8	18 0 0		66 11 10	2 11 1	4 9 1	0 8 10	74 0 10		18 10 2½	15 June.
22 "	"	"	4 c.-s. axles for above	0 15 0 16	18 0 0									
1887.														
22 Feb.	Sussex	Dubs & Co.	2 locomotive boilers			678 0 0	1356 0 0	204 17 0	27 17 10	15 5 4	1604 0 2		802 0 1	12 "
11 "	Derwent	John Butler & Co.	2 50' engine turntables			330 0 0	660 0 0	66 9 6	13 7 0	12 2 10	751 19 4		375 19 8	18 July.
14 Mar.	Woollahra	"	2 50' "			330 0 0	660 0 0	66 9 6	13 7 0	12 2 10	751 19 4		375 19 8	17 "
1 April.	"	Craven Brothers	1 c. size face plate lathe			158 8 0	158 8 0	2 17 0	3 6 4	1 18 6	166 9 10		166 9 10	17 "
21 "	Parramatta	Hird, Dawson, & Hardy	Pan head rivets	10 0 0 0		23 13 8½	236 17 2	5 16 11	5 0 8	2 2 0	249 16 9		24 19 8	24 June.

Date of Invoice	Ship	From whom purchased	Description	Tonnage	Cost per ton.	Cost each.	Invoice Cost.	Freight.	English Charges.	Colonial Charges	Total Cost.	Cost per ton	Cost each	Date of Arrival
Return of Miscellaneous Articles imported for the Great Southern and Western Lines during the year 1887—continued.														
1887				T c. q. lb.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	1887.
13 May	Dumfriesshire	Fanbarn, Naylor, M'Pherson, & Co.	2 sliding surfacing and screw cutting lathes.	...	...	115 0 0	230 0 0	12 13 1	4 15 0	2 12 :	250 0 3	..	125 0 1½	10 Sept.
27 June	Cannbulg	North British Rubber Co	5,000' delivery hose	...	...	0 0 5¼	120 16 8	1 14 3	2 11 4	1 4 :	126 6 7	..	0 0 6	3 Oct.
14 July	Patrician	Burnham, Parry, Williams, & Co.	3 pairs driving wheels and axles, engines, 8/30D.	...	...	89 13 8	269 0 11	19 6 8	12 7 6	0 3 :	300 18 8	..	100 6 2½	28 Nov.
14 "	"	"	2 pairs engine truck axles engines, 8/30D	.....	.....	36 4 3	72 8 6	4 9 3	3 6 5	0 7 :	80 11 :	.....	40 5 8½	28 "
14 "	"	"	1 pair tender axles, engines, 8/30D.	..	..	36 4 3	144 17 0	9 4 5	6 12 11	0 15 :	161 9 :	.....	40 7 4½	28 "
14 "	"	"	3 pairs driving wheels and axles, engines, 8/32D.	..	..	77 11 10	232 15 6	19 6 7	10 14 9	0 3 :	263 0 4	.....	87 13 5¼	28 "
14 "	"	"	2 pairs engine truck wheels and axles, engines, 8/32D	.....	.....	31 0 10	62 1 7	4 9 4	2 17 1	0 7 :	69 15 :	.....	34 17 7½	28 "
14 "	"	"	4 pairs tender wheels and axles, engines, 8/32D	...	...	36 4 3	144 17 0	9 4 4	6 12 11	0 15 :	161 9 :	.....	40 7 4½	28 "
2 Aug	Sherwood	Alldays & Onions (Ld)	20 Soho pattern anvils	6 5 1 5	25 0 0	...	156 12 2	3 16 9	3 5 7	2 0 :	165 15 :	26 9 4½	...	12 Dec.
9 "	Chusan	J Defries & Sons	1 head-lamp	.....	...	4 10 0	4 10 0	1 1 0	0 8 0	0 0 11	5 19 11	..	5 19 11	15 Oct.
5 "	Northbrook	Craven Brothers	1 group of 6 7" centre self-acting lathes	.....	...	320 0 0	320 0 0	7 6 3	6 11 0	3 9 :	337 6 6	..	337 6 6	15 Dec.
10 Sept	Iberia	Monkbridge Iron & Steel Co (Ld)	M. B York's chain iron	33 18 3 26	14 16 0	...	502 9 0	21 16 8	10 12 5	6 1 7	540 19 8	15 18 8½	...	1 Nov.
31 Aug	Aviemore	Kouting Brothers	2 No 3 steam jet gas exhausters	...	..	9 9 0	18 18 0	1 1 0	0 13 6	0 1 10	20 14 4	..	10 7 2	12 Nov.
2 Sept	Parramatta	Gresham & Craven	2 sets steam sanding apparatus	..	...	9 9 0	18 18 0	1 1 0	0 13 6	0 1 10	20 14 4	..	10 7 2	12 Nov.
31 Aug	Aviemore	Taylor Brothers & Co.	T iron	2 0 3 6	19 14 9½	...	40 5 8	1 5 0	0 19 1	0 11 3	43 1 0	21 2 0¼	...	24 Dec.
16 Sept.	"	Howel & Co	Ferrule steel	0 10 0 16	30 0 0	...	15 4 3	0 10 6	0 9 1	0 3 9	16 7 7	32 5 10	..	24 "
7 Oct.	Orient	Vickers, Sons, & Co	c.-s tyies	1 18 3 8	21 1 11¼	...	40 18 10	2 11 0	0 14 4	0 7 5	44 11 7	22 19 2	..	10 "
8 Nov	Oroya	Thomas Turton & Sons	2 c.-s. circular saws	..	..	1 7 6	2 15 0	1 1 0	0 7 1	0 0 7	4 3 8	..	2 1 10	23 "
1887 — Feb	Shannon	Imray & Co..	4 sets engine and tender brake fittings.	..	..	50 0 0	200 0 0	3 3 7	0 17 0	0 8 10	204 9 5	..	51 2 4½	15 April.
							48193 7 1	1097 10 9	931 12 8	269 5 6	50491 16 0	.....	...
Return of Miscellaneous Articles imported for the Great Northern Line during the year 1881-1887.														
1886.						6 16 6								
14 Oct	Bombay	Harrison & Camm	45 pairs wheels ..	..	..	6 16 6	837 19 4	41 2 7	16 18 2	7 16 5	903 16 6	..	20 1 8½	20 Feb.
14 "	"	Vickers, Sons, & Co.	90 c.-s tires for above	20 14 0 27	18 0 0	..	837 19 4	41 2 7	16 18 2	7 16 5	903 16 6	..	20 1 8½	20 Feb.
14 "	"	"	45 c.-s axles for above	8 15 2 9	18 0 0	..	1530 0 0	1530 0 0	125 0 0	23 15 3	17 16 5	1728 18 4	..	1728 18 4
21 July	Albuera	Dubs & Co.	1 combined steam crane and locomotive engine with set of spare wheels.	...	...	1530 0 0	1530 0 0	125 0 0	23 15 3	17 16 5	1728 18 4	..	1728 18 4	9 "
13 Feb	"	Vickers, Sons, & Co	4 c. s tires for above	0 17 2 8	24 0 0	..	21 1 8	125 0 0	23 15 3	17 16 5	1728 18 4	..	1728 18 4	9 "
19 "	"	"	2 c.-s. axles for above ..	0 9 1 14	24 0 0	..	11 5 0	125 0 0	23 15 3	17 16 5	1728 18 4	..	1728 18 4	9 "

No. 6—continued.

Date of Invoice.	Ship.	From whom purchased.	Description.	Tonnage.	Cost per Ton.	Cost each.	Invoice Cost.	Freight.	English Charges.	Colonial Charges.	Total Cost.	Cost per Ton.	Cost each.	Date of Arrival.
Return of Miscellaneous Articles imported for the Great Northern Line during the year 1886—continued.														
1886.				t. c. q. lb.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	1887.
18, 25 Oct	Bombay.....	Craven Brothers ...	75 pairs wheels ...	...	...	6 1 6	...	...	...	...	...	...	...	20 Feb.
27 Nov....	"	Vickers, Sons, & Co. .	150 c.-s. tires for above ...	29 2 2 10	18 0 0	...	1235 9 10	60 16 6	24 18 11	11 11 2	1332 16 5	...	17 15 5	
27 " ...	"	"	75 c.-s. axles for above ...	14 3 3 20	18 0 0	...	...	...	...	...	...	...	16 9 0	12 July.
20 " .	Port Victor ...	Beyer, Peacock, & Co	1 cross slide for 4 ft. planing machine.	...	...	15 0 0	15 0 0	1 1 0	0 6 0	0 2 0	16 9 0	...	16 9 0	
22 " ...	Chittagong ...	Craven Brothers	75 pairs wheels.....	...	...	6 1 6	...	...	...	...	...	...	...	24 April.
13 Dec. .	"	Vickers, Sons, & Co. .	150 c.-s. tires for above ...	29 2 2 10	18 0 0	...	1235 9 10	60 16 5	24 17 2	11 11 2	1332 14 7	...	17 15 5	
13 " ...	"	"	75 c.-s. axles for above ...	14 3 3 20	18 0 0	...	...	...	...	...	...	...	...
1887.														
21, 22 Jan.	Abyssinia	Craven Brothers	100 pairs wheels .....	...	...	6 1 6	...	...	...	...	...	...	...	24 March.
3 Feb. ...	"	Vickers, Sons, & Co. .	200 c.-s. tires for above ...	38 16 3 4	18 0 0	...	1647 6 6	76 6 2	34 3 0	15 8 0	1773 3 8	...	17 14 7½	
3 " ...	"	"	100 c.-s. axles for above ...	18 18 2 8	18 0 0	...	...	...	...	...	...	...	...
7 Mar. ...	St. Cuthbert	Allen, Everitt, & Sons	Brass boiler tubes	14 11 0 22½	51 6 8	...	747 8 4	12 11 7	15 1 11	9 1 4	784 3	253 17 1¼	...	7 July.
14 " ...	Firth of Tay...	Dubs & Co. .	4 flanged copper tube plates .	...	...	26 10 0	106 0 0	1 16 4	2 6 1	0 19 8	111 2 1	...	27 15 6¼	7 Aug.
18 " ...	St. Cuthbert.....	Pontifex & Wood . . .	1 loco. copper tube plate...	0 7 3 20	...	61 13 6¼	24 9 0	0 5 10	0 10 2	0 5 11	25 10 11	64 8 9½	...	7 July.
18 " ...	"	"	6 loco copper plates	1 8 1 19	...	51 13 0¼	73 7 11	1 0 11	1 11 11	0 17 10	76 18 7	54 2 9½	...	7 "
26 " ...	C. Paulsen ...	Vickers, Sons, & Co. .	60 c.-s. engine & tendertires	18 5 1 26	24 0 0	...	438 11 7	17 11 10	7 16 11	4 2 2	468 2	625 12 4	...	2 Sept.
26 " ...	"	"	112 c.-s. waggon tires	21 13 0 19	18 0 0	...	389 17 1	20 16 11	8 17 5	3 12 11	423 4	419 10 9¼	...	2 "
20 April .	"	Hind, Dawson, & Hardy	Lowmoor iron boiler plates	4 5 3 0	29 0 1½	...	124 7 4	3 9 8	2 12 4	1 3 1	131 12	530 13 11¼	...	2 "
20 " ...	"	"	" rivets	0 15 0 0	24 3 6¼	...	18 2 8	0 13 4	0 7 8	0 3 5	19 7	125 16 1¼	...	2 "
6 " ...	"	Howell & Co. .	15,000 steel ferrules .....	...	...	15 0 0	225 0 0	1 13 2	4 13 0	2 7 9	233 13 11	...	15 11 7½	2 "
19 Mar. .	"	Beyer, Peacock, & Co.	3 flanged copper tube plates	...	...	27 0 0	81 0 0	0 10 6	1 15 4	0 15 8	84 1 6	...	28 0 6	2 "
7 May .	Thyatira	Davis & Primrose...	1 15 cwt. steam hammer...	...	...	202 16 0	202 16 0	27 17 8	4 4 1	1 18 1	236 15 10	...	236 15 10	14 Oct.
19 " ...	"	Ibbotson Bros. & Co. (Ld.)	800 steel volute springs ..	...	...	0 3 3	130 0 0	7 2 4	2 15 0	1 4 6	141 1 10	...	0 3 6¼	14 "
							9094 12 1	460 12 9	177 10 4	90 17 6	£823 12 8	...	...
Return of Miscellaneous Articles imported for the Tramways during the year 1887.														
1886.														1887.
27 Aug....	Grassendale ...	Smith & Coventry ...	2 C. size plain milling machines	...	...	84 16 6	169 13 0	3 13 3	2 13 10	2 9 5	178 9 6	...	89 4 9	21 Jan.
12 Oct. ...	Jerusalem	Hadfield's Steel Foundry Co	12½ sets c.-s. Hecla tram wheels	...	...	9 17 6	123 8 9	2 15 0	2 12 4	1 16 8	130 12 9	...	10 9 0¼	31 "
25 " ...	Cluny Castle ...	"	12½ " " "	...	...	9 17 6	123 8 9	2 14 10	2 12 4	1 16 7	130 12 6	...	10 9 0	6 Feb.
1 Nov. .	Port Victor	"	12½ " " "	...	...	9 17 6	123 8 9	2 17 9	2 15 4	1 14 0	130 15 10	...	10 9 3¼	23 Jan.
8, 17 " .	Star of Germany	"	25 " " "	...	...	9 17 6	246 17 6	5 10 4	5 1 8	3 13 5	261 2 11	...	10 8 11	13 Mar.
3, 14, 24 "	Leyland Brothers	"	50 " " "	...	...	9 17 6	493 15 0	11 2 1	10 0 5	7 7 2	522 4 8	...	10 8 10¼	6 May.
31 Dec. ...	Achilles	"	12½ " " "	...	...	9 17 6	123 8 9	2 15 6	2 12 4	1 16 10	130 13 5	...	10 9 1	7 "
1887.														
28 Jan. .	Balkamah	"	25 " " "	...	...	9 17 6	246 17 6	5 11 1	5 1 9	3 13 7	261 3 11	...	10 8 11¼	10 "
27 " ...	"	Monk Bridge Iron Co	50 steel tram wheels .....	...	...	2 1 5¼	103 11 10	3 2 0	2 4 5	1 15 0	110 13 3	...	2 4 3¼	10 "
16 May .	Dumfriesshire .	"	100 " " "	...	...	2 1 5¼	207 3 9	6 4 0	4 5 10	2 11 11	220 5 6	...	2 4 0½	10 Sept.
24 Feb. .	Thessalus	"	50 " " "	...	...	2 1 5¼	103 11 11	3 2 0	2 4 5	1 15 0	110 13 4	...	2 4 3¼	15 June.
31 Jan. ...	Dawpool	Vickers, Sons, & Co..	50 c.-s. motor axles	6 19 1 18	25 0 0	...	174 5 4	6 0 2	3 4 4	3 2 3	186 12 1	26 15 4¼	...	6 "
							2,239 10 10	55 8 0	45 9 0	33 11 10	2,373 19 8	...	...

No. 8.

PUBLIC DEBT FOR RAILWAYS.

STATEMENT showing the amounts appropriated for Railway Services to 31st December, 1887; the Amount expended to same date; and the Balances retained or written off in the books of the Treasury.

Appropriations.	Particulars.	Expended.	Balances	
			Retained.	Written off.
£ s. d.		£ s. d.	£ s. d.	£ s. d.
	16 VICTORIA, No. 39.			
217,500 0 0	Loan to the Sydney Railway Company	217,500 0 0	.....	.....
	18 VICTORIA, No. 40.			
400,000 0 0	Construction of Railways	400,000 0 0	.....	.....
224,733 18 8	Purchase of the properties of the Sydney Railway and of the Hunter River Railway Companies.....	224,733 18 8	.....	.....
624,733 18 8		624,733 18 8	.....	.....
	19 VICTORIA, Nos. 38 & 40.			
62,500 0 0	Railway, Sydney to Liverpool; and Railway, Newcastle to Maitland	62,499 10 0	0 10 0	.....
50,000 0 0	Surveys, experiments, and preparations for the extension of Railways.....	49,997 19 7	2 0 5	.....
112,500 0 0		112,497 9 7	2 10 5	.....
	20 VICTORIA, No. 1.			
200,000 0 0	Railway works	200,000 0 0	.....	.....
	20 VICTORIA, No. 34.			
300,000 0 0	Railway works	299,927 9 4	72 10 8	.....
	22 VICTORIA, No. 22.			
712,000 0 0	Extension of existing Railways	711,999 18 0	.....	0 2 0
8,000 0 0	Railway Trial Survey	8,000 0 0	.....	.....
720,000 0 0		719,999 18 0	.....	0 2 0
	23 VICTORIA, No. 10.			
1,300 0 0	Valuation of Land	1,296 0 0	.....	4 0 0
9,021 0 0	Works in progress—Authorized Extensions	8,645 2 8	.....	375 17 4
23,949 0 0	Trial Surveys.....	23,941 1 8	.....	7 18 4
54,100 0 0	N.S. Works	51,825 1 11	2,274 18 1	.....
88,370 0 0		85,707 6 3	2,274 18 1	387 15 8
	24 VICTORIA, No. 24.			
1,300 0 0	Valuation of Land	1,300 0 0	.....	.....
7,020 0 0	Works in progress—Authorized Extensions	6,718 9 5	.....	301 10 7
8,320 0 0		8,018 9 5	.....	301 10 7
	25 VICTORIA, No. 19.			
675 0 0	Valuation of Land	671 1 8	.....	3 18 4
9,184 0 0	Works in progress—Authorized Extensions	8,168 13 2	.....	1,015 6 10
20,000 0 0	Northern Line to Terminus to Morpeth	20,000 0 0	.....	.....
5,000 0 0	Carriage-shed and Machine-shop, and fixing Engine Turn-table, &c., Northern Line.....	4,578 19 3	421 0 9	.....
40,000 0 0	Bridge over Hunter River, at Singleton.....	40,000 0 0	.....	.....
70,000 0 0	Bridge over the Nepean, at Penrith	70,000 0 0	.....	.....
688,000 0 0	Great Southern Line to Goulburn.....	687,999 8 0	0 12 0	.....
16,200 0 0	Land for Great Southern Railway to Goulburn	16,200 0 0	.....	.....
20,000 0 0	Engines for Southern Extensions	20,000 0 0	.....	.....
7,000 0 0	Trial Surveys.....	7,000 0 0	.....	.....
30,000 0 0	Great Western Line to the Nepean	30,000 0 0	.....	.....
250,000 0 0	Great Western Line from Penrith towards Bathurst	250,000 0 0	.....	.....
250,000 0 0	Great Northern Line towards Armidale	250,000 0 0	.....	.....
60,000 0 0	Horse Railway Line from Blacktown to Windsor and Richmond.....	60,000 0 0	.....	.....
10,000 0 0	Additions and Alterations to Workshops and Stations	9,998 7 6	1 12 6	.....
1,476,059 0 0		1,474,616 9 7	423 5 3	1,019 5 2
3,747,482 18 8	Carried forward	3,743,001 0 10	2,773 4 5	1,708 13 5

No. 8—continued.

Appropriations.	Particulars.	Expended.	Balances	
			Retained.	Written off.
£ s. d.		£ s. d.	£ s. d.	£ s. d.
3,747,482 18 8	Brought forward.....	3,743,001 0 10	2,773 4 5	1,708 13 5
26 VICTORIA, No. 14.				
700 0 0	Valuation of Land	696 0 0	.....	4 0 0
11,182 0 0	Works in progress—Authorized Extensions	10,523 3 5	.....	658 16 7
1,000 0 0	Bridge over the Railway, near Newcastle	1,000 0 0	.....	.....
16,000 0 0	Additional Line from Newcastle to Wallsend Junction	14,684 8 6	1,315 11 6	.....
350 0 0	Additional Telegraph Wire for Railway purposes from Parramatta to Penrith	336 5 6	.....	13 14 6
675 0 0	Additional Telegraph Wire for Railway purposes from Campbelltown to Picton	514 16 8	160 3 4	.....
29,907 0 0		27,754 14 1	1,475 14 10	676 11 1
27 VICTORIA, No. 14.				
215,414 3 1	Extension to Goulburn	215,414 3 1	.....	.....
3,932 2 8	Workshops, Southern Line	3,932 2 8	.....	.....
2,480 14 3	Workshops, Northern Line	2,431 7 6	49 6 9	.....
13,000 0 0	Rolling Stock, Northern Line	13,000 0 0	.....	.....
23,000 0 0	Locomotive Engines, Western Line	23,000 0 0	.....	.....
20,000 0 0	Carriages, Break-vans, Western Line	20,000 0 0	.....	.....
35,000 0 0	Locomotive Engines, Northern Line .....	.....	.....	.....
1,000 0 0	Traverses for Coal Sidings, Newcastle .....	.....	.....	.....
4,000 0 0	Ballast-waggons for Northern, Southern, and Western Lines	37,659 10 9	2,340 9 3	.....
50,000 0 0	Extension into Goulburn	50,000 0 0	.....	.....
150,000 0 0	Extension into Bathurst	150,000 0 0	.....	.....
15,000 0 0	Richmond and Windsor Lines	15,000 0 0	.....	.....
7,500 0 0	Purchase of Land for Morpeth Railway	7,495 13 4	4 6 8	.....
5,000 0 0	Siding into Cemetery at Haslem's Creek	4,821 5 6	178 14 6	.....
900 0 0	Wharf, Carriage Dock, and Siding, Newcastle Station and West Maitland	900 0 0	.....	.....
970 0 0	New Passenger Station, Platform, and Station at Hexham	970 0 0	.....	.....
3,500 0 0	Coal Sidings at Newcastle	566 13 9	2,933 6 3	.....
400 0 0	Passenger Station and Platform at Rooty Hill, Western Line	400 0 0	.....	.....
900 0 0	Three Gate houses on Western Line	831 10 5	68 9 7	.....
110 0 0	Stables at Newcastle	110 0 0	.....	.....
552,107 0 0		546,532 7 0	5,574 13 0	.....
29 VICTORIA, No. 9.				
650 0 0	Station at Riverstone	650 0 0	.....	.....
650 0 0	Station at Mulgrave	650 0 0	.....	.....
9,000 0 0	Additional Ballast and Goods Trucks	9,000 0 0	.....	.....
10,000 0 0	Windsor and Richmond Line	10,000 0 0	.....	.....
850 0 0	Land at Newtown for Siding	820 17 8	29 2 4	.....
10,000 0 0	Additional Rolling Stock	10,000 0 0	.....	.....
20,000 0 0	Additional Goods accommodation, Sydney Station	19,999 18 0	.....	0 2 0
12,000 0 0	Railway-sheds	12,000 0 0	.....	.....
5,000 0 0	Additional accommodation Stations	5,000 0 0	.....	.....
6,000 0 0	Claims for Land on the Penrith, Picton, and Singleton Extensions	3,888 6 2	2,111 13 10	.....
650 0 0	Station at Douglas Park	640 14 3	9 5 9	.....
20,000 0 0	Extension of Great Northern Line to Terminus at Morpeth	19,995 2 11	4 17 1	.....
94,800 0 0		92,644 19 0	2,154 19 0	0 2 0
29 VICTORIA, No. 23.				
200,000 0 0	Extension of the Great Western Line	200,000 0 0	.....	.....
400,000 0 0	Extension of the Great Northern Line	398,677 2 3	1,322 17 9	.....
20,000 0 0	Relaying the Line from Sydney to Parramatta Junction	20,000 0 0	.....	.....
4,000 0 0	Enlarging Railway Bridges at East Maitland	2,508 17 2	1,491 2 10	.....
5,000 0 0	Additional Accommodation to Stations	5,000 0 0	.....	.....
10,000 0 0	Additional Goods Waggons	10,000 0 0	.....	.....
639,000 0 0		636,185 19 5	2,814 0 7	.....
30 VICTORIA, No. 23.				
3,000 0 0	Engine-shed, Windsor and Richmond Line	1,054 9 6	1,945 10 6	.....
5,000 0 0	Trial Surveys for the Extension of the Great Southern and Western Railways	5,000 0 0	.....	.....
25,000 0 0	Compensation for Land taken on the Ultimo Estate	25,000 0 0	.....	.....
33,000 0 0		31,054 9 6	1,945 10 6	.....
5,096,296 18 8	Carried forward.....£	5,077,173 9 10	16,738 2 4	2,385 6 6

No. 8—continued.

Appropriations.	Particulars.	Expended.*	Balances	
			Retained.	Written off.
£ s. d.		£ s. d.	£ s. d.	£ s. d.
5,096,296 18 8	Brought forward.....	5,077,173 9 10	16,738 2 4	2,385 6 6
1,000,000 0 0	31 VICTORIA, No. 11. Railway Works—Extension to Bathurst and Goulburn	999,409 12 10	590 7 2	.....
3,412 0 0	31 VICTORIA, No. 27. Half the Cost of the Telegraph Line from Picton to Goulburn, along the line of Railway—chargeable to Railways	3,411 2 0	0 18 0	.....
3,719 0 0	Half the cost of Telegraph Line from Penrith to Bathurst, along the line of Railway—chargeable to Railways	3,511 0 10	207 19 2	.....
7,131 0 0		6,922 2 10	208 17 2	.....
60,000 0 0	32 VICTORIA, No. 13. Towards cost of additional Rolling Stock for Railway purposes	60,000 0 0	.....	.....
10,000 0 0	Compensation for Land taken at Honeysuckle Point	9,852 7 2	147 12 10	.....
70,000 0 0		69,852 7 2	147 12 10	.....
13,000 0 0	34 VICTORIA, No. 2. New Machine-shop, running shed, erecting shop and stores at Newcastle, including roads connected therewith	12,917 4 5	82 15 7	.....
2,000 0 0	Additional Machinery	1,674 4 2	325 15 10	.....
30,500 0 0	New Station, Workshops for carriage and waggons department, carriage-shed, roofing, steam hammer, furnaces and machinery, Redfern, including roads connected therewith	30,420 19 11	79 0 1	.....
5,000 0 0	Excavating Station-yard, Redfern	4,902 14 10	97 5 2	.....
3,500 0 0	Additional Machinery	3,500 0 0	.....	.....
6,000 0 0	New Passenger Station and Platforms, Newcastle, including road approaches	5,965 0 5	34 19 7	.....
60,000 0 0	Construction of Rolling Stock	59,998 3 6	1 16 6	.....
35,000 0 0	Completion of the relaying of the Line from Sydney to Parramatta	30,402 14 5	4,597 5 7	.....
17,000 0 0	Completion of new Goods-shed, Sydney, and Roads and Sidings in connection with same	14,518 9 10	2,481 10 2	.....
5,000 0 0	Extension to Morpeth	4,994 10 0	5 10 0	.....
2,000 0 0	Land for Windsor and Richmond Line	1,340 18 11	659 1 1	.....
179,000 0 0		170,635 0 5	8,364 19 7	.....
124 0 0	35 VICTORIA, No. 5. Construction of Railway-sheds	122 9 5	.....	1 10 7
230,000 0 0	Completion of Lines already sanctioned	229,942 14 2	.....	57 5 10
70,000 0 0	Construction of Rolling Stock manufactured in the Colony	65,580 13 9	.....	4,419 6 3
300,124 0 0		295,645 17 4	.....	4,478 2 8
60,000 0 0	36 VICTORIA, No. 2. Rolling Stock manufactured in the Colony	60,000 0 0	.....	.....
2,000 0 0	Station Buildings—West Maitland	1,876 10 2	.....	123 9 10
257 0 0	Station-master's House at Newtown	257 0 0	.....	.....
62,257 0 0		62,133 10 2	.....	123 9 10
60,000 0 0	36 VICTORIA, No. 17. Rolling Stock manufactured in the Colony	60,000 0 0	.....	.....
10,000 0 0	Trial Surveys	9,999 18 11	.....	0 1 1
1,131,000 0 0	Towards the construction of a Line from Goulburn to Wagga Wagga	1,131,000 0 0	.....	.....
60,000 0 0	Construction of a Line—Kelso to Bathurst	60,000 0 0	.....	.....
279,000 0 0	Construction of a Line—Bathurst to Orange	279,000 0 0	.....	.....
361,500 0 0	Construction of a Line—Murrurundi to Tamworth	361,500 0 0	.....	.....
1,901,500 0 0		1,901,499 18 11	.....	0 1 1
8,616,308 18 8	Carried forward	8,583,271 19 6	26,049 19 1	6,987 0 1

No. 8—continued.

Appropriations.	Particulars.	Expended.	Balances	
			Retained.	Written off.
£ s. d.		£ s. d.	£ s. d.	£ s. d.
8,616,308 18 8	Brought forward.....	8,583,271 19 6	26,049 19 1	6,987 0 1
38 VICTORIA, No. 2.				
20,000 0 0	Trial Surveys.....	19,988 3 4	.....	11 16 8
100,000 0 0	Rolling Stock.....	100,000 0 0	.....	.....
25,000 0 0	Towards purchasing Land, laying Sidings, and erecting Sheds, Darling Harbour Wharf.....	24,998 13 4	.....	1 6 8
10,000 0 0	Engine-sheds.....	9,953 14 1	.....	46 5 11
8,000 0 0	Enlarging Machine-shop, Sydney.....	7,745 3 3	.....	254 16 9
2,000 0 0	Additional Machinery, Sydney.....	2,000 0 0	.....	.....
6,000 0 0	Completion of New Station, Redfern.....	5,931 13 7	.....	68 6 5
45,000 0 0	To complete Western Line to Kelso, &c.....	44,980 18 9	.....	19 1 3
1,000 0 0	Unadjusted Land Claims.....	239 6 10	.....	760 13 2
50,000 0 0	To connect Great Northern Railway with the New Wharfage Accommodation at Bullock Island.....	44,451 2 9	.....	5,548 17 3
50,000 0 0	Purchase of twelve Passenger Locomotive Engines for extensions beyond Murrurundi, Goulburn, and Bathurst.....	50,000 0 0	.....	.....
317,000 0 0		310,288 15 11	.....	6,711 4 1
39 VICTORIA, No. 18.				
20,000 0 0	Trial Surveys.....	20,000 0 0	.....	.....
50,000 0 0	Rolling Stock.....	50,000 0 0	.....	.....
5,000 0 0	Additional Machinery.....	5,000 0 0	.....	.....
75,000 0 0		75,000 0 0	.....	.....
40 VICTORIA, No. 12.				
350,000 0 0	Orange to Wellington.....	350,000 0 0	.....	.....
260,000 0 0	Wellington to Dubbo.....	260,000 0 0	.....	.....
384,000 0 0	Juncce to Narandera.....	348,468 18 1	.....	35,531 1 11
600,000 0 0	Tamworth to Armidale.....	600,000 0 0	.....	.....
220,000 0 0	Werris Creek to Gunnedah.....	220,000 0 0	.....	.....
25,000 0 0	Trial Surveys.....	25,000 0 0	.....	.....
150,000 0 0	Additional Rolling Stock.....	150,000 0 0	.....	.....
10,000 0 0	For strengthening the Bridge and improving the gradients on the Windsor and Richmond Line.....	10,000 0 0	.....	.....
1,999,000 0 0		1,963,468 18 1	.....	35,531 1 11
41 VICTORIA, No. 4.				
30,000 0 0	To complete line from Goulburn to Wagga Wagga.....	30,000 0 0	.....	.....
20,352 0 0	To complete the extension into Bathurst.....	8,011 2 4	.....	12,340 17 8
77,000 0 0	To complete the line from Bathurst to Orange.....	68,299 4 3	8,700 15 9	.....
80,000 0 0	To complete line from Murrurundi to Tamworth.....	74,182 15 8	.....	5,817 4 4
207,352 0 0		180,493 2 3	8,700 15 9	18,158 2 0
41 VICTORIA, No. 7.				
680,000 0 0	For the extension of the Great Southern Railway from the end of No. 3 Contract near Wagga Wagga to Albury, including the Viaduct over the Murrumbidgee River.....	680,000 0 0	.....	.....
20,000 0 0	Trial Surveys.....	20,000 0 0	.....	.....
20,000 0 0	To double the line from Wallsend Junction to Hexham.....	20,000 0 0	.....	.....
240,000 0 0	Rolling Stock, including Engines.....	240,000 0 0	.....	.....
960,000 0 0		960,000 0 0	.....	.....
43 VICTORIA, No. 11.				
1,611,000 0 0	Tamworth to Tenterfield.....	1,611,000 0 0	.....	.....
1,450,000 0 0	Dubbo to the vicinity of Bourke.....	1,264,119 18 8	185,880 1 4	.....
370,000 0 0	Gunnedah to a point opposite Narrabri.....	302,551 19 5	67,448 0 7	.....
735,000 0 0	Wallerawang to Mudgee.....	735,000 0 0	.....	.....
735,000 0 0	Narrandera to Hay.....	576,596 5 7	158,403 14 5	.....
100,000 0 0	Goulburn to Wagga Wagga, to complete the line.....	98,323 10 2	1,676 9 10	.....
20,000 0 0	Trial Surveys.....	20,000 0 0	.....	.....
620,000 0 0	Rolling Stock required during four years ending 1882.....	620,000 0 0	.....	.....
5,641,000 0 0		5,227,591 13 10	413,408 6 2	.....
44 VICTORIA, No. 12.				
40,000 0 0	Orange to Dubbo.....	24,918 2 7	15,081 17 5	.....
22,000 0 0	Werris Creek to Gunnedah.....	20,459 11 11	1,540 8 1	.....
250,000 0 0	Site and erection of New Workshops, Machinery, and Sidings, in connection therewith.....	250,000 0 0	.....	.....
100,000 0 0	Doubling Line between Parramatta Junction, &c.....	99,988 13 4	11 6 8	.....
412,000 0 0		395,366 7 10	16,633 12 2	.....
18,227,660 18 8	Carried forward.....	£17,695,480 17 5	464,792 13 2	67,387 8 1

No. 8—continued.

Appropriations.	Particulars.	Expended.	Balances.	
			Retained.	Written off.
£ s. d.		£ s. d.	£ s. d.	£ s. d.
18,227,660 18 8	Brought forward.....	17,695,480 17 5	464,792 13 2	67,387 8 1
44 VICTORIA, No. 28.				
2,000,000 0 0	Southern and Northern Junction Railway—From Homebush to Waratah (double line) 95 miles ...	1,857,207 12 10	142,792 7 2	.....
1,020,000 0 0	Sydney to Wollongong and Kiama, 68 miles	1,020,000 0 0	.....	.....
1,430,000 0 0	Goulburn to Cooma <i>via</i> Tarago, Bungendore, and Queanbeyan, 130 miles	1,128,490 17 1	301,509 2 11	.....
80,000 0 0	Albury to the river Murray (double line) including moiety of cost of constructing the Bridge 1¼ mile	80,000 0 0	.....	.....
518,000 0 0	Narrandera to Jerilderie, 63 miles	406,489 12 5	111,510 7 7	.....
218,000 0 0	Cootamundra to Gundagai, 34 miles	218,000 0 0	.....	.....
1,260,000 0 0	Murrumburrah to Blayney, 108 miles	976,714 5 11	283,285 14 1	.....
95,000 0 0	From Wagga Wagga to Albury, to complete the line	95,000 0 0	.....	.....
300,000 0 0	Alterations and additions to Station Buildings, and Siding accommodation to meet increasing traffic, inclusive of payments made in 1880 in anticipation of this vote	300,000 0 0	.....	.....
6,921,000 0 0		6,081,902 8 3	839,097 11 9	.....
45 VICTORIA, No. 22.				
500,000 0 0	Additional Rolling Stock	500,000 0 0	.....	.....
500,000 0 0		500,000 0 0	.....	.....
46 VICTORIA, No. 23.				
580,000 0 0	For providing additional Rolling Stock and the purchase of Machinery, Tools, &c	580,000 0 0	.....	.....
40,000 0 0	Trial Surveys	40,000 0 0	.....	.....
400,000 0 0	Alterations, additions, and improvements at Stations, increased siding accommodation, and other purposes	400,000 0 0	.....	.....
140,000 0 0	Towards construction of a line from North Shore to Junction with Southern and Northern Junction Railway	22,788 10 5	117,211 9 7	.....
85,000 0 0	Doubling line from Parramatta to Penrith	84,897 7 10	102 12 2	.....
1,245,000 0 0		1,127,685 18 3	117,314 1 9	.....
48 VICTORIA, No. 26.				
356,000 0 0	Erection of new Workshops, and for Machinery and sidings in connection therewith	347,050 12 9	8,949 7 3	.....
25,000 0 0	Trial Surveys, further sum	25,000 0 0	.....	.....
157,000 0 0	Wallerawang to Mudgee, further sum	157,000 0 0	.....	.....
450,000 0 0	City Extension, 1 mile 76 chains	2,167 18 1	447,832 1 11	.....
195,000 0 0	Perth to near Rockley, 17 miles	1,692 0 7	193,307 19 5	.....
578,000 0 0	Inverell to Glen Innes, 45 miles	2,827 5 8	575,172 14 4	.....
2,000,000 0 0	South Grafton to Glen Innes, 103 miles	7,768 8 7	1,992,231 11 5	.....
1,980,000 0 0	Grafton to the Tweed River <i>via</i> Casino, Lismore, and the Brunswick, 165 miles	10,247 1 10	1,969,752 18 2	.....
700,000 0 0	Musclebrook to Cassilis, 70 miles	3,647 16 5	696,352 3 7	.....
310,000 0 0	Tarago to Braidwood, 31 miles	2,192 15 1	307,807 4 11	.....
500,000 0 0	Gundagai to Tumut <i>via</i> Adelong, including Iron Bridge over the River Murrumbidgee, 33 miles..	32,876 1 0	467,123 19 0	.....
804,000 0 0	Kiama to Jervis Bay, 41 miles	2,560 13 2	801,439 6 10	.....
606,000 0 0	Bega to Eden, 40 miles	4,275 7 4	601,724 12 8	.....
259,500 0 0	Goulburn to Crookwell, 25 miles	1,805 7 7	257,694 12 5	.....
144,000 0 0	Galong to Burrowa, 18 miles	1,089 11 6	142,910 8 6	.....
710,000 0 0	Wagga to Tumberumba, 68 miles	3,923 11 3	706,076 8 9	.....
173,500 0 0	Tenterfield to the Queensland Border, 12 miles ..	101,142 0 1	72,357 19 11	.....
705,500 0 0	{ Orange to Molong <i>via</i> Borenore, 21 miles	308,101 11 4	397,398 8 8	.....
500,000 0 0	{ Borenore to Forbes <i>via</i> Cudal, 60 miles			
500,000 0 0	Alterations, additions, and improvements at Stations increased siding accommodation, & other purposes ..	500,000 0 0	.....	.....
Light Lines—				
1,050,000 0 0	Forbes to Wilcannia, 340 miles	1,701 2 7	1,048,298 17 5	.....
263,500 0 0	Nyngan to Cobar, 82 miles	2,100 6 6	261,399 13 6	.....
336,500 0 0	Narrabri to Moree, 61 miles	2,123 2 2	334,376 17 10	.....
210,000 0 0	Culcairn to Corowa, 45 miles	1,974 13 2	208,025 6 10	.....
13,013,500 0 0		1,523,267 6 8	11,490,232 13 4	.....
50 VICTORIA, No. 28.				
Towards completion of Lines—				
250,000 0 0	Tamworth to Tenterfield, further sum	202,926 9 1	47,073 10 11	.....
35,000 0 0	Wallerawang to Mudgee	34,214 7 8	785 12 4	.....
28,000 0 0	Albury to River Murray	12,962 1 5	15,037 18 7	.....
70,000 0 0	Doubling line to Penrith	55,468 7 4	14,531 12 8	.....
660,000 0 0	Sydney to Wollongong and Kiama	515,452 5 3	144,547 14 9	.....
40,000 0 0	Cootamundra to Gundagai	5,459 7 3	34,540 12 9	.....
25,000 0 0	Trial Survey	14,227 17 11	10,772 2 1	.....
580,000 0 0	Rolling Stock and Machinery	410,382 13 8	169,617 6 4	.....
1,688,000 0 0		1,251,093 9 7	436,906 10 5	.....
41,595,160 18 8	Carried forward	£28,179,430 0 2	13,348,343 10 5	67,387 8 1

No. 8—continued.

Appropriations.	Particulars.	Expended.	Balances.	
			Retained.	Written off.
£ s. d. 41,593,160 18 8	Brought forward.....	£ s. d. 28,179,430 0 2	£ s. d. 13,348,343 10 5	£ s. d. 67,387 8 1
	ADVANCES FOR STORES.			
	36 VICTORIA, No. 2.			
75,000 0 0	Purchase of Railway stores and materials which cannot properly be charged to the Appropriations of Parliament until actually issued for use—the vote to be recouped as issues take place	75,000 0 0	.....	.....
	43 VICTORIA, No. 11.			
225,000 0 0	Do. do. do.	225,000 0 0	.....	.....
	50 VICTORIA, No. 28.			
300,000 0 0	Do. do. do.	300,000 0 0	.....	.....
600,000 0 0	TOTAL STORES	£ 600,000 0 0	.....	.....
42,195,160 18 8	GRAND TOTAL	£ 28,779,430 0 2	13,348,343 10 5	67,387 8 1

JAMES PEARSON,
Accountant.

The Treasury, New South Wales,
9 July, 1888.

PUBLIC DEBT FOR TRAMWAYS.

STATEMENT showing the amounts appropriated for Tramway Services to 31st December, 1887; the Amount expended to same date; and the Balances retained or written off in the books of the Treasury.

Appropriations.	Particulars.	Expended.	Balances.	
			Retained.	Written off.
£ s. d.	44 VICTORIA No. 12.	£ s. d.	£ s. d.	£ s. d.
600,000 0 0	Construction of the Tramways authorized by the Act 43 Victoria No. 25	599,995 15 4	4 4 8	.....
	46 VICTORIA No. 23.			
400,000 0 0	Construction of Tramways including Motors, Rolling Stock, Machinery, &c.....	398,409 13 7	1,590 6 5	.....
1,000,000 0 0	Total	£ 998,405 8 11	1,594 11 1	.....

JAMES PEARSON,
Accountant.

The Treasury, New South Wales,
9 July, 1888.

No. 9.

STATEMENT showing the Amount authorized to be raised by LOAN for RAILWAY PURPOSES; the Amount of DEBENTURES and INSCRIBED STOCK sold, and the INTEREST to the 31st December, 1887, on LOANS already negotiated.

Act.	Amount authorized to be raised.			Debentures and Inscribed Stock sold— Amount.			Short-issued.			Over-issued and to raise amounts short-raised.			Interest.			Remarks				
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	Rate	Annual Interest on Authorized Loans	Interest to 31st December, 1887, on Loans already negotiated					
16 Victoria, No. 39	217,500	0	0	217,500	0	0	.....	.....	.....	.....	.....	.....	5 per cent	10,875	0	0	362,016	4	9	
18 " No. 40	64,733	18	8	666,800	0	0	.....	.....	.....	42,066	1	4	.....	33,340	0	0	1,073,822	6	5	
19 " Nos. 38 & 40 ..	112,500	0	0	112,500	0	0	.....	.....	.....	.....	.....	.....	" ..	5,625	0	0	165,937	10	0	
20 " No. 1	200,000	0	0	203,000	0	0	.....	.....	.....	.....	.....	.....	" ..	10,150	0	0	309,575	0	0	
20 " No. 34	300,000	0	0	299,000	0	0	1,000	0	0	.....	.....	.....	" ..	14,950	0	0	440,175	0	0	
22 " No. 22 ..	720,000	0	0	720,000	0	0	.....	.....	.....	.....	.....	.....	" ..	36,000	0	0	1,044,000	0	0	
23 " No. 10	88,370	0	0	88,300	0	0	70	0	0	.....	.....	.....	" ..	4,415	0	0	121,412	10	0	
24 " No. 24	8,320	0	0	8,300	0	0	20	0	0	.....	.....	.....	" ..	415	0	0	10,997	10	0	
25 " No. 19	1,476,959	0	0	1,476,000	0	0	59	0	0	.....	.....	.....	" ..	73,800	0	0	1,918,800	0	0	
26 " No. 14 ..	29,907	0	0	29,900	0	0	7	0	0	.....	.....	.....	" ..	1,495	0	0	34,385	0	0	
27 " No. 14 ..	552,107	0	0	552,100	0	0	7	0	0	.....	.....	.....	" ..	27,605	0	0	634,915	0	0	
29 " No. 9	94,800	0	0	94,800	0	0	.....	.....	.....	.....	.....	.....	" ..	4,740	0	0	97,170	0	0	
29 " No. 23	639,000	0	0	639,000	0	0	.....	.....	.....	.....	.....	.....	" ..	31,950	0	0	690,562	10	0	
30 " No. 23	33,000	0	0	33,000	0	0	.....	.....	.....	.....	.....	.....	" ..	1,650	0	0	34,650	0	0	
31 " No. 11	1,000,000	0	0	1,000,000	0	0	.....	.....	.....	.....	.....	.....	" ..	50,000	0	0	993,500	0	0*	
31 " No. 27	7,131	0	0	7,100	0	0	31	0	0	.....	.....	.....	" ..	355	0	0	6,922	10	0	
32 " No. 13 ..	70,000	0	0	70,000	0	0	.....	.....	.....	.....	.....	.....	" ..	3,500	0	0	66,500	0	0	
34 " No. 2	179,000	0	0	179,000	0	0	.....	.....	.....	.....	.....	.....	" ..	8,950	0	0	154,387	10	0	
Proportion of Issue under various Loan Acts to make good the amount short raised under the same .....	.....	.....	.....	228,700	0	0	.....	.....	.....	228,700	0	0	.....	11,435	0	0	200,112	10	0	
35 Victoria No. 5 ..	300,124	0	0	300,100	0	0	24	0	0	.....	.....	.....	" ..	15,005	0	0	247,582	10	0	
36 " No. 2 ..	137,257	0	0	137,200	0	0	57	0	0	.....	.....	.....	" ..	6,860	0	0	106,330	0	0	
36 " No. 17	1,901,500	0	0	1,901,500	0	0	.....	.....	.....	.....	.....	.....	4 per cent	76,060	0	0	952,720	0	0	
38 " No. 2 ..	317,000	0	0	317,000	0	0	.....	.....	.....	.....	.....	.....	" ..	12,680	0	0	114,120	0	0	
39 " No. 18 ..	75,000	0	0	75,000	0	0	.....	.....	.....	.....	.....	.....	" ..	3,000	0	0	36,000	0	0	
40 " No. 12	1,999,000	0	0	1,999,000	0	0	.....	.....	.....	.....	.....	.....	" ..	79,960	0	0	719,640	0	0	
41 " No. 4	207,352	0	0	207,300	0	0	52	0	0	.....	.....	.....	" ..	8,292	0	0	74,628	0	0	
41 " No. 7	960,000	0	0	960,000	0	0	.....	.....	.....	.....	.....	.....	" ..	38,400	0	0	249,600	0	0	
43 " No. 11 ..	5,866,000	0	0	5,866,000	0	0	.....	.....	.....	.....	.....	.....	" ..	234,640	0	0	1,278,600	0	0	
44 " No. 12	412,000	0	0	412,000	0	0	.....	.....	.....	.....	.....	.....	" ..	16,480	0	0	65,920	0	0	
44 " No. 28	6,921,000	0	0	†6,921,000	0	0	.....	.....	.....	.....	.....	.....	3½ & 4 per cent	243,811	0	0	763,146	7	6	
45 " No. 22	500,000	0	0	500,000	0	0	.....	.....	.....	.....	.....	.....	3½ per cent	17,500	0	0	39,375	0	0	
46 " No. 23	1,245,000	0	0	1,245,000	0	0	.....	.....	.....	.....	.....	.....	" ..	43,575	0	0	98,043	15	0	
48 " No. 26	13,013,500	0	0	6,071,844	0	0	.....	.....	.....	.....	.....	.....	" ..	455,472	0	0	634,062	0	0	
50 " No. 28	1,988,000	0	0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total £	42,195,160	18	8	33,537,944	0	0	1,327	0	0	273,766	1	4	.....	1,582,985	0	0	13,739,908	13	8	

The interest on the original Loan, 31 Vic. No. 11, is inserted in this column, notwithstanding the following Debentures have been finally paid off, viz—

31 December, 1872	£20,000
31 " 1873	21,000
31 " 1874	22,000
31 " 1875	23,200
31 " 1876	24,300
31 " 1877	25,500
31 " 1878	10,500
31 " 1879	27,900
31 " 1880	30,500
31 " 1881	34,100
31 " 1882	28,800
31 " 1883	35,900
31 " 1884	35,500
31 " 1885	37,700
31 " 1886	30,000
31 " 1887	48,900

Amounting to £458,800
Also, the whole of the 16 Vic. No. 39, 18 Vic. No. 40, 19 Vic. Nos. 38 and 40, 20 Vic. No. 1, and £204,500 of the 20 Vic. No. 34 have been paid off.

The total amount of the Debentures issued to 31st December, 1887, was £33,537,944 0 0
Add the Debentures authorized but not then issued, amounting to 8,929,656 0 0
Making a total of £42,467,600 0 0
Deduct Debentures issued in excess of amount authorized £273,766 1 4
Less amount authorized in excess of issue 1,327 0 0
272,439 1 4

The Treasury, New South Wales,
9 July, 1888.

Total, as above shown £42,195,160 18 8

JAMES PEARSON,
Accountant.

NOTE - The debt on account of Tramways, viz., £1,000,000 is not included in the above Statement. † £315,300 @ 4 per cent.; £6,605,700 @ 3½ per cent.

APPENDIX TO REPORT ON RAILWAYS—1887.

No. 10.

RETURN showing the CAPITAL EXPENDITURE on the Government Railways of New South Wales, to the 31st December, 1886, and subsequent Expenditure to the 31st December, 1887.

Lines and Sections.	Total Expenditure to 31 December, 1886	Amount Expended in 1887.	Total Expenditure to 31 December, 1887.
	£ s. d.	£ s. d.	£ s. d.
Trunk Line—			
Darling Harbour Branch	229,409 16 8	11,217 7 6	240,627 4 2
City Extension	5,645 1 3	42 9 6	5,687 10 9
Sydney to Granville	1,056,390 4 10	10,894 10 2	1,067,284 15 0
Tramways	4,878 7 1	..	4,878 7 1
Total, Trunk Line.....	£ 1,296,323 9 10	22,154 7 2	1,318,477 17 0
Southern Line—			
Granville to Liverpool	158,849 7 9	132 11 10	158,981 19 7
Liverpool to Campbelltown	144,388 13 0	77 18 1	144,466 11 1
Campbelltown to Menangle	84,734 16 8	62 2 9	84,796 19 5
Menangle to Picton.....	337,317 19 7	24 3 0	337,342 2 7
Picton to Goulburn	1,140,642 16 5	3,158 8 11	1,143,801 5 4
Goulburn to Yass	441 744 19 0	1,244 11 7	442,989 10 7
Yass to Cootamundra	559,877 8 9	5,618 12 4	565,496 1 1
Cootamundra to North Wagga	423,779 15 10	2,121 4 1	425,900 19 11
North Wagga to Albury.....	805,666 19 0	3,583 12 10	809,250 11 10
Albury to the River Murray ..	£92,950 7 1		
Deduct Excess Credit	†712 0 0		
	92,238 7 1	178 15 8	92,417 2 9
Juncce to Narrandera	355,203 11 11	28 17 3	355,232 9 2
Narrandera to Hay	583,040 14 11	1,134 3 1	584,174 18 0
Narrandera to Jerilderie	£407,626 19 5		
Deduct Excess Credit	†3,094 18 11		
	404,532 0 6	1,818 16 2	406,350 16 8
Sydney to Wollongong and Kiama ..	1,297,968 0 6	276,492 3 8	1,574,460 4 2
Goulburn to Cooma	938,906 11 4	194,319 13 9	1,133,226 5 1
Cootamundra to Gundagai	£223,154 19 6		
Deduct Excess Credit	†2,260 9 0		
	220,894 10 6	1,562 1 4	222,456 11 10
Murrumburrah to Blayney	829,486 10 1	163,250 2 3	992,736 12 4
Tarago to Braidwood	2,825 12 3	69 2 6	2,894 14 9
Gundagai to Tumut	33,611 17 11	770 16 0	34,382 13 11
Kiama to Jervis Bay	2,728 14 3	283 18 1	3,012 12 4
Bega to Eden	4,582 0 1	367 10 8	4,949 10 9
Goulburn to Crookwell	3,803 15 11	61 2 2	3,864 18 1
Galong to Burrowa	1,128 3 6	33 1 10	1,161 5 4
Wagga to Tumberumba	6,037 16 9	211 5 4	6,249 2 1
Culcarn to Corowa	2,441 0 0	115 7 5	2,556 7 5
Total, South	£ 8,876,432 3 6	656,720 2 7	9,533,152 6 1
Western Line—			
Granville to Penrith	581,353 5 6	2,399 19 7	583,753 5 1
Blacktown to Richmond.....	170,598 16 1	.....	170,598 16 1
Penrith to Bathurst	2,111,242 1 2	16,003 8 3	2,127,245 9 5
Bathurst to Orange	401,061 8 1	3,432 15 11	404,494 4 0
Orange to Wellington	454,600 18 6	726 15 0	455,327 13 6
Wellington to Dubbo	235,212 9 11	382 9 11	235,594 19 10
Dubbo to vicinity of Bourke	1,283,742 3 9	1,532 9 5	1,285,274 13 2
Wallerawang to Mudgee.....	947,335 18 1	912 16 0	948,248 14 1
Orange to near Forbes	270,683 12 7	2,370 1 4	273,053 13 11
Perth to Rockley	2,225 9 9	148 13 10	2,374 3 7
Forbes to Wilcannia	11,936 15 5	20 1 2	11,956 16 7
Nyngan to Cobar.....	3,804 18 7	971 3 11	4,776 2 6
Total, West	£ 6,473,797 17 5	28,900 14 4	6,502,698 11 9

No. 10—continued.

Lines and Sections.	Total Expenditure to 31 December, 1886.	Amount Expended in 1887.	Total Expenditure to 31 December, 1887.
	£ s. d.	£ s. d.	£ s. d.
Northern Line—			
Newcastle to West Maitland	673,381 16 9	5,750 7 8	679,132 4 5
Morpeth Branch	57,602 0 11	.....	57,602 0 11
West Maitland to Singleton	352,304 15 1	361 7 10	352,666 2 11
Singleton to Murrurundi	738,626 5 3	362 0 7	738,988 5 10
Murrurundi to Tamworth	466,006 14 2	4,072 19 10	470,079 14 0
Werris Creek to Gunnedah	248,109 19 0	432 9 7	248,542 8 7
Tamworth to Uralla	946,355 14 8	4,792 3 9	951,147 18 5
Uralla to Glen Innes	735,232 4 8	186 4 8	735,418 9 4
Glen Innes to Tenterfield	763,261 7 9	9,535 1 6	772,796 9 3
Gunnedah to Narrabri	305,263 5 5	71 12 6	305,334 17 11
Homebush to Waratah	1,487,318 5 10	446,828 7 7	1,934,146 13 5
North Shore to S. and N. Junction Railway	4,116 14 2	19,121 12 5	23,238 6 7
Inverell to Glen Innes	5,931 17 0	73 4 7	6,005 1 7
South Grafton to Glen Innes	30,571 17 3	212 11 11	30,784 9 2
Grafton to River Tweed	6,721 16 10	5,702 3 9	12,424 0 7
Musclebrook to Cassilis	2,570 12 10	2,241 6 5	4,811 19 3
Tenterfield to Queensland Border.....	44,289 17 11	59,014 3 8	103,304 1 7
Narrabri to Moree	2,474 15 5	13 9 3	2,488 4 8
Total, North.....	£ 6,870,140 0 11	558,771 7 6	7,428,911 8 5
Total cost of Construction.....	£ 23,516,693 11 8	1,266,546 11 7	24,783,240 3 3
Rolling Stock—			
South and West	2,488,623 11 1	142,102 0 5	2,630,725 11 6
Richmond Line	5,226 1 1	.....	5,226 1 1
North	591,232 4 2	27,524 6 3	618,756 10 5
Tramways.....	1,712 12 3	.....	1,712 12 3
Total, Rolling Stock.....	£ 3,086,794 8 7	169,626 6 8	3,256,420 15 3
Machinery—			
South and West	147,029 3 8	36,594 1 1	183,623 4 9
North.....	30,140 13 6	3,216 19 6	33,357 13 0
Total, Machinery.....	177,169 17 2	39,811 0 7	216,980 17 9
Workshops—			
Redfern and Eveleigh.....	499,437 12 3	88,911 7 8	588,348 19 11
Furniture—			
South and West	5,447 19 6	735 14 2	6,183 13 8
North.....	847 19 1	.....	847 19 1
Total, Furniture	£ 6,295 18 7	735 14 2	7,031 12 9
Trial Surveys	61,120 7 5	8,572 3 4	69,692 10 9
Grand total	£ 27,347,511 15 8*	1,574,203 4 0	28,921,714 19 8

* Reduced by £6,067 7s. 11d., credits during 1887, as marked, thus †.
Railway vehicles were used on the Camden and Sans Souci trams, and their value is included here.

No. 10a.

DETAIL of Cost of Additions and Improvements to Stations and Buildings and Siding Accommodation to meet increasing traffic, &c., charged to Capital Account during 1887.

NORTH AND NORTH-WESTERN LINE.

BULLOCK ISLAND JUNCTION AND DYKE.				<i>Singleton—</i>			
	£	s.	d.		£	s.	d.
Additional sidings... ..	2,831	2	0	Additional loco. office	29	6	5
Interlocking apparatus	254	3	3	Improving water supply	27	5	8
Footbridge, Wickham	89	8	0				
				SINGLETON TO MURRURUNDI.			
				<i>Glennie's Creek—</i>			
				Additions to station buildings ...	169	14	0
				Crane	165	6	1
				<i>Ravensthorpe—</i>			
				House for station-master	26	8	10
				<i>Musclebrook—</i>			
				Weighbridge	63	10	7
				<i>Scone—</i>			
				Loading stage	27	16	0
				Weighbridge	105	11	2
				MURRURUNDI TO TAMWORTH.			
				<i>Willow Tree—</i>			
				Turn-table... ..	651	12	10
				<i>Flood Opening—</i>			
				150 miles 25 chains	166	13	6
				<i>Werris Creek—</i>			
				Verandah to porter's cottages ...	14	10	8*
				Signals	131	18	3
				Station	50	0	0
				<i>Siding—</i>			
				160 miles	2	1	1*
				<i>Flood Opening—</i>			
				161 miles 30 chains	31	4	5
				<i>Tamworth—</i>			
				Goods-shed	1,805	15	5
				Siding to goods-shed	1,097	5	10
				Weighbridge	90	13	3
				WERRIS CREEK TO GUNNDAH.			
				<i>Flood Openings—</i>			
				178 miles 50 chains	5	8	3*
				178 ,, 60 ,,	65	1	10
				179 ,, 40 ,,	53	8	6
				183 ,, 50 ,,	53	10	8
				<i>Gunnedah—</i>			
				Water supply	65	19	5
				Weighbridge	127	17	10

* Part cost only.

No. 10a—continued.

GUNNEDAH TO NARRABRI.			GLEN INNES TO TENTERFIELD.		
	£	s. d.		£	s. d.
<i>Narrabri</i> —			<i>Deepwater</i> —		
Water supply	30	18 6	Addition to station-master's house	144	15 9
Addition to station-master's house	2	15 0*	Carriage dock	79	11 7
			Crane	122	2 0
TAMWORTH TO URALLA.			<i>Sandy Flat</i> —		
<i>Moonbi</i> —			Waiting-shed		
Turn-table	751	18 0	Siding	116	13 3
<i>Walcha Road</i> —			£13,047 13 5		
Weighbridge	109	10 10	EXCESS CREDITS.		
<i>Uralla</i> —			Gate-house, Star Cross-		
Improving approach	36	11 6	ing, Murrurundi ...	31	0 0
Weighbridge	111	18 1	Old station buildings, Werris Creek ...	43	10 0
			Road, Ilford-street to goods-shed, New-	100	0 0
URALLA TO GLEN INNES.			174 10 0		
<i>Guyra</i> —			£12,873 3 5		
Wool stage	1	0 3*			
<i>Siding</i> —					
293 miles 57 chains	5	4 6*			
<i>Llangothlin</i> —					
Siding	122	8 7			
SOUTHERN LINE.					
<i>Darling Harbour</i> —			<i>Summer Hill</i> —		
Additional siding accommodation	493	8 3	New station	468	7 5
Weighbridge, William Henry-	1,853	13 7	<i>Croydon</i> —		
street	195	5 10	Additions to station buildings ...		
Weighbridge	8,522	11 11	144 8 11		
New Meat Market	152	7 11	<i>Strathfield</i> —		
Copper-shed			New station		
			1,083 17 6		
SYDNEY TO GRANVILLE.			<i>Homebush</i> —		
<i>Sydney</i> —			Platform at Dock Siding... ..		
Interlocking apparatus	62	15 10	Fencing land	78	17 0
Tank for gasometer	1,308	10 8	Interlocking apparatus	10	19 5*
Absolute block system to Granville	120	6 10	<i>Flemington</i> —		
Machinery, permanent-way shops	73	10 4	Crossover road		
			270 16 2		
<i>Eveleigh</i> —			Interlocking apparatus		
Signals	14	3 3*	343 11 9		
Station buildings	208	18 4	<i>Rookwood</i> —		
			Interlocking apparatus		
			41 6 6		
<i>Macdonaldtown</i> —			<i>Auburn</i> —		
New station	584	15 9	New station		
			1,613 8 8		
			Fencing Commissioner's land ...		
			59 8 1		
<i>Stanmore</i> —			<i>Rosehill Junction</i> —		
New station	148	1 10	Interlocking apparatus and signals		
Do (land)	1,230	12 6	260 7 7		
<i>Petersham</i> —			<i>Duck River</i> —		
New station	1,701	7 2	Water supply (land)		
			225 13 5		
<i>Lewisham</i> —			<i>Granville</i> —		
Platform	487	17 10	Line siding		
Signals	165	15 3	22 10 11*		
			Signals		
			104 12 5		
			Improving pumpier's house ...		
			42 13 11		

* Part cost only.

No. 10a—continued.

LIVERPOOL TO CAMPBELLTOWN.				<i>Murrumburrah</i> —			
	£	s.	d.		£	s.	d.
<i>Ingleburn</i> —				Additions to station	12	13	9*
Additional siding accommodation	77	18	1	Additional siding accommodation	967	7	3
				Weighbridge	174	17	11
				Footway on bridge	127	9	8
				Interlocking apparatus	149	9	7
CAMPBELLTOWN TO MENANGLE.				<i>Cootamundra</i> —			
<i>Menangle</i> —				New station	2,718	15	0
Additions to Station-master's house	62	2	9	Water supply (pumper's house)...	214	16	8
MENANGLE TO PICTON.				COOTAMUNDRA TO NORTH WAGGA.			
<i>Picton</i> —				<i>Bethungra</i> —			
Additional signals	24	3	0*	Cart weighbridge	150	8	4
PICTON TO GOULBURN.				<i>Junee</i> —			
<i>Thurlmere</i> —				Improving drainage, loco.-shed ...	215	4	7
Additional siding accommodation	28	18	7	Porter's cottage (fencing) ...	17	19	11*
				Interlocking apparatus	1,597	2	5
<i>Mittagong</i> —				<i>Wagga</i> —			
Additions to station buildings ...	458	4	7	Interlocking apparatus	9	13	1*
Additional siding accommodation	9	3	9*				
<i>Bowral</i> —				WAGGA WAGGA TO ALBURY.			
Additions to platform	81	0	0	<i>Sandy Creek</i> —			
Additional siding accommodation	509	6	5	Room for night officer	62	19	8
<i>Moss Vale</i> —				Interlocking apparatus	81	16	4
Additional platform	120	9	5	<i>The Rock</i> —			
Overbridge	1,119	11	9	Stock yards	33	12	1
<i>Bundanoon</i> —				<i>Yerong Creek</i> —			
Additional siding accommodation	15	14	5*	Stock yards	39	2	2
<i>Towrang</i> —				Interlocking apparatus	182	18	11
Interlocking apparatus	68	13	9	<i>Dudal, Cooma</i> —			
<i>Murray's Flat</i> —				Goods-shed	24	8	2*
Platform	86	0	3	Additions to platform	44	9	5
<i>Goulburn</i> —				Loop siding	68	15	11
Running-shed	507	18	11	Interlocking apparatus	3	8	7*
Additions to permanent-way shop	18	15	3*	Waiting-shed	23	18	8*
Improving drainage in yard ...	44	11	11	<i>Yambla</i> —			
Interlocking apparatus signals ...	89	19	11	Cart weighbridge	37	14	4
				Stock yards	52	10	0
GOULBURN TO YASS.				Interlocking apparatus	43	17	2
Culverts—	Mls.	chs.	lks.	<i>Albury</i> —			
Culvert	152	51	0	Interlocking apparatus	1,052	14	4
Do	154	9	0				
Do	154	20	60				
<i>Jerrawa</i> —				JUNEE TO NARRANDERA.			
Goods-shed	221	13	9	<i>Marar</i> —			
				Waiting-shed	28	17	3
YASS TO COOTAMUNDRA.				NARRANDERA TO HAY.			
Culverts, 208 miles 45 chains ...	185	17	11	<i>Bringagee</i> —			
<i>Harden</i> —				Accommodation for goods ...	18	8	2*
Water supply	279	15	6	<i>Wells</i> —			
Signals	43	13	7	Wells for fettlers... ..	212	2	1

* Part cost only.

APPENDIX TO REPORT ON RAILWAYS—1887.

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No. 10a—continued.

NARRANDERA TO JERILDERIE.				Siding—		£	s.	d.
<i>Coonong</i> —			£ s. d.	251 miles, 3 chains	...	75	13	7
Addition to station buildings (W.C.)	9	1	0*					
GOULBURN TO COOMA.				<i>Cowra</i> —				
<i>Bangalore</i> —				Cart weighbridge....	...	133	16	4
Waiting-shed	39	15	10	COOTAMUNDRA TO GUNDAGAI.				
<i>Lake Bathurst</i> —				<i>Muttama</i> —				
Additions to station buildings ...	31	9	6	Water supply (shed over pumping-engine) ... ..	...	6	8	10*
<i>Bungendore</i> —				<i>Gundagai</i> —				
Hay gauge... ..	38	3	6	Picket-fence at Station-master's house ... ..	...	4	12	0*
<i>Queanbeyan</i> —				Quarters for loco. men ... ..	...	24	18	2*
Weighbridge	23	5	10*	Quarters for traffic men ... ..	...	84	16	1
						£36,214	16	1
MURRUMBURRAH TO BLAYNEY.				EXCESS CREDITS.				
<i>Demondrille</i> —				Siding, Burrowa Road	£42	15	0	
Additions to platform	10	6	0*	Siding, Lake Bathurst	300	0	0	
<i>Crowther</i> —						342	15	0
Station buildings	60	3	8			£35,872	1	1

ILLAWARRA LINE.

<i>Illawarra Junction</i> —				<i>Kogarah</i> —				
Signals	25	2	8	Signals	55	2	8	
<i>St. Peter's</i> —				Additional siding accommodation	799	2	1	
Signals	59	5	1	<i>Carlton</i> —				
Lighting station with gas ...	56	12	7	Signals	132	1	7	
<i>Marrickville</i> —				Platform	117	0	2	
Signals	65	11	6	<i>Hurstville</i> —				
Safety points	21	16	10*	Signals	60	10	2	
<i>Tempe</i> —				<i>Oatley's</i> —				
Lamp room	34	16	11	Signals	79	15	8	
Signals	83	5	5	<i>Sutherland</i> —				
Additions to platform	238	3	3	Additional siding accommodation	54	0	4	
<i>Arncliffe</i> —				<i>Loytus</i> —				
Signals	79	3	4	Additional siding accommodation	252	8	9	
<i>Rockdale</i> —				Interlocking apparatus	27	9	6	
Additional siding accommodation	173	3	2					
Signals	78	11	2	Total	£2,493	2	10	

HOMEBUSH TO HAWKESBURY.

HOMEBUSH TO HAWKESBURY.				GOSFORD TO WARATAH.				
<i>Eastwood</i> —				<i>Wyong</i> —				
Safety points	25	4	5	Additions to station buildings ...	98	2	7	
<i>Carlingford</i> —				<i>Awaba</i> —				
Signals	38	2	3	Siding	131	10	0	
<i>Field of Mars</i> —				<i>Tanks</i> —				
Signals	24	4	9*	Tanks for fettlers... ..	43	7	4	
<i>Hawkesbury River</i> —								
Quarters for drivers	103	11	5			£464	2	9

* Part cost only

		No. 10a—continued.			
		WESTERN LINE.			
GRANVILLE TO PENRITH.				<i>Blackheath—</i>	£ s. d.
<i>Parramatta—</i>	£ s. d.			House for station-master ...	545 15 3
Interlocking apparatus ...	363 15 11			<i>Mount Victoria—</i>	
Alterations to sidings ...	254 4 11			Refreshment room ...	163 2 4
<i>Wentworthville—</i>				Windmill and pump ...	112 8 6
Interlocking apparatus ...	18 9 9*			Signals ...	43 14 11
Waiting-shed and office ...	122 15 5			<i>Eskbank—</i>	
<i>Mount Druitt—</i>				Engine-shed ...	2,760 3 10
Dock wall ...	152 19 5			Coal-stage ...	209 7 7
Interlocking apparatus...	39 14 4			Interlocking apparatus ...	282 19 4
<i>St. Mary's—</i>				<i>Lithgow Zig Zag—</i>	
Additional siding accommodation	102 0 10			Signals ...	88 12 11
New station ...	817 9 0			Altering gradients of line ...	213 8 9
<i>Cross Roads—</i>				Water supply bottom points ...	14 12 6*
Interlocking apparatus ...	9 18 0*			<i>Wallerawang—</i>	
<i>Penrith—</i>				Draining-yard ...	16 4 7*
Footbridge, Lemon Grove ...	164 0 2			<i>Sodwalls—</i>	
Level crossing...	88 7 11			Interlocking apparatus ...	205 18 10
PENRITH TO BATHURST.				<i>Tarana—</i>	
<i>Emu Plains—</i>				Weigh-bridge ...	269 4 2
Additional siding accommodation	55 1 2			Goods-shed ...	17 1 3*
New station (land, &c.) ...	114 6 11			<i>Locksley—</i>	
<i>Blaxland—</i>				Covering platform ...	26 1 4
Interlocking apparatus ...	266 8 4			<i>Brewongle—</i>	
<i>The Valley—</i>				Additions to night officer's cottage	92 3 10
Interlocking apparatus ...	242 11 0			<i>Raglan—</i>	
<i>Springwood—</i>				Interlocking apparatus ...	371 1 2
Alteration to house for Station-master ...	246 13 4			<i>Bathurst—</i>	
<i>Faulconbridge—</i>				Coal-stage ...	3,182 5 10
Interlocking apparatus ...	230 13 9			Quarters for drivers ...	1,251 1 9
<i>Linden—</i>				Overbridge ...	1,489 4 8
Signals.....	118 16 0			Interlocking apparatus ...	70 3 6
<i>Hazelbrook—</i>				Engine-shed ...	379 14 7
Waiting-shed ...	33 0 8			Alteration to refreshment room	143 19 8
<i>Lawson—</i>				BATHURST TO ORANGE.	
Additional siding accommodation	186 10 2			<i>Perth—</i>	
<i>Wentworth Falls—</i>				Interlocking apparatus ...	297 6 2
Additional siding accommodation	100 15 2			<i>Wimbledon—</i>	
Room for night officer ...	51 0 8			Residence for porter ...	135 6 11
<i>Katoomba—</i>				<i>Newbridge—</i>	
Additional siding accommodation	1,738 19 1			Stock-yards ...	218 13 2
Addition to platform ...	259 0 1			<i>Blayney—</i>	
<i>North's Siding—</i>				Additional coaling platform ...	35 1 1*
Interlocking apparatus ...	183 1 3			<i>Milthorpe—</i>	
<i>Medlow—</i>				New station ...	293 4 9
Interlocking apparatus ...	248 3 6			Stock-yards ...	22 16 5*
				<i>Huntley—</i>	
				Improving approach to siding ...	213 16 9

* Part cost only.

		No. 10a—continued.				
		£	s.	d.		
<i>Orange—</i>					<i>Siding—</i>	
House for station-master...	...	1,227	19	8	325 miles 29 chains	131 13 7
Water supply ...	...	142	11	2	<i>Nevertire—</i>	
Alterations in yard	...	376	9	9	Water supply ...	10 6 9*
ORANGE TO WELLINGTON.					Additions to stock yards ...	159 12 1
<i>Tanks—</i>					Ashpits ...	77 3 9
Tanks for Fettleers ...	...	98	3	1	Turntable ...	237 13 3
<i>Store Creek—</i>					<i>Nyngan—</i>	
Siding ...	...	13	14	2*	Refreshment room ...	92 4 5
Water-closet and urinals...	...	16	4	11*	Quarters for loco. men ...	25 1 6
<i>Mumbil—</i>					<i>Coolabah—</i>	
Room for night officer ...	...	196	13	1	Residence for Officer-in-charge ...	553 12 4
House for porter in charge	...	29	18	0	Goods platform ...	25 18 0
<i>Wellington—</i>					<i>Byrock—</i>	
Store-room for Locomotive Branch	...	134	18	9	House for pumper ...	444 6 7
Latrines for employees ...	...	36	9	5	<i>Wilga—</i>	
Additions to refreshment room ...	...	174	2	9	House for pumper...	284 15 9
<i>Springs—</i>					<i>Level Crossing—</i>	
Residence for night officer ...	...	23	18	1*	500 miles 40 chains	105 14 2
WELLINGTON TO DUBBO.					<i>Bourke—</i>	
<i>Ponto—</i>					House for pumper...	582 15 0
Room for night officer ...	...	44	4	8	Addition to stock yards ...	849 5 3
Additional siding accommodation	...	210	1	5	WALLERAWANG TO MUDGEES.	
<i>Murrumbidgee—</i>					<i>Main Camp—</i>	
Room for Night Officer ...	...	0	18	0*	Interlocking apparatus ...	192 15 1
<i>Dubbo—</i>					<i>Rylstone—</i>	
Stock platform ...	...	29	12	5	Turntable ...	502 8 8
DUBBO TO BOURKE.					ORANGE TO FORBES.	
<i>Manoa—</i>					<i>Borenore—</i>	
Lamp room ...	...	34	11	1	Siding ...	20 4 0
<i>286 miles 75 chains—</i>					Weighbridge ...	0 16 6*
Platform and siding	...	1,419	15	9	Crane ...	2 12 8*
<i>Narromine—</i>					£28,576 16 6	
Stock yards ...	...	332	3	6	EXCESS CREDITS.	
Ashpits ...	...	66	12	6	Siding—Pulpit Hill ...	£18 3 11
<i>Trangie—</i>					Hut sold, Emu Plains	2 0 0
Crane ...	...	71	15	3	20 3 11	
Weighbridge ...	...	223	6	8	£28,556 12 7	

* Part cost only.

SUMMARY.

	£	s.	d.
North and North-western Line ...	12,873	3	5
South and South-western Line, including Goulburn to Cooma, Murrumburrah to Blayney, and Cootamundra to Gundagai ...	35,872	1	1
Illawarra Line ...	2,493	2	10
Homebush to Waratah ...	464	2	9
Western Line, including Mudgee and Molong Branches	28,556	12	7
	£80,259	2	8

No. 11.

STATEMENT showing the COST OF CONSTRUCTION and COST PER MILE open on different Sections of the Railway Lines, to 31st December, 1887.

Lines opened for Traffic.	Length in Miles.	Total Cost.	Cost per Mile.
	No.	£	£
Darling Harbour Branch	1	240,627	240,627
Sydney to Granville	13	1,060,826	81,602
Haslem's Creek Branch	$\frac{1}{2}$	6,459	12,918
Granville to Wodonga	374 $\frac{1}{2}$	4,205,443	11,229
Junee to Hay	167	939,407	5,625
Narrandera to Jerilderie	65	406,351	6,251
Granville to Bourke	490	5,091,690	10,391
Wallerawang to Mudgee	85	948,249	11,156
Blacktown to Richmond	16	170,599	10,662
Goulburn to Michelago	87 $\frac{1}{4}$	840,000	9,627
Cootamundra to Gundagai	34	222,457	6,543
Orange to Molong	22	268,666	12,212
Murrumburrah to Cowra	61	500,000	8,197
Sydney to Waterfall, and Clifton to Kiama	58	970,000	16,724
Homebush to Hawkesbury, and Gosford to Waratah	79	1,286,470	16,284
Newcastle to Tenterfield	380	4,635,967	12,200
Werris Creek to Narrabri	97	553,877	5,710
Bullock Island Branch	1 $\frac{1}{2}$	64,262	42,841
Morpeth Branch	4	57,602	14,400
Average cost of construction	2,035 $\frac{1}{2}$	22,468,952	11,037
		£	
Pitt-street Tramway		4,878	
Rolling Stock		3,256,421	
Machinery		216,981	
Workshops—Redfern and Eveleigh		588,349	
Furniture		7,032	
		4,073,661	
Average cost per mile, including all charges	2,035 $\frac{1}{2}$	26,542,613	13,038

In rolling stock the cost of the Carriages and Waggons used on the Camden Line, and the cost of two Locomotive Engines used on the Sans Souci Line, is included, as the vehicles were those originally provided for Railway service. Total value of stock so used: Camden Line, £3,223; Sans Souci Line, £2,390—£5,613.

Between Sydney and Granville, including the Darling Harbour Branch, there are 52 $\frac{1}{2}$ miles of sidings, the cost of which is included in the amounts shown.

On the Bullock Island Branch there are 8 $\frac{1}{2}$ miles of sidings, the cost of which is included.

No. 12.

TABLE showing the number of MILES OPENED per annum, and the annual and average daily MILEAGE of TRAINS, from the commencement, on 26th September, 1855, to 31st December, 1887.

Year.	Opened per annum.	Total opened.	Total Train Mileage.	Average Daily Mileage.
1855	14	14	14,107	147
1856	9	23	68,371	187
1857	17	40	107,822	295
1858	15	55	141,495	388
1859	Nil	55	147,618	404
1860	15	70	179,249	491
1861	3	73	214,881	589
1862	24	97	274,565	752
1863	27	124	315,177	863
1864	19	143	415,422	1,138
1865	Nil	143	483,446	1,324
1866	Nil	143	490,475	1,344
1867	61	204	600,751	1,646
1868	43	247	768,529	2,106
1869	71	318	893,552	2,448
1870	21	339	901,139	2,469
1871	19	358	931,333	2,552
1872	40	398	1,036,255	2,839
1873	5	403	1,109,879	3,041
1874	Nil	403	1,249,233	3,423
1875	34	437	1,472,204	4,033
1876	72	509	1,688,064	4,627
1877	89	598	2,106,802	5,772
1878	90 $\frac{1}{2}$	688	2,655,176	7,274
1879	46	734	2,932,463	7,572
1880	115	849	3,239,472	8,851
1881	146	995	3,923,920	10,750
1882	273	1,268	4,851,127	13,291
1883	52	1,320	5,937,261	16,266
1884	298	1,618	6,403,041	17,543
1885	114	1,732	6,638,399	18,197
1886	157	1,889 $\frac{1}{2}$	6,479,265	17,752
1887	146 $\frac{1}{2}$	2,036	6,472,107	17,732

An average length of 61 $\frac{1}{2}$ miles opened per annum.

No. 13.

RETURN of EARNINGS from Traffic in Passengers and Goods during year 1887.

Year and Name of Railway.	Miles open for Traffic.	Gross Earnings from Coaching.							Gross Earnings from Goods.						Gross Earnings from all sources.	
		Passengers.			Excess-Luggage, Parcels, Cloak Room, Horses, Carriages, and Dogs.	Mails.	Miscellaneous.	Total from Coaching.	Live Stock.	Minerals.	Wool.	General Merchandise.	Miscellaneous.	Total from Goods.		
		1st and 2nd Class Passengers.	Holder's of Season Tickets.	Total from Passengers.												
1887.		£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
South and West	1,503	546,933 10 5	53,065 12 1	599,999 2 6	57,581 15 2	26,315 2 1	13,010 9 5	696,906 9 2	163,179 3 8	60,681 3 2	170,431 12 7	638,602 9 8	4,305 9 4	1,037,199 18 5	1,734,106 7 7	
North	533	108,826 4 5	3,544 11 9	112,370 16 2	16,785 14 1	13,665 12 8	5,770 11 4	153,592 14 3	19,132 1 11	80,942 18 3	58,345 5 4	160,788 1 9	1,387 4 6	320,595 11 9	474,188 6 0	
Total	2,036	655,759 14 10	56,610 3 10	712,369 18 8	74,367 9 3	44,980 14 9	18,781 0 9	850,499 3 5	182,311 5 7	141,624 1 5	228,776 17 11	799,390 11 5	5,692 13 10	1,357,795 10 2	2,208,294 13 7	
1886.																
South and West	1,407	554,510 2 11	49,363 1 8	603,873 4 7	54,507 11 1	37,855 19 0	11,038 0 5	707,274 15 1	164,792 5 0	61,751 13 6	122,117 11 1	652,595 11 8	3,830 0 5	1,005,087 1 8	1,712,361 16 9	
North	482½	103,750 9 9	2,760 5 6	106,510 15 3	16,335 4 10	13,131 18 8	5,999 15 8	141,977 14 5	24,956 12 11	78,349 9 6	43,661 6 9	156,674 0 7	2,038 15 4	305,739 5 1	447,707 19 6	
Total	1,889½	658,260 12 8	52,123 7 2	710,383 19 10	70,842 15 11	50,987 17 8	17,037 16 1	849,252 9 6	189,748 17 11	140,101 3 0	165,778 17 10	809,269 12 3	5,918 15 9	1,310,817 6 9	2,160,069 16 3	
Increase	146½	.....	4,436 16 8	1,935 18 10	3,524 13 4	.....	1,743 4 8	1,246 13 11	.....	1,522 18 5	62,098 0 1	.....	.....	46,978 3 5	48,224 17 4
Decrease .....	.....	2,500 17 10	.....	.....	.....	6,007 2 11	.....	.....	7,437 12 4	.....	.....	9,879 0 10	226 1 11	.....	.....

APPENDIX TO REPORT ON RAILWAYS—1887.

No. 14.

RETURN OF TRAFFIC in Passengers and Goods, the number of Trains run, and the number of miles travelled by Trains, 1887.

Year and Name of Railway.	Miles open for Traffic.	Coaching Traffic.								Goods Traffic.						Number of Trains.			Number of miles travelled by Trains.				
		Passengers.				Carriages.	Horses conveyed in Passenger Trains.	Dogs.	Horses conveyed in Goods Trains.	Cattle.	Sheep.	Pigs.	Mineral.	Wool.	General Merchandise.	Passenger.	Goods.	Total.	Passenger.	Goods.	Total Train miles.	Ballasting, Shunting, &c.	Total.
		First Class.	Second Class.	Total 1st and 2nd Class.	Season Tickets.																		
1887.		No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	Tons.	Bales.	Tons.	No.	No.	No.	No.	No.	No.	No.	No.
South and West.	1503	4,713,870	8,672,094	13,385,964	23,824	1,875	7,117	12,751	6,031	104,274	1,493,324	21,520	330,026	322,311	950,980	82,054	37,802	119,856	2,327,990	2,911,648	5,239,638	1,391,982	6,631,620
North	533	264,085	801,254	1,065,339	1,245	825	2,460	2,963	2,435	15,182	317,703	16,617	1,749,618	115,369	161,283	10,615	23,483	34,098	494,272	738,197	1,232,469	520,574	1,753,043
Total	2036	4,977,955	9,473,348	14,451,303	25,069	2,700	9,577	15,714	8,466	119,456	1,811,027	38,137	2,079,644	437,680	1,112,263	92,669	61,285	153,954	2,822,262	3,649,845	6,472,107	1,912,556	8,384,663
1886.																							
South and West.	1407	4,771,279	8,976,572	13,747,851	23,519	2,698	8,003	13,638	7,835	108,799	1,564,943	20,153	333,883	239,743	938,240	78,458	39,655	118,114	2,328,181	2,909,897	5,238,078	1,295,572	6,533,650
North	482½	265,571	868,182	1,133,753	1,030	967	2,516	3,401	2,231	23,909	389,219	13,658	1,649,194	84,203	162,519	10,737	23,035	33,772	436,790	804,397	1,241,187	492,551	1,733,738
Total	1889½	5,036,850	9,844,754	14,881,604	24,549	3,665	10,519	17,039	10,066	132,708	1,954,162	33,811	1,983,077	323,946	1,100,759	89,195	62,691	151,886	2,764,971	3,714,294	6,479,265	1,788,123	8,267,388
Increase, 1887...	146½	.....	.....	.....	520	...	...	...	...	...	.....	4,326	96,567	113,734	11,504	3,474	.....	2,068	57,291	.....	.....	124,433	117,275
Decrease, 1887...	....	58,895	371,406	430,301	...	965	942	1,325	1,600	13,252	143,135	....	.....	.....	.....	.....	1,406	.....	.....	64,449	7,158	.....	.....

No. 15.

RETURN of WORKING EXPENSES and ROLLING STOCK during year 1887.

Year and Name of Railway.	Miles open, 31 December.	Locomotive Power.		Carriage and Waggon Repairs.		Maintenance and Renewal of Way.		Traffic Charges, Coaching and Merchandise.		Compensation—Personal Injury, &c.		Compensation—Damage to and Loss of Goods.		Miscellaneous Working Expenditure and General Establishment.		Total Working Expenses.		Total Earnings.		Net Earnings.		Proportion per cent. of Expenditure to Total Earnings.	Rolling Stock on 31st Dec., 1887.														
		£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.		d.	No.	No.	No.	No.										
1887.																																					
South and West...	1,503	362,612	7	6	70,547	16	10	329,768	8	3	321,998	2	3	11,548	6	4	980	8	9	66,330	7	11	1,163,785	17	10	1,734,106	7	7	570,320	9	9	67'11	349	735	6,664	7,748	
North	533	80,795	11	10	13,089	12	9	67,429	10	5	112,940	7	0	580	5	0	94	12	11	19,044	3	4	293,974	3	3	474,188	6	0	180,214	2	9	61'99	77	272	2,134	2,483	
Total	2,036	443,407	19	4	83,637	9	7	397,197	18	8	434,938	9	3	12,128	11	4	1,075	1	8	85,374	11	3	1,457,760	1	12	2,208,294	13	7	750,534	12	6	66'01	426	1007	8,798	10,231	
1886.																																					
South and West...	1,407	358,250	1	1	79,407	10	8	360,802	11	1	318,215	3	0	5,827	5	7	834	6	3	59,458	7	8	1,182,795	5	4	1,712,361	16	9	529,566	11	5	69'07	329	682	6,391	7,402	
North	482½	89,395	3	1	17,301	9	4	71,568	15	5	112,285	18	9	845	5	0	136	1	3	18,664	2	11	310,196	15	9	447,707	19	6	137,511	3	9	69'28	77	258	1,973	2,308	
Total	1,889½	447,645	4	2	96,709	0	0	432,371	6	6	430,501	1	9	6,672	10	7	970	7	6	78,122	10	7	1,492,992	1	12	2,160,069	16	3	667,077	15	2	69'12	406	940	8,364	9,710	
Increase, 1887..	146½	4,437	7	6	5,456	0	9	104	14	2
Decrease, 1887	...	4,237	4	10	13,071	10	5	35,173	7	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

No. 16.

TRAMWAY LINES OPENED FOR TRAFFIC (CITY AND SUBURBAN).

RETURN showing the WORKING EXPENSES, NUMBER of PASSENGERS, EARNINGS, and ROLLING STOCK for years 1886 and 1887.

Year.	Miles opened for Traffic.	Miles travelled by Trains.	Working Expenses.							No. of Passenger Fares collected.	Earnings.			Net Earnings.	Proportion per cent. of Expenditure to Earnings.	Rolling Stock, 31 December, 1887.																									
			Locomotive Power.	Engine Repairs.	Maintenance and Renewal of Way.	Traffic Charges.	Compensation.	General Charges.	Total.		Passenger.	Miscellaneous.	Total.			Motors.	Cars.	Trucks.	Total.																						
			£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	No.	No.	No.	No.											
1887	29½	1,220,026	113,722	16	11	12,267	19	3	23,815	3	0	40,659	15	11	224	10	1	10,777	10	1	201,467	15	3	50,108,256	212,229	17	4	1,895	8	0	214,125	5	4	12,657	10	1	94'09	88	116	17	221
1886	27½	1,222,943	107,823	7	10	10,113	13	8	32,392	18	4	39,325	10	1	2,411	16	5	9,669	19	5	201,737	5	9	52,977,578	224,483	8	5	1,883	9	7	226,366	18	0	24,629	12	3	89'12	96	127	18	241
Increase, 1887	2	.....	5,899	9	1	2,154	5	7	.....	.....	.....	1,334	5	10	.....	.....	.....	1,107	10	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Decrease, 1887	...	2,917	.....	.....	.....	8,577	15	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

No. 17.

CAMDEN TRAMWAY.

RETURN of EARNINGS from Traffic in Passengers and Goods during the year 1887.

Year.	Miles open for Traffic.	Gross Earnings from Coaching Traffic.							Gross Earnings from Goods Traffic.						Gross Earnings from these Sources.	
		1st and 2nd Class Passengers.		Holder of Season Tickets.	Total from Passengers.	Excess-Luggage, Parcels, Cloak-room, Horses, Carriages, and Dogs.	Mails.	Miscellaneous.	Total from Coaching.	Live Stock.	Minerals.	Wool.	General Merchandise.	Miscellaneous.			Total from Goods.
		£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1887	7½	1,241 12 10	24 2 5	1,265 15 3	570 19 10	93 0 0	10 8 0	1,940 3 1	60 6 0	6 5 8	6 15 1	2,011 9 6	3 13 0	2,088 9 3	4,028 12 4	
1886	7½	1,217 2 7	3 8 4	1,220 10 11	486 13 2	.....	.....	1,847 4 1	60 15 0	5 14 0	14 8 0	1,804 13 2	.....	1,885 10 2	3,732 14 3
Increase, 1887 ...	.....	24 10 3	20 14 1	45 4 4	84 6 8	.....	10 8 0	92 19 0	.....	0 11 8	.....	206 16 4	3 13 0	202 19 1	295 18 1
Decrease, 1887 ...	.....	.....	.....	.....	.....	47 0 0	.....	.....	0 9 0	.....	7 12 11	.....	.....	.....	.....

RETURN of the TRAFFIC in Passengers and Goods, the number of Trains run, and the number of miles travelled by Trains, 1887.

Year.	Miles open for Traffic.	Coaching Traffic.							Goods Traffic.							Number of Trains.			Number of miles travelled by Trains.				
		Passengers.				Carriages.	Horses conveyed in Passenger Trains.	Dogs.	Horses conveyed in Goods Trains.	Cattle.	Sheep.	Pigs.	Minerals.	Wool.	General Merchandise.	Passenger.	Goods.	Total.	Passenger.	Goods.	Total Train miles.	Ballasting, Shunting, &c.	Total.
		First Class.	Second Class.	Total 1st and 2nd Class.	Season Tickets.																		
		No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	Tons.	Bales.	Tons.	No.	No.	No.	No.	No.	No.	No.	No.	
1887	7½	4,928	20,984	25,912	2	30	110	73	57	334	1,740	1,133	106	144	17,010	912	2,717	3,629	12,475	13,024	25,499	7,453	32,952
1886	7½	4,291	21,067	25,358	8	30	106	85	69	501	1,805	1,101	76	144	14,066	825	2,110	2,935	12,274	10,695	22,969	6,976	29,945
Increase, 1887...	.....	637	.....	554	.....	.....	4	.....	.....	.....	32	30	.....	2,944	87	607	694	201	2,329	2,530	477	3,007	
Decrease, 1887...	.....	.....	83	.....	6	.....	.....	12	12	167	65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

RETURN of Working Expenses and Rolling Stock, during the year 1887.

Year.	Miles open for Traffic.	Locomotive Power.	Carriage and Waggon repairs.	Maintenance and Renewal of Way.	Traffic Charges.	Compensation.	General Charges.	Total Working Expenses.	Total Earnings.	Net Earnings.	Proportion per cent. of Expenditure to total Earnings.	Rolling Stock on 31 December.			
												Engines.	Cars.	Trucks.	Total.
		£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.		No.	No.	Railway Stock used.	No.
1887	7½	965 17 1	62 3 1	783 6 6	251 12 8	.....	26 10 9	2,089 10 1	4,028 12 4	1,939 2 3	51.87	2	2	.....	4
1886	7½	858 19 2	58 1 2	898 17 7	374 17 9	20 0 0	23 3 0	2,233 18 8	3,732 14 3	1,498 15 7	59.84	2	2	.....	4
Increase, 1887 .....	.....	106 17 11	4 1 11	.....	.....	.....	3 7 9	.....	295 18 1	440 6 8	.....	.....	.....	.....	.....
Decrease, 1887 .....	.....	.....	.....	115 11 1	123 5 1	20 0 0	.....	144 8 7	.....	.....	7.97	.....	.....	.....	.....

No. 17a.

SANS SOUCI TRAMWAY (OPENED 10 SEPTEMBER, 1887).

RETURN of EARNINGS from Traffic in Passengers and Goods.

Year.	Miles open for Traffic.	Gross Earnings from Coaching Traffic.			Gross Earnings from Goods Traffic.			Gross earnings from these Sources.
		Total 1st & 2nd class passengers.	Excess-Luggage, Parcels, Cloak-room, Horses, Carriages, Dogs, &c.	Total from Coaching.	Coal.	General Merchandise.	Total from Goods.	
1887	5	£ s. d. 387 5 5	£ s. d. 0 10 9	£ s. d. 387 16 2	£ s. d. 1 18 9	£ s. d. 5 17 2	£ s. d. 7 15 11	£ s. d. 395 12 1

RETURN of the TRAFFIC in passengers and Goods, the number of Trams run, and the number of miles travelled by Trams, 1887.

Year.	Miles open for Traffic.	Coaching Traffic.			Goods Traffic.		Number of Trams Run.			Number of Miles Travelled by Tram.				Total.
		First Class.	Second Class.	Total.	Coal.	General Merchandise.	Passenger.	Goods.	Total.	Passenger.	Goods.	Total Tram Miles.	Ballasting, Shunting, &c.	
1887.....	5	No. 3,242	No. 19,895	No. 23,137	Tons. 39	Tons. 86	No. 815	No. 10	No. 825	No. 4,967	No. 854	No. 5,821	No. 2,486	No. 8,307

RETURN of Working Expenses and Rolling Stock during the year 1887.

Year.	Miles open for Traffic.	Locomotive Power.	Maintenance and Renewal of Way.	Traffic Charges.	General Charges.	Total Working Expenses.	Total Earnings.	Excess of Expenditure over Earnings.	Proportion per cent. of Expenditure to Total Earnings.	Rolling Stock to 31 Dec.		
										Engines.	Cars.	Total.
1887	5	£ s. d. 319 6 2	£ s. d. 86 2 5	£ s. d. 86 10 0	£ s. d. 1 17 11	£ s. d. 493 16 6	£ s. d. 395 12 1	£ s. d. 98 4 5	Per cent. 124.75	2	4	6

No. 18.

LIST OF TRAMWAY ROLLING STOCK received during the year ended 31st December, 1887.

Description and Class.	No.	Name of Maker.	Carrying capacity.	Weight.	Diameter of Wheels.	No. of Wheels.	Commenced to run.
Water Tank	3	Cooke and Webb	Gallons. 2,625	Tons cwt. qrs. 16 3 2	Feet. 2	8	9 November, 1887.

No. 19.

TOTAL number of Miles run by each Motor during the year ended 31st December, 1887.

No. of Motor.	Number of Miles run.		No. of Motor.	Number of Miles run.		No. of Motor.	Number of Miles run.		No. of Motor.	Number of Miles run.	
	m.	ch.		m.	ch.		m.	ch.		m.	ch.
1	25,375	28	26	16,353	56	51	10,486	18	76	4,830	13
2	25,297	74	27	.....	...	52	22,391	12	77	21,357	62
3	24,504	42	28	7,112	23	53	21,456	74	78	22,832	29
4	10,518	45	29	.....	...	54	11,682	16	79	16,034	59
5	20,665	73	30	14,897	1	55	11,394	21	80	23,394	20
6	21,458	3	31	1,381	23	56	23,829	10	81	18,866	34
7	16,568	47	32	2,354	47	57	21,430	55	82	24,802	78
8	12,117	31	33	848	34	58	21,632	70	83	13,250	5
9	22,611	31	34	13,801	9	59	13,330	71	84	20,478	76
10	24,749	63	35	10,731	47	60	25,802	78	85	19,890	61
11	.....	...	36	17,053	16	61	21,082	72	86	21,223	28
12	8,887	8	37	22,174	44	62	18,352	58	87	19,138	53
13	.....	...	38	19,451	60	63	24,055	23	88	21,798	34
14	18,672	24	39	25,845	45	64	23,040	60	89	16,903	67
15	19,215	15	40	20,346	36	65	14,821	7	90	27,160	18
16	.....	...	41	22,283	13	66	18,669	55	91	20,166	16
17	.....	...	42	7,954	1	67	17,948	79	92	18,228	55
18	20,362	3	43	4,474	11	68	30,003	32	93	25,484	25
19	95	70	44	14,244	50	69	19,309	42	94	21,585	31
20	70	42	45	23,033	64	70	8	73	95	28,246	18
21	278	73	46	18,013	23	71	3	33	96	22,162	33
22	.....	...	47	17,434	49	72	3	33	97	3,815	52
23	24,778	43	48	24,425	27	73	3	33			
24	33,003	25	49	18,609	41	74	8	33			
25	28,231	53	50	.....	...	75	10	19			
									Grand total.	1,482,698	17

No. 20.

WORKING EXPENSES.

SCHEDULES of Expenditure in Revenue Account, during the year ending 31st December, 1887.

Schedules.	South.	North.	Total.
LOCOMOTIVE BRANCH.			
GENERAL EXPENSES.			
Schedule No.	£ s. d.	£ s. d.	£ s. d.
1. Superintendence and office expenses	31,714 16 5	7,737 8 7	39,452 5 0
2. Repairs of offices, workshops, and buildings	719 13 1	203 12 8	923 5 9
3. Renewals of do do	943 2 1	69 6 2	1,012 8 3
4. Repairs of machinery, tools, and implements	7,527 12 11	1,843 6 3	9,370 19 2
5. Renewals of machinery	289 16 5	898 8 1	1,188 4 6
6. Lighting buildings and depôts	3,336 12 1	233 2 2	3,569 14 3
7. Casualties	1,068 19 5	3 6 0	1,072 5 5
8. Sundries	6,279 19 9	1,398 19 9	7,678 19 6
RUNNING EXPENSES.			
10. Wages of enginemen and firemen	121,016 2 10	25,737 17 4	146,754 0 2
11. Wages of cleaners, fuelmen, and shed labourers	41,204 14 0	8,015 5 9	49,219 19 9
12. Fuel	35,238 5 2	13,912 18 10	49,151 4 0
13. Running stores, exclusive of fuel	14,445 5 2	2,813 9 2	17,258 14 4
14. Cleaners' stores	3,551 7 8	914 0 4	4,465 8 0
15. Water supply	11,885 18 11	1,787 4 0	13,673 2 11
16. Renewals for water supply	794 3 6	202 6 10	996 10 4
REPAIRING EXPENSES.			
20. Repairs of engines	63,956 3 8	7,908 15 4	71,864 19 0
21. Renewals of engines	16,637 3 3	6,996 7 9	23,633 11 0
22. Improvements to engines	973 19 11	84 17 6	1,058 17 5
23. Casualties	1,028 11 3	34 19 4	1,063 10 7
CARRIAGES.			
30. Repairs of carriages	20,154 6 1	2,510 6 3	22,664 12 4
31. Renewals of carriages	7,886 19 1	4,032 14 6	11,919 13 7
32. Improvements to carriages	1,524 9 10	78 10 7	1,603 0 5
33. Casualties	2,231 2 4	71 2 5	2,302 4 9
WAGGONS.			
40. Repairs to waggons	19,877 5 11	2,454 2 2	22,331 8 1
41. Renewals of waggons	16,153 18 7	3,096 16 1	19,250 14 8
42. Improvements to waggons	2,472 7 0	716 14 2	3,189 1 2
43. Casualties	247 8 0	129 6 7	376 14 7
Total, Locomotive Branch	£ 433,160 4 4	93,885 4 7	527,045 8 11
PERMANENT WAY BRANCH.			
GENERAL EXPENSES.			
50. Superintendence and office expenses	30,805 2 10	6,856 10 5	37,661 13 3
51. Repairs of offices, workshops, and buildings	138 4 6	12 13 11	150 18 5
52. Renewals of do do	56 4 4	12 0 0	68 4 4
53. Repairs of machinery and tools and implements	4,984 1 6	1,213 3 6	6,197 5 0
54. Renewals of machinery	103 11 9	42 10 7	146 2 4
55. Lighting workshops and buildings	103 13 11	184 8 3	288 2 2
56. Casualties	819 7 0	68 18 5	888 5 5
57. Sundries	6,726 17 5	199 19 0	6,926 16 5
MAINTENANCE.			
60. Repairs of line, sidings, &c.	168,552 3 3	45,258 5 1	213,810 8 4
61. Renewal of ditto	57,178 8 5	4,822 12 10	62,001 1 3
62. Repairs of station buildings, platforms, gate-houses, wharves, signals, &c.	12,034 3 8	2,865 3 5	14,899 7 1
63. Renewals of station buildings, platforms, gatehouses, wharves, signals, &c.	7,083 2 7	330 5 5	7,413 8 0
64. Repairs of tunnels, viaducts, bridges, culverts, gates, fences, &c.	19,525 13 2	3,166 2 5	22,691 15 7
65. Renewals of do do do do do	11,603 10 7	524 7 0	12,127 17 7
66. Slips and flood repairs	7,064 18 10	1,098 12 9	8,163 11 7
67. Repairs of signals and interlocking machinery	2,308 8 7	401 5 11	2,709 14 6
68. Renewals of do do	670 15 2	372 11 6	1,043 6 8
69. Repairs of electric block arrangements	10 0 9	.....	10 0 9
Total, Permanent Way Branch	£ 329,768 8 3	67,429 10 5	397,197 18 8

No. 20—continued.

Schedules.	South.		North.		Total.	
	£	s. d.	£	s. d.	£	s. d.
TRAFFIC BRANCH.						
GENERAL EXPENSES.						
Schedule No.						
70. Management and office expenses.....	50,806	8 6	26,270	15 6	77,077	4 0
71. Wages of signalmen, switchmen, gatekeepers, &c.	21,805	8 0	13,836	11 2	35,641	19 2
72. Greasing and oiling goods and passenger stock	9,312	7 4	3,503	6 11	12,815	14 3
73. Line telegraphs.....	24,961	4 7	7,281	7 6	32,242	12 1
74. Repairs of station furniture, fittings, and implements (includes cranes and weighing machines)	2,363	5 11	253	7 6	2,616	13 5
75. Renewals of station furniture, fittings, and implements (includes cranes and weighing machines).....	7,079	10 8	913	8 9	7,992	19 5
76. Fuel and lighting (includes lamps, gas, &c.).....	20,721	9 2	3,716	3 8	24,437	12 10
77. Casualties	339	16 2	321	0 9	660	16 11
78. Sundries.....	9,498	19 3	2,716	16 8	12,215	15 11
COACHING CHARGES.						
80. Wages of clerks, guards, conductors, porters, &c.....	69,910	19 1	11,497	6 3	81,408	5 4
81. Compensation for personal injury	11,548	6 4	580	5 0	12,128	11 4
82. Sundries.....	525	1 10	703	18 5	1,229	0 3
GOODS CHARGES.						
90. Wages of clerks, guards, wharfingers, porters, &c.	87,698	1 5	25,477	15 2	115,175	16 7
91. Compensation for loss of, or damage to, goods.....	980	8 9	94	12 11	1,075	1 8
92. Steam cranes and staiths	224	17 0	15,071	4 8	15,296	1 8
93. Repairing tarpaulins.....	2,096	15 8	570	16 7	2,667	12 3
94. Renewing tarpaulins.....	4,183	8 7	463	4 6	4,646	13 1
95. Sundries.....	8,470	9 1	343	3 0	8,813	12 1
Total, Traffic Branch.....£	334,526	17 4	113,615	4 11	448,142	2 3
GENERAL CHARGES.						
100. Proportion of general establishment	11,642	17 4	3,656	17 1	15,299	14 5
101. Auditing.....	6,758	2 1	2,823	16 10	9,581	18 11
102. Store expenses	4,528	1 4	1,500	2 2	6,028	3 6
103. Office expenses and contingencies	1,116	9 8	146	1 8	1,262	11 4
104. Advertising and stationery, printing, &c.	7,036	1 8	2,096	11 2	9,132	12 10
105. Holidays.....	29,380	18 11	8,106	18 7	37,487	17 6
106. Half-pay.....	694	4 8	140	7 6	834	12 2
107. Compensation	652	8 7	.....	.....	652	8 7
108. Sundries.....	4,521	3 8	573	8 4	5,094	12 0
Total, General Charges.....£	66,330	7 11	19,044	3 4	85,374	11 3
Grand total, Working Expenses	£1,162,785	17 10	293,974	3 3	1,457,760	1 1

SUMMARY OF EXPENDITURE—1887.

	£	s. d.
Locomotive Branch.....	527,045	8 11
Permanent-way Branch	397,197	18 8
Traffic Branch	448,142	2 3
General Charges.....	85,374	11 3
Total, Expenditure.....	£1,457,760	1 1

No. 21.

ABSTRACT of the amount of WORKING EXPENSES on the different Lines during 1887 and 1886, and Increase and Decrease in 1887.

Heads of Expenditure.	1887.			1886.			Increase.			Decrease.		
	South and West.	North.	Total.	South and West.	North.	Total.	South and West.	North.	Total.	South and West.	North.	Total.
	£	£	£	£	£	£	£	£	£	£	£	£
Locomotive power and repairing engines	362,612	80,796	443,408	358,250	89,395	447,645	4,362	.....	4,362	.....	8,599	8,599
Carriage and waggon repairs	70,548	13,090	83,638	79,408	17,301	96,709	.....	.....	.....	8,860	4,211	13,071
Maintenance and renewal of way	329,769	67,429	397,198	360,802	71,569	432,371	.....	.....	.....	31,033	4,140	35,173
Traffic charges	321,998	112,940	434,938	318,215	112,286	430,501	3,783	654	4,437	.....	.....	.....
Compensation, personal	11,548	580	12,128	5,827	846	6,673	5,721	.....	5,721	.....	266	266
Compensation, goods	980	95	1,075	834	136	970	146	.....	146	.....	41	41
Miscellaneous	66,331	19,044	85,375	59,459	18,664	78,123	6,872	380	7,252	.....	.....	.....
Total	£ 1,163,786	293,974	1,457,760	1,182,795	310,197	1,492,992	20,884	1,034	21,918	39,893	17,257	57,150

No. 22.

TRAMWAYS—CITY AND SUBURBAN.

WORKING EXPENDITURE of City and Suburban Tramways during the Year ending 31st December, 1887.

LOCOMOTIVE BRANCH.		£	s.	d.	Locomotive Branch, brought forward		£	s.	d.
GENERAL EXPENSES.					<i>Per. Way Branch, brought forward.....</i>				
Schedule No.					PERMANENT WAY BRANCH—contd.				
1.	Superintendence and office expenses ...	6,614	7	2	MAINTENANCE.				
2.	Repairs of offices, workshops, and buildings	492	2	8	Schedule No.				
3.	Renewals of offices, workshops, and buildings	49	6	7	60.	Repairs of line, sidings, &c.	15,782	8	10
4.	Repairs of machinery, tools, and implements	2,140	17	0	61.	Renewal of line, sidings, &c.	2,882	12	3
5.	Renewals of machinery	3	10	5	62.	Repairs of station buildings, platforms, gate-houses, wharves, signals, &c. ...	169	6	11
6.	Lighting buildings and depôts	1,235	19	8	63.	Renewals of station buildings, platforms, gate-houses, wharves, signals, &c. ...	45	4	7
7.	Casualties	64	7	0	64.	Repairs of tunnels, viaducts, bridges, culverts, gates, fences, &c.	190	9	0
8.	Sundries	278	19	9	65.	Renewals of tunnels, viaducts, bridges, culverts, gates, fences, &c.	25	1	4
RUNNING EXPENSES.					66.	Slips and flood repairs	0	7	6
10.	Wages of enginemen and firemen	35,473	10	11	Total, Permanent Way Branch ...£				
11.	Wages of cleaners, fuelmen, and shed labourers	10,175	1	0			20,498	19	8
12.	Fuel	12,617	12	0	TRAFFIC BRANCH.				
13.	Running stores, exclusive of fuel	2,139	7	7	GENERAL EXPENSES.				
14.	Cleaners' stores	572	18	4	70.	Management and office expenses	5,354	5	8
15.	Water supply	1,931	10	5	71.	Wages of signalmen, switchmen, gate-keepers, &c.	6,731	7	7
16.	Renewals for water supply	618	7	1	72.	Greasing and oiling goods and passenger stock	448	15	4
17.	Sweeping roads, &c.	2,661	16	3	74.	Repairs of station furniture, fittings, and implements (includes cranes and weighing-machines)	20	2	1
REPAIRING EXPENSES.					75.	Renewals of station furniture, fittings, and implements (includes cranes and weighing-machines)	113	17	8
20.	Repairs of engines	33,140	12	10	76.	Fuel and lighting (includes lamps, gas, &c.)	2,282	10	5
21.	Renewals of engines	3,452	12	4	77.	Casualties	18	5	6
22.	Improvements to engines	21	14	6	78.	Sundries	1,243	5	1
23.	Casualties	38	3	5	79.	Sweeping roads	3,209	18	9
CARRIAGES.					COACHING CHARGES.				
30.	Repairs of carriages	10,478	19	1	80.	Wages of clerks, guards, conductors, porters, &c.	21,197	7	10
31.	Renewals of carriages	1,344	7	8	81.	Compensation for personal injury	224	10	1
32.	Improvements to carriages	352	15	3	82.	Sundries	40	0	0
WAGGONS.					Total, Traffic Branch...£				
40.	Repairs to waggons	63	9	4			40,884	6	0
41.	Renewals of waggons	25	0	5	GENERAL CHARGES.				
42.	Improvements to waggons	3	7	6	100.	Proportion of general establishment ...	1,296	10	5
Total, Locomotive Branch ...£					101.	Auditing	862	15	1
		125,990	16	2	102.	Store expenses	1,192	16	9
PERMANENT WAY BRANCH.					103.	Office expenses and contingencies	103	18	1
GENERAL EXPENSES.					104.	Advertising and stationery, printing, &c.	820	2	8
50.	Superintendence and office expenses ...	1,308	6	8	105.	Holidays	5,901	1	11
51.	Repairs of offices, workshops, and buildings	12	9	3	106.	Half-pay	280	14	9
53.	Repairs of machinery and tools and implements	26	6	11	108.	Sundries	319	10	5
55.	Lighting workshops and buildings	0	9	3	Total, General Charges...£				
56.	Casualties	10	8	4			10,777	10	1
57.	Sundries	45	8	10	Grand Total, Working Expenses ...£				
Total, General Expenses, Per. Way Branch, carried forward.							198,151	11	11
		1,403	9	3	SUMMARY OF EXPENDITURE.				
Total, Locomotive Branch, carried forward £									
		125,990	16	2			£	s.	d.
PERMANENT WAY BRANCH.									
GENERAL EXPENSES.									
50.	Superintendence and office expenses ...	1,308	6	8	Locomotive Branch.....	125,990	16	2	
51.	Repairs of offices, workshops, and buildings	12	9	3	Permanent-way Branch.....	20,498	19	8	
53.	Repairs of machinery and tools and implements	26	6	11	Traffic Branch.....	40,884	6	0	
55.	Lighting workshops and buildings	0	9	3	General Charges	10,777	10	1	
56.	Casualties	10	8	4	Total	£198,151	11	11	
57.	Sundries	45	8	10	Adjustments to be made:—				
Total, General Expenses, Per. Way Branch, carried forward.					Add $\frac{1}{2}$ of relaying Redfern Line, 1882.....				
		1,403	9	3	Add $\frac{1}{2}$ of relaying Crown-street Line, 1883.....				
Total, Locomotive Branch, carried forward £					Add $\frac{1}{3}$ cost of relaying with 70 lb. rails.....				
		125,990	16	2	Total expenditure				
		125,990	16	2	£201,467 15 3				

No. 23.

CAMDEN TRAMWAY.

WORKING EXPENDITURE during the Year ending 31st December, 1887.

LOCOMOTIVE BRANCH.		PERMANENT WAY BRANCH— <i>contd.</i>	
GENERAL EXPENSES.	£ s. d.	MAINTENANCE— <i>continued.</i>	£ s. d.
Schedule No.		Schedule No.	
4. Repairs of machinery, tools, and implements	1 12 8	64. Repairs of tunnels, viaducts, bridges, culverts, gates, fences, &c.	158 17 8
RUNNING EXPENSES.		66. Slips and flood repairs.....	1 17 6
10. Wages of enginemen and firemen	577 2 0	67. Repairs of signals	3 9 9
11. Wages of cleaners, fuelmen, and shed labourers	110 2 9	68. Renewals of signals and interlocking machinery	9 4 5
12. Fuel	110 14 11		
13. Running stores, exclusive of fuel	27 2 7	Total, Permanent Way Branch ...£	783 6 6
14. Cleaners' stores	13 11 0	TRAFFIC BRANCH.	
15. Water supply	36 0 8	GENERAL EXPENSES.	
REPAIRING EXPENSES.		70. Management and office expenses	9 1 9
20. Repairs of engines	89 10 6	72. Greasing and oiling goods and passenger stock	8 15 0
CARRIAGES.		75. Renewals of station furniture, fittings, and implements (includes cranes and weighing machines)	1 19 7
30. Repairs of carriages	58 8 6	76. Fuel and light (includes lamps, gas, &c.)	16 12 4
WAGGONS.		78. Sundries	3 18 2
40. Repairs to waggons	3 14 7	COACHING CHARGES.	
Total, Locomotive Branch	1,028 0 2	80. Wages of clerks, guards, conductors, porters, &c.	211 5 10
PERMANENT WAY BRANCH.		Total, Traffic Branch.....£	251 12 8
GENERAL EXPENSES.		GENERAL CHARGES.	
50. Superintendence and office expenses.....	81 10 8	102. Store expenses	5 7 1
55. Lighting workshops and buildings	0 1 10	105. Holidays.....	21 3 8
MAINTENANCE.		Total, General Charges	26 10 9
60. Repairs of line, sidings, &c.	469 1 10	Grand Total, Working Expenses £ 2,089 10 1	
61. Renewal of line, sidings, &c.	47 4 4		
62. Repairs of station buildings, platforms, gatehouses, wharves, signals, &c.	4 0 0		
63. Renewals of station buildings, platforms, gatehouses, wharves, signals, &c.	7 18 6		

SUMMARY OF EXPENDITURE.		
	£	s. d.
Locomotive Branch	1,028	0 2
Permanent-way Branch	783	6 6
Traffic Branch	251	12 8
General Charges	26	10 9
Total Expenditure.....	£2,089	10 1

No. 23a.

NORTH SHORE CABLE TRAMWAY.

WORKING EXPENDITURE during the year ending 31st December, 1887.

LOCOMOTIVE BRANCH.		PERMANENT WAY BRANCH.	
GENERAL EXPENSES.		MAINTENANCE OF WAY.	
Schedule No.	£ s. d.	Schedule No.	£ s. d.
C. 1. Superintendence and office expenses ...	54 13 3	50. Superintendence and office expenses ...	11 14 6
2. Repairs of offices, workshops, and buildings	149 13 7	51. Repairs of buildings.....	1 19 8
4. Repairs of machinery, tools, and implements.....	11 14 10	53. Tools and implements	3 0 3
5. Renewals of machinery	37 17 1	54. Repairs of lines, sidings, &c.	692 7 5
6. Lighting buildings and depôts	93 12 9	55. Renewals of line, sidings, &c.	4 12 9
8. Sundries	62 13 1	57. Casualties	1 0 4
RUNNING EXPENSES.		Total, Permanent Way Branch... £	
10. Wages of gripmen and stationary engine drivers	1,337 2 0		714 14 11
11. Wages of cleaners, firemen, pulley oilers, and running shed labourers.....	267 1 6	TRAFFIC BRANCH.	
12. Cost of fuel	681 17 8	60. Management and office expenses.....	17 2 0
13. Running stores for engines or cable (exclusive of fuel)	171 11 7	61. Greasing and oiling rolling stock.....	1 13 2
14. Cleaners' stores	0 8 5	62. Line telegraphs	18 5 0
15. Cost of water.....	95 9 7	63. Repairs of furniture, fittings, and implements	4 5 8
16. Cleaning grooves, &c.	72 4 10	65. Fuel and lighting	23 9 2
REPAIRING EXPENSES.		66. Wages of clerks, conductors, &c.	1,066 2 1
20. Repairs of stationary engines	73 16 10	69a. Cleaning grooves, &c.	93 17 5
23. Repairs of cable	35 6 10	Total, Traffic Branch	
24. Renewals of cable	825 11 4		£ 1,224 14 6
25. Repairs of running gear and other cable fittings	99 16 10	GENERAL CHARGES.	
26. Renewals of running gear and other cable fittings.....	89 7 9	70. Proportion of general establishment ...	41 0 10
27. Repairs of grippers	22 0 5	71. Auditing	7 12 10
28. Renewals of grippers	15 17 11	72. Store expenses	68 3 1
29. Repairs to water supply (pipes, &c.) ...	10 4 6	73. Office expenses and contingencies	1 17 7
30. Renewals of water supply.....	0 3 9	74. Advertising, stationery, &c.....	27 0 3
CARRIAGE REPAIRS.		75. Holidays	66 4 4
40. Repairs of carriages and dummies	387 2 11	76. Half-pay.....	5 8 0
41. Renewals of carriages and dummies ...	53 9 8	78. Sundries	52 18 2
43. Casualties	0 15 0	Total, General Charges	
Total, Locomotive Branch			£ 270 5 1
	£ 4,649 13 11	Grand Total, Working Expenses... £	
			6,859 8 5
SUMMARY OF EXPENDITURE.			
Locomotive Branch		£ s. d.	
Permanent Way Branch	4,649 13 11		
Traffic Branch	714 14 11		
General Charges	1,224 14 6		
	270 5 1		
Total Expenditure	£6,859 8 5		

No. 23b.

KOGARAH TO SANS SOUCI TRAMWAY.

WORKING EXPENDITURE during the Year ending 31st December, 1887.

LOCOMOTIVE BRANCH.		PERMANENT WAY BRANCH— <i>contd.</i>	
Schedule No	£ s. d.	Schedule No	£ s. d.
RUNNING EXPENSES.		MAINTENANCE.	
10. Wages of enginemen and firemen	182 15 6	60. Repairs of line, sidings, &c.	78 17 4
12. Fuel	69 11 7	Total, Permanent Way Branch .. £	86 2 5
13. Running stores, exclusive of fuel	10 10 6	TRAFFIC BRANCH.	
14. Cleaners' stores	4 16 8	COACHING CHARGES.	
REPAIRING EXPENSES.		80. Wages of clerks, guards, conductors, porters, &c.	86 10 0
20. Repairs of engines	51 11 11	Total, Traffic Branch	86 10 0
Total, Locomotive Branch	319 6 2	GENERAL CHARGES.	
PERMANENT WAY BRANCH.		102. Store expenses	1 17 11
GENERAL EXPENSES.		Total, General Charges	1 17 11
50. Superintendence and office expenses	7 5 1	Grand Total, Working Expenses .. £	493 16 6

SUMMARY OF EXPENDITURE.		£ s. d.
Locomotive Branch		319 6 2
Permanent Way Branch		86 2 5
Traffic Branch		86 10 0
General Charges		1 17 11
Total Expenditure		£493 16 6

No. 23c.

PLATTSBURG TRAMWAY.

WORKING EXPENDITURE during the year ending 31st December, 1887.

LOCOMOTIVE BRANCH.		TRAFFIC BRANCH.	
Schedule No	£ s. d.	Schedule No	£ s. d.
GENERAL EXPENSES.		GENERAL EXPENSES.	
1. Superintendence and office expenses	28 18 0	70. Management and office expenses... ..	55 13 2
4. Repairs of machinery, tools, and implements	7 6 3	71. Wages of signalmen, switchmen, gate-keepers, &c.	642 16 0
6. Lighting buildings and depôts	0 16 1	72. Greasing and oiling goods and passenger stock	11 15 9
7. Casualties	0 7 6	75. Renewals of station furniture, fittings, and implements (includes cranes and weighing machines)	4 5 8
8. Sundries	13 17 6	76. Fuel and lighting (includes lamps, gas, &c.)	54 13 4
RUNNING EXPENSES.		77. Casualties	5 8 2
10. Wages of enginemen and firemen	693 5 5	78. Sundries	124 17 10
11. Wages of cleaners, fuelmen, and shed labourers	313 3 1	79. Sweeping road	81 8 6
12. Fuel	437 17 8	COACHING CHARGES.	
13. Running stores, exclusive of fuel	47 13 3	80. Wages of clerks, guards, conductors, porters, &c.	416 0 4
14. Cleaners' stores	23 0 7	GOODS CHARGES.	
15. Water supply	11 10 1	90. Wages of clerks, guards, wharfingers, porters, &c.	0 14 6
REPAIRING EXPENSES.		Total, Traffic Branch	1,397 13 3
20. Repairs of engines	377 16 5	GENERAL CHARGES.	
21. Renewals of engines	135 14 6	100. Proportion of general establishment	32 9 9
23. Casualties	5 7 3	101. Auditing	2 5 7
CARRIAGES.		102. Store expenses	32 3 8
30. Repairs of carriages	55 6 11	103. Office expenses and contingencies	2 0 8
31. Renewals of carriages	57 14 10	104. Advertising and stationery, printing, &c.	29 16 2
32. Improvements to carriages	5 10 1	105. Holidays	51 14 11
33. Casualties	12 11 0	108. Sundries	0 11 0
Total, Locomotive Branch	2,227 16 5	Total, General Charges	151 1 9
PERMANENT WAY BRANCH.		Grand Total, Working Expenses .. £	4,127 10 7
GENERAL EXPENSES.		GENERAL CHARGES.	
50. Superintendence and office expenses	7 0 0	100. Proportion of general establishment	32 9 9
53. Repairs of machinery and tools and implements	1 4 6	101. Auditing	2 5 7
57. Sundries	5 18 6	102. Store expenses	32 3 8
MAINTENANCE.		103. Office expenses and contingencies	2 0 8
60. Repairs of line, sidings, &c.	264 15 3	104. Advertising and stationery, printing, &c.	29 16 2
61. Renewal of line, sidings, &c.	72 0 11	105. Holidays	51 14 11
Total, Permanent Way Branch	350 19 2	108. Sundries	0 11 0

SUMMARY OF EXPENDITURE.		£ s. d.
Locomotive Branch		2,227 16 5
Permanent Way Branch		350 19 2
Traffic Branch		1,397 13 3
General Charges		151 1 9
Total Expenditure		£4,127 10 7

No. 24.

STATEMENT of the Number and Class of Rolling Stock manufactured by different Contractors during the year 1887, Great Southern, Western, and Northern Lines.

Locomotives.											
Lines and Contractors.	Passenger.	Tank.	Goods.	Total.							
SOUTHERN AND WESTERN.											
Vulcan Foundry Co.....	12	.....	.....	12							
Henry Vale .....	.....	6	.....	6							
Beyer, Peacock, & Co. ....	.....	.....	2*	2							
	12	6	2	20							
NORTHERN.											
							
* One purchased from Fishburn & Co., and one from Monie & Co.											
Passenger Traffic.											
	Sleeping Cars, on Bogies.	First-class Cars, Ordinary, on Bogies.	Composite, Ordinary, on Bogies.	Second-class, Ordinary, on Bogies.	Composite Brake-vans (eight wheels).	Composite Brake-vans (six wheels).	Composite Brake-vans (four wheels).	Mail-vans.	Horse-boxes.	Carriage-trucks.	Total.
SOUTHERN AND WESTERN.											
Hudson Bros. (Limited)	2*	9	2	8	4	15	6	...	5	...	51
The Executor of S. Glasson .....	...	...	...	...	...	...	...	...	...	3	3
Total, Southern and Western	2	9	2	8	4	15	6	...	5	3	54
NORTHERN.											
Hudson Bros. (Limited) .....	...	...	...	...	...	...	...	6	10	...	16
Total, Northern .....	...	...	...	...	...	...	...	6	10	...	16
Total, all lines, during 1887	2	9	2	8	4	15	6	6	15	3	70
* One to replace No. 3 destroyed at Cootamundra.											
Goods Traffic.											
	D Waggon.	E Waggon.	G Waggon.	C Vans.	Powder-vans.	Sheep-vans.	Brake-vans.	Total Goods.			
SOUTHERN AND WESTERN.											
The Executor of S. Glasson.....	200	10	50	...	...	...	...	260			
Hudson Bros. (Limited) .....	...	...	...	10	2	...	...	12			
Burton—Carson Woods, Agent .....	...	...	...	...	...	1	...	1			
Waggon-builders (unemployed)	72*	...	...	...	...	...	...	72			
Total, Southern and Western	272	10	50	10	2	1	...	345			
NORTHERN.											
Hudson Bros. (Limited)	100	...	...	25	4	30	2†	161			
Total, Northern	100	...	...	25	4	30	2	161			
Total, all lines, during 1887	372	10	50	35	6	31	2	506			

* To replace others worn out. † To replace passenger brake-vans Nos. 5 and 12 worn out.

No. 25.*

RETURN showing descriptions and quantities of GOODS, LIVE STOCK, &c., carried on Great Southern, Western, and Northern Railways, for the year 1887.

Description of Goods.	Great Southern and Western.		Great Northern.	
	Tons.	Freight.	Tons.	Freight.
SUMMARY.		£ s. d.		£ s. d.
A Class	197,209	80,536 5 1	60,752	19,630 3 8
B „	41,912	47,987 1 8	14,629	20,118 7 7
1st Class	40,864	59,987 19 5	10,021	19,768 9 9
2nd „	25,577	51,569 16 1	11,773	19,395 16 1
3rd „	49,188	187,604 9 7	18,222	64,137 7 2
4th „	2,794	10,517 2 4	874	3,435 15 0
Miscellaneous Class	361,168	56,726 5 8	23,394	3,284 8 4
„ „ at truck rates	1,881	1,313 10 11	295	234 7 5
A „ „	80,848	59,839 4 3	4,402	3,557 3 4
Mixed Goods „	9,812	36,046 11 6	.....	.....
Coal	180,704	60,689 7 7	1,733,381	80,942 18 3
Gunpowder	267	2,066 4 10	105	638 11 8
Hay, straw, and chaff at truck rates.....	60,703	26,263 5 5	10,984	3,712 14 11
Meat at truck rates.....	12,222	4,023 18 1	186	145 16 0
Milk	1,923	2,331 8 6	.....	.....
Shale	26,141	8,720 2 0	237	118 12 0
Sugar at truck rates	5,076	15,455 14 3	1,711	4,880 9 11
Wool	55,948	170,438 7 8	21,135	58,345 5 4
	1,154,237	882,116 14 10	1,912,101	302,346 6 5
Less difference over-charges and special credits .....	.....	10,369 3 3	.....	2,270 1 1
		871,747 11 7	.....	300,076 5 4
Live stock	58,692	163,239 9 8	11,580	19,132 1 11
Demurrage, storage, weighing, use of cranes, &c. ...	.....	4,309 2 4	.....	1,387 4 6
Total	1,212,929	1,039,296 3 7	1,923,681	320,595 11 9
Departmental—				
Coal	149,322	65,997 2 7	16,237	6,449 18 7
General	33,631	31,251 18 9	3,698	3,522 6 10
Grand total	1,395,882	1,136,545 4 11	1,943,616	330,567 17 2

* Includes Camden and Sans Souci Lines.

REVENUE and EXPENDITURE of each Station for the year ending 31st December, 1887.

Stations.	No. of hands employed, including Station-masters	Total Expenditure.	No of Tickets issued.	Revenue from Coaching Traffic.	Goods.		Coal.		Hay, Straw, & Chaff		Wool.		Earnings from Goods Traffic.	Total Earnings.
					Tonnage outwards.	Tonnage inwards.	Tonnage outwards.	Tonnage inwards.	Trucks outwards.	Trucks inwards.	Bales outwards.	Bales inwards.		
SUBURBAN, ILLAWARRA, AND NORTH COAST RAILWAYS, INCLUDING SYDNEY.														
Central	9	£ 1,393 5 6	20,184	£ 44,492 5 11	.....	.....	.....	.....	.....	.....	.....	.....	.....	44,492 5 11
Darling Harbour	159	19,704 8 7	.....	.....	74,395	301,411	15,454	17,391	1,552	11,620	5,937	299,221	288,551 11 3	288,551 11 3
Sydney	314	40,558 3 5	1,344,862	177,193 12 8	156,861	5,494	613	145	95	.....	3,618	.....	28,417 5 4	205,610 18 0
Eveleigh	19	2,329 10 3	167,049	4,170 1 0	394	5,695	.....	37	.....	.....	.....	.....	350 13 8	4,520 14 8
Macdonaldtown	5	676 9 10	98,488	1,968 3 0	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,968 3 0
Newtown	18	2,453 19 2	247,754	6,913 16 10	2,625	51,477	214	43,122	.....	32	.....	139	24,049 16 10	30,963 13 8
Stanmore	7	980 11 6	85,439	3,030 3 5	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,030 3 5
Petersham	20	2,727 12 10	395,591	13,953 7 3	1,007	23,040	6	18,483	7	49	.....	.....	10,892 16 5	24,846 3 8
Lewisham	4	362 15 0	57,635	2,054 0 2	.....	.....	.....	.....	.....	.....	.....	.....	0 3 1	2,054 3 3
Summer Hill	11	1,280 17 5	245,298	10,491 12 7	.....	18	.....	.....	.....	.....	.....	.....	19 19 5	10,511 12 0
Ashfield	14	1,760 11 0	235,278	11,550 8 1	658	12,998	15	4,879	6	118	.....	.....	4,229 6 1	15,779 14 2
Croydon	9	1,169 12 9	134,281	6,771 4 10	1	14	.....	.....	.....	.....	.....	.....	24 2 11	6,795 7 9
Burwood	13	1,737 13 3	254,073	14,318 7 10	842	20,941	.....	9,445	12	379	.....	.....	6,288 8 6	20,606 16 4
Strathfield	8	1,140 17 5	67,382	4,705 1 2	.....	.....	.....	.....	.....	.....	.....	.....	.....	4,705 1 2
Homebush	14	1,941 8 5	58,947	4,661 7 5	980	6,117	.....	487	.....	47	.....	.....	133,657 18 9	138,319 6 2
Flemington	7	984 8 4	2,789	83 16 5	.....	.....	.....	.....	.....	.....	.....	.....	.....	83 16 5
Rookwood	8	1,178 10 2	67,098	3,322 1 5	452	4,942	.....	472	.....	32	.....	.....	894 0 9	4 216 2 2
Auburn	8	953 18 6	59,124	2,899 16 1	8,380	5,301	.....	4,581	.....	13	.....	.....	3,275 3 8	6,174 19 9
Granville	37	4,891 13 8	125,969	8,460 0 6	13,177	29,738	6	7,553	.....	131	906	1,574	11,912 4 10	20,372 5 4
Erskineville	3	403 6 8	60,162	1,553 5 1	.....	.....	.....	.....	.....	.....	.....	.....	0 6 0	1,553 11 1
St. Peters	7	911 14 2	88,710	2,206 16 3	.....	6	.....	6	.....	.....	.....	.....	3 7 4	2,210 3 7
Marrickville	6	816 14 10	94 614	2,716 0 2	752	2,496	17	9,562	3	11	.....	.....	3,815 17 2	6,531 17 4
Tempe	5	479 14 11	49,080	1,925 10 1	.....	6	.....	.....	.....	.....	.....	.....	7 16 10	1,933 6 1
Arncliffe	4	573 1 4	45,091	1,756 7 6	3	19	.....	.....	.....	1	.....	.....	6 5 9	1,762 13 3
Rockdale	5	720 17 6	87,617	3,773 3 6	148	7,872	.....	1,202	.....	26	.....	.....	1,331 9 7	5,104 13 11
Kogarah	5	530 8 7	71,868	3,228 5 11	90	1,683	.....	152	1	12	.....	.....	188 13 11	3,416 19 10
Carlton	2	264 14 7	12,875	582 18 6	.....	5	.....	.....	.....	.....	.....	.....	0 1 2	582 19 8
Hurstville	7	984 0 5	56,920	3,096 18 8	13,569	2,333	6	4,014	5	30	1	.....	3,017 3 6	6,114 2 2
Sutherland	2	294 2 4	24,708	1,905 2 9	5 830	2,786	4	20	1	17	.....	.....	212 6 8	2,117 9 5
Waterfall	4	492 19 7	20,937	2 542 2 11	1,987	7,235	.....	2,286	.....	94	.....	.....	3,169 16 3	5,711 19 2
Clifton	1	27 17 4	5,662	606 17 3	52	210	.....	.....	.....	10	.....	.....	95 18 8	702 15 11
Bulh	1	38 10 8	5,765	273 5 1	68	66	.....	.....	.....	.....	.....	.....	4 8 0	277 13 1
Wollongong	3	380 9 0	7,751	759 18 3	558	103	.....	.....	10	1	.....	.....	89 9 11	849 8 2
Dapto	.....	.....	91	2 8 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	2 8 10
Krama	.....	.....	705	170 13 6	.....	269	.....	.....	.....	.....	.....	.....	5 2 6	175 16 0
Ryde	2	377 19 8	14,022	837 1 2	196	6,005	.....	184	.....	54	.....	.....	351 7 6	1,188 8 8
Eastwood	1	130 0 0	7,414	878 7 6	1,446	541	.....	89	.....	8	.....	.....	104 7 7	982 15 1
Thornleigh	1	102 3 3	4,962	204 9 5	7,520	473	.....	2	.....	3	.....	.....	30 3 9	234 13 2
Hornsby	2	283 7 11	5 917	745 1 6	9,589	2,596	.....	132	3	25	.....	.....	1,257 5 2	2,002 6 8
Hawkesbury	2	279 1 9	7,395	1,758 10 7	146	1,414	.....	87	.....	.....	.....	.....	721 10 5	2,480 1 0
Total, 1887	748	96,197 11 6	4,338,607	352,562 11 0	301,729	503,334	16,335	124,331	1,696	12,713	10,462	300,935	526,976 9 2	879 539 0 2
Total, 1886	.....	.....	5,114,409	345,478 13 5	313 536	446,847	15,174	131,199	3,097	9,853	14,905	218,203	461,284 15 11	806,763 9 4

Stations.	No of hands employed, including Station-masters.	Total Expenditure.	No of Tickets issued.	Revenue from Tickets and Coaching Traffic	Goods.		Coal.		Hay, Straw, and Chaff.		Wool.		Earnings from Goods Traffic.	Total Earnings
					Tonnage outwards.	Tonnage inwards.	Tonnage outwards.	Tonnage inwards.	Trucks outwards.	Trucks inwards.	Bales outwards.	Bales inwards.		
GREAT SOUTHERN RAILWAY.														
		£ s. d.		£ s. d.									£ s. d.	£ s. d.
Merrylands	2	184 19 9	6,313	413 2 2	3,635	580	.....	1,300	.....	.....	.....	.....	634 1 7	1,047 3 9
Guildford	1	140 0 0	9,567	613 2 5	210	2,893	1	185	.....	2	.....	.....	521 7 0	1,134 9 5
Fairfield	4	573 13 7	31,631	2,957 13 10	5,730	3,943	.....	136	3	122	.....	.....	882 16 10	3,840 10 8
Cabramatta	1	140 0 0	6,999	434 19 7	3,943	676	.....	27	5	5	.....	.....	172 13 1	607 12 8
Liverpool	11	1 495 13 9	29,467	4,381 1 2	23,066	7,757	.....	6,530	48	70	8,620	9,010	6,774 10 0	11,155 11 2
Minto	1	140 0 0	5,728	581 10 4	17,835	1,051	.....	12	29	7	.....	.....	173 16 4	755 6 8
Campbelltown	10	1,218 4 2	23,223	4,648 5 0	3,977	3,991	.....	65	158	6	43	.....	1,625 17 10	6,274 2 10
Menangle	4	499 8 0	2,219	404 5 11	638	222	.....	.....	201	1	26	.....	143 7 3	547 13 2
Douglas Park	3	361 9 2	2,111	545 2 5	3,331	156	.....	.....	81	.....	9	7	125 15 7	670 18 0
Picton	12	1,427 18 11	5,204	1,863 12 7	1,661	1,602	6	31	118	5	.....	.....	1,205 15 1	3,129 7 8
Thirlmere	2	307 3 7	1,110	261 10 3	6,244	315	.....	.....	12	3	.....	.....	143 12 10	405 3 1
Bargo	2	250 0 0	284	39 19 2	1	407	.....	.....	.....	.....	.....	.....	94 13 7	134 12 9
Hilltop	2	297 5 1	605	91 19 3	528	40	.....	.....	.....	.....	.....	.....	25 8 0	117 7 3
Colo Vale	2	270 0 0	1,029	166 0 11	707	75	.....	.....	.....	1	.....	.....	30 9 1	196 10 0
Mittagong	8	1,036 19 9	8,938	3,890 9 10	25,412	3,607	3,850	194	26	18	43	.....	11,886 13 7	15,777 3 5
Bowral	5	641 13 9	8,718	3,302 16 6	4,744	4,463	12	467	.....	61	6	.....	3,436 6 2	6,739 2 8
Moss Vale	7	897 0 2	9,781	5,340 2 6	3,291	6,457	2,347	500	12	46	46	.....	5,089 16 6	10,429 19 0
Bundanoon	3	326 14 2	2,190	522 5 11	1,516	414	.....	11	.....	6	3	.....	218 0 10	740 6 9
Wingello	2	270 0 0	1,037	196 7 4	1,846	68	.....	.....	.....	.....	.....	.....	124 4 7	320 11 11
Marulan	4	574 11 6	3,341	1,105 18 3	6,992	937	6	.....	255	3	488	.....	1,044 12 8	2,150 10 11
Towrang	2	250 16 0	1,864	229 13 0	3,789	557	.....	19	.....	1	601	42	159 11 4	389 4 4
Goulburn	40	4,881 14 4	27,511	18,839 4 2	29,831	31,960	6	7,118	460	63	5,828	164	42,512 16 6	61,352 0 8
Breadalbane	3	322 16 6	2,127	640 13 8	2,235	1,573	.....	.....	27	.....	270	.....	395 0 0	1,035 13 8
Gunning	5	551 1 6	3,406	1,463 17 4	1,304	1,044	.....	12	44	.....	1,545	.....	1,721 9 8	3,185 7 0
Jerrawa	3	351 18 10	538	139 5 10	185	42	.....	.....	23	.....	66	.....	19 11 5	158 17 3
Yass	5	637 11 2	4,720	3,792 2 10	1,507	3,942	16	52	20	.....	2,704	24	6,175 10 9	9,967 13 7
Bowning	3	396 11 3	1,193	549 19 6	410	542	.....	.....	16	.....	2,123	.....	1,137 0 2	1,686 19 8
Binalong	5	542 3 6	2,672	1,652 8 10	772	998	.....	.....	7	.....	3,160	.....	3,003 9 7	4,655 18 5
Rocky Ponds	2	238 17 4	329	86 4 0	297	41	.....	.....	.....	.....	4	.....	4 2 9	90 6 9
Harden	11	1,470 9 7	7,235	3,653 7 5	1,161	1,066	6	32	134	3	1,988	.....	1,854 6 7	5,507 14 0
Murrumburrah	2	266 7 0	5,659	2,208 2 11	4,597	4,082	.....	101	39	1	261	.....	3,558 18 10	5,767 1 9
Demondrille	2	260 0 0	38	1 3 5	55	18	.....	.....	23	.....	.....	.....	8 4 1	9 7 6
Nubba	1	117 6 5	421	117 15 7	986	133	.....	.....	126	.....	119	.....	63 7 8	181 3 3
Wallendbeen	4	516 7 9	1,746	688 19 2	2,018	620	.....	12	35	.....	1,592	5	950 14 3	1,939 13 5
Cootamundra	10	1,320 5 7	12,032	7,149 13 11	7,536	6,752	.....	62	43	2	4,502	32	11,001 2 4	18,150 16 3
Bethungra	3	330 11 6	1,489	525 10 3	1,254	370	.....	.....	.....	.....	881	.....	411 13 4	937 3 7
Illabo	3	300 8 7	1,064	340 7 5	876	190	.....	.....	.....	.....	772	.....	216 1 1	556 8 6
Junce Junction	18	2,210 6 6	12,191	8,249 17 0	1,733	3,744	.....	356	41	9	927	.....	4,486 16 3	12,736 13 3
Harefield	2	218 6 8	568	106 11 7	472	105	.....	.....	36	.....	577	.....	74 1 9	180 13 4
Bomen	2	230 18 3	534	193 16 1	63	55	.....	.....	152	.....	758	.....	162 2 3	355 18 4
Wagga	11	1,545 16 7	13,082	10,364 8 11	11,375	16,820	.....	1,175	272	12	6,339	41	24,234 9 5	34,598 18 4
Sandy Creek	1	140 0 0	892	158 6 10	1,572	83	.....	.....	12	.....	663	.....	29 1 0	187 7 10
The Rock	3	396 16 0	2,704	980 14 3	1,453	510	.....	10	3	.....	3,894	.....	459 5 1	1,439 19 4
Yerong Creek	3	406 3 8	2,832	1,345 18 7	768	678	.....	.....	1	.....	3,005	.....	558 6 5	1,904 5 0
Culcairn	4	470 1 10	4,286	1,469 2 2	1,870	1,125	.....	.....	3	1	1,770	2	969 11 8	2,438 13 10
Gerogery	3	398 11 2	1,709	475 16 0	4,975	578	.....	.....	7	.....	507	.....	512 11 6	988 10 6
Yambla	1	140 0 0	772	314 11 4	913	125	.....	.....	6	108	.....	.....	87 14 0	402 5 4
Albury and Platforms	23	2,863 1 8	26,922	13,235 14 1	8,730	12,592	1	620	24	4	12	6,225	8,211 13 1	21,447 7 2

Stations	No of hands employed, including Station-masters.	Total Expenditure.	No of Tickets issued.	Revenue from Tickets and Coaching Traffic	Goods		Coal		Hay, Straw, and Chaff.		Wool.		Earnings from Goods Traffic.	Total Earnings
					Tonnage outwards.	Tonnage inwards.	Tonnage outwards.	Tonnage inwards.	Trucks outwards	Trucks inwards	Bales outwards.	Bales inwards		
GREAT SOUTHERN RAILWAY—continued.														
Tarago and Platforms	3	£ 344 7 9	3,921	£ 2,327 8 10	2,470	2,066	.. ..	18	156	14	1,378	13	£ 1,519 12 8	£ 3,847 1 6
Bungendore	6	620 3 7	5,045	4,245 12 11	1,034	12,908	33	922	68	6	3,889	..	14,396 4 3	18,641 17 2
Queanbeyan	3	166 4 10	1,354	1,139 2 8	602	1,915	6	284	10	4	2,408	21	3,691 2 3	4,830 4 11
Michelago	2	17 14 0	333	341 9 5	.. 11	1,051	.....	.....	.....	2	1,873	..	870 14 2	1,212 3 7
Coolac	2	156 1 5	1,714	588 12 5	1,625	934	.....	.....	1	..	1,644	..	516 0 6	1,104 12 11
Gundagai	4	496 6 4	3,679	4,329 10 8	3,907	2,975	..	54	6	..	3,639	.....	11,755 5 6	16,084 16 2
Young	6	818 8 9	7,337	5,755 10 3	6,436	7,245	..	80	39	..	15,570	82	16,958 6 7	22,713 16 10
Cowra	3	466 4 4	2,413	2,298 7 5	2,620	4,410	..	56	4	3	5,041	.....	11,542 6 10	13,840 14 3
Old June	2	295 8 3	1,167	330 7 6	2,770	897	..	61	....	3	3,978	.....	1,791 15 0	2,122 2 6
Coolaman	2	311 14 2	1,960	1,079 2 8	5,061	1,197	..	6	13	3	2,832	.....	2,030 15 8	3 109 18 4
Grong Grong	1	140 0 0	1,904	606 13 0	3,047	474	..	6	..	11	3,168	10	251 17 8	858 10 8
Narrandera	8	1,046 7 4	7,516	5,939 17 0	2,135	3 582	.....	45	12	34	5,888	1,490	8,922 3 0	14,812 0 0
Yanco	1	139 8 8	226	80 19 7	27	113	..	..	21	..	1,299	..	223 11 9	304 11 4
Whitton	3	330 1 4	2,043	1,428 3 4	87	1,411	.....	6	2	11	8,717	..	3,642 14 8	5,070 18 0
Bringagee	1	130 0 0	431	226 17 3	2	132	..	..	..	..	392	..	43 1 10	269 19 1
Darlington	2	208 3 6	1,007	559 9 8	18	300	..	..	..	..	2,098	..	1,322 12 0	1 882 1 8
Carrathool	3	356 13 1	2,259	1,768 14 2	103	1,328	..	..	3	5	4,080	..	3,052 11 2	4,821 5 4
Hay	6	942 7 6	4,137	6,476 19 1	347	5,923	..	486	4	34	4,149	30	14,234 9 10	20,711 8 11
Colombo	1	164 12 8	1,617	851 0 11	1,313	625	..	2	36	1	1,604	2	562 19 1	1,414 0 0
Jerilderie and Platforms ..	2	231 9 9	1,948	1,285 18 2	1,091	2,231	..	51	62	1	8,089	3	2,936 4 10	4,222 3 0
Melbourne .. ..	..	.....	22,205	28,532 11 11	8,915	1 356	..	..	..	..	.....	..	255 16 6	28 788 8 5
Adelaide .. ..	..	.....	21	5 18 2	..	..	..	..	..	..	.....	..	.....	5 18 2
Camden	2	271 0 5	11,661	1,776 5 8	11,057	2,645	..	112	819	7	.....	22	1,810 17 11	3 587 3 7
Total, 1887	324	40,580 18 1	385,929	182,708 4 1	262,722	185,067	6,292	21,199	3,933	588	135,910	17,328	249,723 17 10	432,432 1 11
Total, 1886 .. ..	.....	.....	463,058	182,985 0 7	233,708	196,988	6,164	21,489	3,183	2 792	108,635	19,283	259,490 2 6	442,475 3 1
GREAT WESTERN RAILWAY.														
Parramatta	24	3,263 11 3	221 422	18,118 3 9	12,680	20,896	112	7,148	18	560	1	65	8,576 14 9	26,694 18 6
Seven Hills	2	311 9 4	8,854	714 2 8	6,466	1,380	..	342	.....	5	..	..	799 0 2	1,513 2 10
Blacktown	6	995 13 7	8,604	1,158 12 2	3,158	1,224	.....	57	33	9	..	..	6,587 19 3	7,746 11 5
Rooty Hill	4	513 0 4	7,464	1,143 18 10	14,833	1,727	.....	44	9	5	..	..	570 5 8	1 714 4 6
Mt Drutt	1	127 15 0	2,546	274 18 7	5,233	318	..	1	2	7	..	..	41 14 11	316 13 6
St. Mary's	4	611 6 11	9,801	1,346 18 5	23,277	4,253	.....	440	21	35	1	..	1,979 0 2	3,325 18 7
Penrith	25	2,999 6 1	21,448	4,701 2 3	25,267	5,567	13	899	240	37	8	..	3,032 2 2	7,733 4 5
Emu Plains	5	615 3 6	3,311	532 11 11	52,561	372	..	411	42	6	..	..	2,457 7 4	2,989 19 3
Glenbrook	5	578 7 7	730	133 4 5	126	50	..	..	..	..	..	..	23 19 3	157 3 8
Springwood	4	456 17 6	3,762	862 16 11	183	1,221	..	74	5	2	..	..	434 6 9	1,297 3 8
Linden	2	247 7 10	589	69 6 10	29	203	.....	50	..	5	..	..	34 3 4	103 10 2
Lawson	3	373 4 4	2,982	591 19 8	21	518	..	56	..	7	..	..	303 19 11	895 19 7
Wentworth Falls	2	232 12 1	1,855	266 12 11	95	607	..	26	..	9	..	..	301 4 8	567 17 7
Katoomba	7	831 19 7	7,674	1,969 15 6	157	3,127	28,450	187	1	39	..	..	1,928 2 11	3,897 18 5
Blackheath	3	385 4 1	4,367	868 18 9	681	1,451	3	445	2	29	..	..	978 13 7	1,847 12 4
Mt. Victoria	9	1,205 13 11	6,752	2,358 13 3	172	2,489	.....	448	.....	10	312	..	1,428 6 0	3,786 19 3
Hartley Vale .. ..	..	32 10 0	778	45 14 9	8,884	1,354	10,144	93	7	1	2	..	98 6 11	98 6 11
Mt. Wilson	2	209 15 0	765	271 1 8	353	113	..	17	..	2	..	..	96 2 9	367 4 5
Clarence	2	260 0 0	592	85 9 9	409	194	..	114	..	4	..	..	36 8 1	121 17 10
Zig Zag	4	495 12 6	135	35 3 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	35 3 6

Stations	No of hands employed, including Station masters	Total Expenditure.	No of Tickets issued	Revenue from Tickets and Coaching Traffic	Goods.		Coal		Hay, Straw, and Chaff		Wool.		Earnings from Goods Traffic.	Total Earnings.
					Tonnage outwards	Tonnage inwards.	Tonnage outwards	Tonnage inwards.	Trucks outwards.	Trucks inwards	Bales outwards	Bales inwards.		
GREAT WESTERN RAILWAY—continued.														
		£ s. d.		£ s. d.									£ s. d.	£ s. d.
Esk Bank	20	2,236 1 7	5,548	2,030 18 3	5,112	4,721	117,205	200	2	58	6	.....	5,725 17 3	7,756 15 6
Lithgow	2	213 17 3	4,321	1,569 17 9	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,569 17 9
Bowenfels	4	498 12 3	1,740	750 4 1	132	452	9	.....	7	1	56	290	709 8 0	1,459 12 1
Wallerawang	15	1,767 9 3	6,438	2,146 7 10	499	1,144	7	.....	71	2	89	6	1,076 12 2	3,223 0 0
Rydal	7	912 19 9	2,822	930 7 3	1,674	3,778	.....	2,133	42	14	76	.....	3,687 13 7	4,618 0 10
Tarana	4	530 6 0	2,546	1,047 12 3	764	798	.....	31	90	2	697	.....	911 10 7	1,959 2 10
Locksley	2	251 17 6	800	177 0 10	856	38	.....	.....	128	.....	27	.....	18 9 1	195 9 11
Brewongle	5	638 13 11	2,565	536 9 1	1,364	370	.....	170	552	.....	209	.....	507 19 6	1,044 8 7
Raglan	2	282 10 6	835	156 14 8	190	218	.....	112	643	.....	78	.....	170 6 0	327 0 8
Kelso	7	847 6 4	2,167	881 6 1	392	1,030	.....	214	1,336	2	821	4	2,475 17 2	3,357 3 3
Bathurst	37	4,674 1 11	27,561	14,338 2 9	7,311	19,956	11	10,278	456	16	1,809	187	24,569 14 5	38,907 17 2
Perth	2	249 10 0	4,424	465 6 10	1,777	632	.....	40	628	1	878	.....	956 9 0	1,431 15 10
George's Plains	3	368 17 9	3,552	441 9 5	685	134	.....	13	181	.....	40	.....	106 16 0	551 5 5
Wimbleton	2	244 0 5	1,450	255 6 8	1,978	104	.....	.....	74	2	234	.....	64 3 2	319 9 10
New bridge	5	631 5 1	5,424	1,361 6 10	2,435	985	.....	.....	551	1	949	.....	1,562 4 5	2,923 11 3
Blayney	10	1,224 14 3	9,914	4,800 15 7	3,316	5,244	.....	1,652	520	.....	2,108	4	8,664 7 4	13,465 2 11
Millthorpe	4	593 16 2	5,253	1,064 2 2	5,253	3,752	.....	367	531	.....	1,020	.....	1,461 4 2	2,525 6 4
Spring Hill	4	487 7 2	3,773	636 13 10	1,092	399	.....	25	239	.....	113	.....	314 3 2	950 17 0
Orange	31	3,683 9 5	22,292	11,662 17 6	9,458	14,430	19	3,266	726	100	1,070	5	20,672 12 0	32,335 9 6
Mullion Creek	2	261 7 11	1,074	217 18 6	2,271	105	.....	.....	9	.....	67	.....	66 9 4	284 7 10
Kerr's Creek	2	260 0 0	833	203 1 4	818	45	.....	.....	.....	1	30	.....	33 4 7	236 5 11
Warne	2	238 10 7	1,296	424 16 11	452	180	.....	.....	.....	21	501	39	199 14 11	624 11 10
Store Crook	3	280 11 11	354	61 3 2	.....	4	.....	.....	3	.....	.....	.....	2 9 9	63 12 11
Ironbarks	3	327 0 4	2,215	669 6 4	108	455	.....	14	.....	2	130	.....	654 18 6	1,324 4 10
Mumbul	2	239 6 7	1,423	288 15 5	529	351	.....	.....	.....	.....	713	.....	362 13 1	651 8 6
Springs	2	253 14 6	1,087	313 0 2	594	84	.....	.....	10	.....	280	.....	143 7 4	456 7 6
Wellington	13	1,808 0 0	5,849	4,075 16 4	3,825	3,873	.....	101	83	1	2,063	1	6,049 4 10	10,125 1 2
Mary Vale	2	238 6 8	835	161 13 3	293	75	.....	.....	131	.....	70	.....	169 15 6	331 8 9
Ponto	2	217 18 1	1,030	311 19 7	1,933	68	.....	.....	4	.....	164	.....	85 14 10	397 4 5
Murrumbidgee	2	251 18 5	978	278 5 10	1,107	148	.....	.....	.....	.....	809	.....	153 19 8	432 5 6
Dubbo	27	3,563 9 7	10,702	11,880 3 7	3,596	9,238	.....	786	80	5	16,242	184	23,300 15 0	35,180 18 7
Narromine	3	529 6 9	2,346	927 2 11	1,702	602	.....	.....	44	.....	2,526	.....	957 2 9	1,884 5 8
Triange	3	412 10 2	2,127	1,407 0 6	1,913	820	.....	.....	.....	9	7,913	.....	1,678 14 7	3,085 15 1
Nevertire	9	978 5 6	3,441	4,018 18 5	644	2,578	.....	6	.....	15	17,043	68	7,474 9 10	11,493 8 3
Mullengudgery	2	214 5 8	340	230 10 6	15	163	.....	.....	.....	.....	692	.....	837 19 2	1,068 9 8
Nyngan	12	1,612 5 7	4,460	7,266 17 8	3,461	5,814	.....	30	.....	98	23,587	764	19,889 4 2	27,156 1 10
Girilambone	2	308 11 0	799	768 18 3	59	318	.....	.....	.....	.....	5,239	.....	1,109 14 3	1,878 12 6
Coolabah	2	354 18 1	600	621 16 0	3,354	582	.....	3	.....	2	3,752	.....	1,870 12 2	2,492 8 2
Byrock	4	582 14 2	1,940	2,726 1 6	130	1,187	.....	.....	1	9	6,176	.....	4,268 14 9	6,994 16 3
Bourke	19	2,565 16 5	4,328	10,935 5 2	1,400	15,183	.....	231	1	163	47,431	446	54,130 18 6	65,066 3 8
Boenote	6	706 9 0	2,526	669 5 4	4,177	2,423	.....	7	109	.....	10,740	.....	8,095 4 10	8,764 10 2
Molong	4	642 9 5	4,035	2,343 1 0	5,403	2,917	.....	145	135	.....	5,623	.....	8,357 5 2	10,700 6 2
Piper's Flat	2	239 4 0	710	157 11 3	71	168	276	433	11	2	17	.....	963 2 6	1,120 13 9
Capertee	2	259 17 7	953	551 0 6	4,736	978	408	575	26	.....	383	.....	532 16 5	1,083 16 11
Rylstone	4	456 17 3	2,218	1,484 4 4	495	895	1,404	115	35	.....	841	.....	1,512 4 8	2,996 9 0
Mudgee	10	1,334 2 9	5,577	5,938 15 6	6,359	4,872	4	1,837	319	.....	9,465	.....	15,116 0 5	21,054 15 11
Total, 1887	426	54,091 13 8	491,932	139,737 15 5	246,767	157,862	158,065	33,838	8,146	1,302	173,110	2,064	261,343 12 4	401,081 7 9
Total, 1886 ... ..	.....	.....	626,304	141,633 0 7	235,335	179,151	161,022	28,417	8,425	2,585	114,379	1,133	281,743 4 2	423,376 4 9

Stations.	No. of hands employed, including Station-masters.	Total Expenditure.	No. of Tickets issued.	Revenue from Tickets and Coaching Traffic.	Goods.		Coal.		Hay, Straw, and Chaff.		Wool.		Earnings from Goods Traffic.	Total Earnings.
					Tonnage outwards.	Tonnage inwards.	Tonnage outwards.	Tonnage inwards.	Trucks outwards.	Trucks inwards.	Bales outwards.	Bales inwards.		
WINDSOR AND RICHMOND RAILWAYS.														
Riverstone	2	222 0 1	8,510	1,106 5 4	28,396	2,242	.....	542	8	4	1,828	1,742	5,906 6 5	7,012 11 9
Mulgrave	1	134 17 4	2,566	466 10 1	4,889	654	.....	111	229	5	951	194	299 15 5	766 5 6
Windsor	5	708 7 8	15,088	2,980 3 5	3,782	3,694	9	568	489	65	2	.....	1,906 19 5	4,887 2 10
Clarendon	1	140 0 0	1,434	282 5 4	228	77	.....	6	36	6	.....	.....	77 11 7	359 16 11
Richmond	5	576 5 7	10,368	2,602 10 1	6,967	2,550	.....	106	175	29	.....	.....	1,608 19 5	4,211 15 6
Total, 1887	14	1,781 10 8	37,966	7,438 0 3	44,262	9,217	9	1,333	937	109	2,781	1,936	9,799 12 3	17,237 12 6
Total, 1886 .....	.....	.....	47,641	7,625 3 6	48,928	8,521	9	1,264	663	138	1,824	1,124	10,747 5 5	18,372 8 11
GREAT NORTHERN RAILWAY.														
Central Office .....	.....	.....	829	3,955 10 9	.....	.....	.....	.....	.....	.....	.....	.....	.....	3,955 10 9
Newcastle	211	29,605 19 6	106,198	28,160 2 5	49,936	24,623	513	1,714,789	381	1,584	613	71,911	124,493 7 6	152,653 9 11
Honeysuckle Point	16	2,122 6 4	48,713	3,600 13 0	3,909	6,459	.....	158	3	123	1	1	1,947 6 0	5,547 19 0
Bullock Island .....	.....	.....	.....	91 1 6	4,605	1,812	97	12	.....	19	.....	.....	1,232 9 1	1,323 10 7
Hamilton	13	1,704 2 5	51,536	2,651 6 10	839	4,162	9	118	2	144	366	989	1,214 19 2	3,866 6 0
Hamilton Weighbridge .....	.....	.....	.....	.....	9,785	.....	1,720,354	.....	.....	.....	.....	.....	.....	.....
Waratah	12	1,761 16 3	53,334	3,540 12 7	2,249	6,943	2,376	6,003	10	230	.....	.....	1,019 18 8	4,560 11 3
Hexham	9	749 14 7	12,810	1,021 1 7	934	2,096	7	1,388	57	55	12	12	566 17 8	1,587 19 3
Tarro	1	140 0 0	4,485	540 10 2	360	310	.....	3	39	1	.....	.....	96 16 2	637 6 4
Woodford	1	140 0 0	2,958	192 0 5	1,080	272	.....	6	43	1	.....	.....	30 13 9	222 14 2
East Maitland	10	1,132 15 0	25,250	2,736 1 1	2,485	2,724	6	119	126	40	1,192	1,315	7,932 4 8	9,768 5 9
High-street	2	421 18 10	22,096	3,019 5 9	.....	1,115	.....	.....	.....	.....	.....	.....	116 14 2	3,135 19 11
West Maitland	36	4,010 13 2	25,110	5,865 7 6	12,000	11,303	.....	1,926	469	168	394	112	9,353 18 8	15,219 6 2
Farley	4	362 19 9	1,890	150 19 5	296	290	16	.....	6	1	.....	.....	153 6 5	304 5 10
Lochinvar	6	535 0 5	2,545	421 5 6	533	303	.....	22	82	.....	8	.....	258 19 10	680 5 4
Allandale	1	156 13 4	2,704	308 16 8	1,555	213	.....	.....	12	.....	.....	.....	134 10 1	443 6 9
Greta	4	470 12 0	7,100	1,230 4 4	718	1,798	6,703	58	4	6	.....	.....	654 11 10	1,884 16 2
Branxton	4	515 6 9	6,320	1,319 1 1	2,109	1,011	.....	82	129	.....	134	2	566 7 3	1,885 8 4
Singleton	33	3,845 10 10	15,513	5,621 17 5	3,172	4,770	2,250	932	441	8	282	.....	4,333 7 0	9,955 4 5
Glennie's Creek	1	140 0 0	1,187	262 18 5	1,185	169	934	.....	6	1	25	1	221 18 11	484 17 4
Ravensworth	8	516 8 0	1,217	365 12 8	176	116	.....	.....	8	1	450	.....	128 17 11	494 10 7
Musclebrook	22	1,846 4 9	7,540	3,479 13 9	1,454	2,973	.....	221	22	1	4,634	.....	4,658 13 6	8,138 7 3
Aberdeen	6	535 1 5	1,577	385 0 8	213	415	.....	74	1	.....	244	.....	415 12 10	800 19 6
Scone	12	921 5 10	4,847	2,181 0 5	816	2,347	.....	273	11	.....	3,322	.....	2,621 13 7	4,802 14 0
Wingen	6	435 4 10	942	337 0 7	61	239	.....	.....	9	.....	445	.....	242 10 11	579 11 6
Blandford	3	218 4 2	752	435 4 0	97	269	.....	19	36	.....	1,194	.....	288 19 10	724 3 10
Murrurundi	27	3,475 0 7	3,927	1,983 8 6	299	1,506	.....	115	44	1	208	.....	2,011 7 11	3,994 16 5
Doughboy Hollow	4	350 3 6	640	114 15 5	251	69	.....	.....	1	.....	541	.....	76 1 7	190 17 0
Willow Tree	6	626 9 0	1,881	668 18 7	234	421	.....	.....	51	.....	3,739	.....	684 18 11	1,353 17 6
Qurindi	13	1,197 16 10	5,044	2,402 5 0	1,059	2,258	.....	211	11	1	5,379	.....	4,828 13 11	7,230 18 11
Werris Creek	10	1,128 1 2	2,803	1,928 7 2	481	357	.....	.....	2	.....	416	.....	641 15 2	2,570 2 4
Currabubula	6	452 6 3	1,417	481 18 9	748	284	.....	6	75	.....	789	.....	257 0 2	738 18 11
West Tamworth	12	1,486 19 10	2,860	924 8 8	647	2,115	.....	11	5	.....	11,924	.....	5,657 16 0	6,582 4 8
Tamworth	20	2,070 11 1	8,446	7,497 16 4	4,815	7,373	1	737	7	15	379	18	14,299 5 7	21,797 1 11
Moonbi	10	796 15 7	2,520	588 15 5	538	320	.....	6	3	.....	465	.....	429 13 8	1,018 9 1
Macdonald River	3	305 0 0	574	151 13 0	45	163	.....	.....	.....	.....	574	215	217 0 6	368 13 6
Walcha Road	9	793 18 2	2,490	1,566 15 5	250	1,461	.....	6	.....	3	3,984	.....	3,996 2 10	5,562 18 3

Stations.	No. of hands employed, including Station-masters.	Total Expenditure.	No. of Tickets issued.	Revenue from Tickets and Coaching Traffic.	Goods.		Coal.		Hay, Straw, and Chaff.		Wool.		Earnings from Goods Traffic.	Total Earnings.			
					Tonnage outwards.	Tonnage inwards.	Tonnage outwards.	Tonnage inwards.	Trucks outwards.	Trucks inwards.	Bales outwards.	Bales inwards.					
GREAT NORTHERN RAILWAY—continued.																	
		£ s. d.		£ s. d.									£ s. d.	£ s. d.			
Kentucky	4	309 6 2	1,188	290 11 3	111	154	.....	.....	1	.....	858	.....	176 2 7	466 13 10
Uralla	13	998 5 10	4,799	2,343 11 10	1,008	2,644	.....	.....	17	1	4,919	38	7,585 7 8	9,928 19 6	
Armidale	30	2,795 10 11	9,718	6,665 4 1	1,983	6,265	.....	.....	910	595	2,854	39	16,320 3 7	22,985 7 8	
Eversleigh	7	404 10 2	1,476	255 9 2	36	155	.....	.....	.....	.....	538	.....	255 16 11	511 6 1
Black Mountain	5	304 3 4	1,011	279 2 5	889	172	.....	.....	.....	.....	246	.....	192 17 4	471 19 9
Guyra	8	704 0 4	3,079	1,355 17 3	1,148	987	.....	.....	15	2	949	.....	2,914 19 10	4,270 17 1
Ben Lomond	5	361 7 9	577	239 9 10	305	280	.....	.....	2	.....	314	.....	436 1 3	675 11 1
Glencoe	6	415 5 2	686	452 8 11	169	287	.....	.....	9	.....	144	.....	835 0 8	1,287 9 7
Glen Innes	19	1,998 12 6	6,852	5,975 9 6	2,948	7,248	221	25	2	5,260	4	21,218 9 0	27,193 18 6		
Dundee	10	541 18 4	1,155	302 13 5	1,433	193	.....	.....	.....	.....	674	106	236 0 1	538 13 6
Deepwater	8	727 7 8	2,659	1,707 12 9	2,531	2,068	13	21	624	5,802 10 7	7,510 3 4		
Bolivia	3	312 1 8	546	216 2 10	431	167	.....	.....	9	.....	33	.....	162 18 7	379 1 5
Tenterfield	13	1,624 10 1	4,780	6,087 14 10	553	5,077	6	41	2	54	356	.....	11,674 2 8	17,761 17 6		
Breeza	8	567 13 5	1,117	516 0 8	80	332	.....	6	.....	.....	768	.....	801 0 0	1,317 0 8
Curlewis	1	161 13 4	679	252 6 7	1,153	206	.....	.....	.....	.....	701	.....	290 0 6	542 7 1
Gunnedah	14	1,498 11 0	4,162	3,371 4 9	782	2,162	74	12	4	8	6,966	219	5,742 8 1	9,113 12 10			
Boggabri	11	745 2 4	1,511	892 6 10	1,332	417	.....	.....	.....	3	1,745	.....	1,128 10 1	2,020 16 11
Baan Baa	1	116 13 4	583	261 19 1	1,802	58	.....	.....	1	.....	56	.....	65 17 0	327 16 1
Narrabri	20	2,545 7 9	4,049	6,129 12 9	887	7,407	88	42	45,487	28,296 10 4	34,426 3 1		
Morpeth Platform	.....	.....	11,795	1,049 14 6	.....	.....	.....	.....	.....	.....	.....	116	.....	1,049 14 6
Morpeth	23	2,959 5 0	5,394	693 10 2	13,759	4,016	.....	4,694	46	22	.....	40,387	20,190 3 3	20,883 13 5	
Wallsend	9	983 18 6	49,303	2,983 0 5	1,032	11,128	.....	6	4	255	5	.....	2,248 13 7	5,231 14 0	
Broadmeadow	2	85 17 9	2,016	251 10 4	74	34	7	5	.....	1	.....	.....	10 13 5	262 3 9
Teralba	1	68 4 11	4,279	420 8 2	485	830	25	.....	.....	.....	.....	.....	137 6 6	557 14 8
Morrisett	1	78 16 11	2,201	184 7 1	852	672	.....	.....	.....	3	.....	.....	72 2 9	256 9 10
Wyong	1	72 0 3	1,188	150 14 1	633	136	2	8	.....	.....	.....	.....	101 8 3	252 2 4
Ourimbah	1	51 13 4	915	109 8 1	107	139	.....	.....	.....	.....	.....	.....	45 17 5	155 5 6
Gosford	7	242 7 4	2,412	824 14 0	143	299	1	25	1	10	.....	.....	178 19 1	1,003 13 1	
1887	773	86,545 13 11	570,185	134,444 2 4	146,601	146,601	1,733,381	1,733,381	2,827	2,827	115,369	115,369	322,004 12 8	456,448 15 0			
1886	.....	.....	720,008	128,053 18 11	147,932	147,932	1,633,875	1,633,875	2,624	2,624	84,203	84,203	305,908 6 2	433,962 5 1	
GRAND SUMMARY.																	
Suburban, Illawarra, & North Coast	748	96,197 11 6	4,338,607	352,562 10 11	301,729	503,334	16,335	124,331	1,696	12,713	10,462	300,935	526,976 9 2	879,539 0 1			
Southern	324	40,580 18 1	385,929	182,708 4 1	262,722	185,067	6,292	21,199	3,933	588	135,910	17,328	249,723 17 10	432,432 1 11			
Western	426	54,091 13 8	491,932	139,737 15 5	246,767	157,862	158,065	33,838	8,146	1,302	173,110	2,064	261,343 12 4	401,081 7 9			
Richmond	14	1,781 10 8	37,966	7,438 0 3	44,262	9,217	9	1,333	937	109	2,781	1,936	9,799 12 3	17,237 12 6			
Northern Line	773	86,545 13 11	5,254,434	682,446 10 8	855,480	855,480	180,701	180,701	-14,712	14,712	322,263	322,263	1,047,843 11 7	1730290 2 3			
Total, 1887	2,285	279,197 7 10	5,824,619	816,890 13 0	1,002,081	1,002,081	1,914,082	1,914,082	17,539	17,539	437,632	437,632	1,369,848 4 3	2186738 17 3			
Total, 1886	.....	.....	6,971,420	805,775 17 0	979,439	979,439	1,816,244	1,816,244	17,992	17,992	323,946	323,946	1,319,173 14 2	2124949 11 2	
														1887—Add Mails, advertising, &c., £52,221 ros. 1d.	Less Credits, £26,241 9s. 4d.	25,980 0 9	
														1886—	£58,226 17s. 9d.	£19,373 18s. 5d.	38,852 19 4
														1887—Gross Earnings	2212718 18 0	
														1886—	2163802 10 6	

No. 27—continued.

Stations.	1881.	1882.	1883.	1884.	1885.	1886.	1887.
	GREAT SOUTHERN RAILWAY—continued.						
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Bowral	6,683 5 2	7,507 14 11	8,527 10 4	9,502 12 7	11,479 2 8	13,552 7 8	14,699 2 10
Burradoo					510 2 2	569 19 2	774 10 2
Austermerc					428 5 5	494 4 11	630 15 5
Moss Vale	17,897 4 4	22,029 12 10	21,800 4 9	21,769 8 6	20,884 8 1	22,155 11 2	21,955 16 8
Meryla					178 13 11	63 12 8	77 19 3
Badgey's					14 2 6	35 14 0	66 12 8
Ringwood					277 3 7	327 12 4	1 19 2
Bundanoon ...	1,338 4 9	2,415 17 7	2,634 14 5	3,287 6 8	2,209 5 3	1,771 14 1	1,701 0 2
Erith					513 16 1	185 7 2	107 13 3
Cable's					49 3 3	117 16 6	84 9 3
Wingello				1,360 18 1	1,291 11 4	1,329 5 11	1,015 8 4
Berber's					165 8 10	198 14 1	157 4 9
Morrice's					859 7 2	637 13 0	412 18 5
Marulan	12,101 17 11	12,861 0 6	12,726 19 10	8,200 16 1	9,626 14 3	7,423 16 5	6,079 11 3
Murray's Flat							7 5 3
Carriick					192 1 5	198 5 7	221 3 5
Towrang	350 8 10	917 11 0	785 7 1	726 16 7	651 19 7	917 7 11	1,503 10 2
North Goulburn ...					472 10 9	152 17 1	146 0 11
Goulburn ...	83,019 12 1	99,790 9 2	119,784 13 11	102,159 0 8	103,573 18 6	97,764 8 7	94,429 0 5
Joppa					123 10 5	121 7 8	409 19 1
Yarra					53 5 7	67 5 0	59 18 9
Breadalbane	2,684 7 6	2,560 16 6	2,603 6 6	6,145 16 0	2,728 0 2	2,818 11 8	3,228 7 6
Cullerin					56 1 1	64 4 7	71 13 9
Fish River					110 0 2	124 3 7	89 16 2
Gunning	9,195 4 11	8,082 18 7	8,833 14 8	7,580 12 10	6,517 5 9	5,723 7 0	6,427 13 6
Jerrawa	282 0 4	391 18 5	360 8 2	442 10 5	579 6 1	432 5 6	453 6 0
Yass	16,030 19 5	16,055 9 6	17,362 10 11	16,992 18 5	18,151 13 4	18,754 11 3	16,709 11 3
Burrowa					38 5 1	6 9 0	.....
Bowning	13,017 4 9	12,947 7 8	12,088 15 11	10,582 15 0	8,060 1 0	3,102 10 7	4,193 18 0
Binalong	10,030 11 1	10,804 5 11	10,188 11 4	10,228 18 8	9,226 0 1	8,609 17 3	8,832 6 11
Galong					272 10 6	175 6 3	209 14 6
Rocky Ponds	982 13 2	1,143 7 11	291 16 7	347 14 3	101 19 6	91 5 1	110 10 6
Cunningar					1,069 14 6	1,109 13 5	1,653 15 7
Harden	28,305 17 3	28,067 2 9	30,883 7 7	39,431 17 2	18,019 9 6	10,385 6 1	9,103 4 8
Murrumburrah	7,056 19 7	9,049 18 11	16,035 6 7	17,239 3 4	12,921 16 10	9,288 18 8	10,831 1 2
Demondrille					117 19 2	124 11 3	341 1 8
Nubba					732 8 6	614 0 10	998 3 5
Wallendbeen	3,577 16 7	4,242 1 7	4,545 4 1	5,344 6 2	4,367 8 2	3,983 12 2	4,487 8 8
Cootamundra	39,987 9 7	41,895 8 11	40,936 16 2	62,678 9 10	53,426 19 1	38,882 10 11	29,350 13 4
Mullaly's					1,183 17 8	31 12 4	1,842 13 10
Cungegong					270 3 10	275 10 8	390 17 1
Bethungra	1,670 19 0	1,613 14 3	1,506 3 9	1,571 6 7	1,710 18 5	2,012 8 3	2,009 13 2
Illabo	1,734 17 0	2,145 17 1	2,221 2 7	2,157 17 3	1,974 4 6	1,477 0 9	1,525 0 6
Junee Junction	17,859 5 7	12,176 16 1	11,275 1 5	16,348 10 8	17,541 16 10	18,131 15 0	18,159 7 2
Harefield	464 7 6	637 16 1	809 1 7	739 3 2	660 8 4	416 16 10	738 17 8
Ponon	8,060 5 11	5,524 15 5	3,149 19 10	3,064 2 6	2,455 16 10	2,991 16 2	1,713 12 9
Wagga	48,579 2 9	47,746 8 5	50,199 8 9	55,363 0 8	56,609 4 4	54,258 19 7	55,775 17 2
Connorton					109 11 9	6 10 9	11 14 0
Sandy Creek	353 12 11	322 11 7	514 6 5	494 4 2	559 9 0	452 18 11	846 19 4
The Rock	3,071 9 8	3,315 2 11	3,083 2 7	3,543 14 7	3,193 6 7	3,096 6 6	3,989 19 7
Yerong Creek	1,465 9 1	1,572 12 2	2,155 12 5	2,890 13 5	3,454 1 10	3,159 12 3	4,014 3 8
Dood's Cooma					1 11 11	524 5 10	1,322 1 3
Culcairn	3,504 2 6	4,491 16 8	5,514 7 8	5,939 17 0	5,543 11 7	4,486 10 9	4,050 11 0
Gerogery	7,134 6 8	2,385 0 7	3,987 13 3	4,303 10 11	3,671 7 7	3,260 12 6	3,499 2 6
Yambla	501 14 4	1,102 4 9	1,416 2 8	1,603 18 9	1,392 17 2	1,418 8 9	1,060 3 3
Eltamogah					400 19 0	312 14 3	575 15 7
Albury R. C.					67 15 4	162 17 0	1,648 1 0
Albury	33,681 0 8	41,512 8 8	55,936 5 9	70,463 5 1	57,251 19 3	61,500 1 10	50,864 16 4
Murray Bridge						4 3 3	4 1 3
Wodonga	29,257 1 0	39,814 1 8	47,148 8 8	58,659 15 9	58,589 6 5	30,713 5 0	1,755 16 11
Melbourne						28,983 3 11	55,285 14 10
Adelaide							1,123 19 6
Bargalore					173 8 2	306 4 10	306 4 2
Lake Bathurst ...					1,741 9 8	1,829 5 7	1,469 17 6
Tarago				31,073 16 10	14,769 8 0	9,256 7 7	8,038 12 11
Fairy Meadows						11 6 11	30 6 9
Bungendore					43,494 12 3	53,390 2 10	32,933 4 3
Molonglo							7 19 3
Queanbeyan							7,839 13 4
Luggerang							0 5 8
Rob Roy							2 8 3
Michelago							3,905 12 11
Briwln						54 7 7	315 10 7
Mu'tam						214 16 7	1,222 10 8
Bongalong							238 8 7
Coolac						1,980 15 6	2,271 6 3
Gundagai						14,454 3 4	25,952 7 7
King's Vale					208 13 5	423 16 3	421 1 10
Young					44,225 14 4	62,146 15 1	45,179 2 6
Young R. C.						43 8 3	68 3 11
Bu rangong							4 14 2
Monteagle						9 6 8	82 0 6
Koorawatha						40 4 1	330 2 6
Cowra						2,723 2 7	20,448 7 3
Old Juree	1,918 5 10	3,068 13 1	5,145 8 8	4,317 9 2	6,426 9 9	3,768 19 10	5,779 7 8

APPENDIX TO REPORT ON RAILWAYS—1887.

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No. 27—continued.

Stations.	1881.	1882.	1883.	1884.	1885.	1886.	1887
GREAT SOUTHERN RAILWAY—continued.							
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Marrar					119 15 5	146 14 4	140 8 11
Coolaman	2,636 17 5	3,655 2 2	5,763 18 10	7,114 10 10	8,475 12 5	5,892 10 3	7,600 2 6
Boggy Creek					116 12 11	105 14 10	157 14 3
Devlin's Siding					2,433 3 9	2,480 13 10	3,988 3 7
Grong Grong	785 15 5	2,265 13 4	4,203 1 8	5,107 17 2	2,272 3 5	1,842 11 2	1,717 16 10
Narraundera	62,592 10 0	34,208 9 11	60,823 8 10	64,771 0 0	26,189 4 6	25,742 5 6	25,020 1 2
Yanco	312 7 7	1,630 4 11	1,193 17 2	2,311 3 7	987 3 4	1,080 13 4	1,247 5 4
Whitton	3,676 9 3	6,291 4 5	8,563 18 2	10,143 13 9	8,557 16 8	8,120 0 0	10,743 0 3
Darlington	30,653 1 7	30,407 2 8	8,462 13 11	8,492 14 10	4,323 19 7	5,166 13 0	4,126 9 4
Benerembah					838 9 10	937 10 9	454 14 6
Bringagee			381 11 10	2,570 7 7	887 4 8	895 12 4	684 13 5
Groongal					1,651 4 5	1,440 5 3	1,783 13 1
Carra'hool		18,793 13 0	16,290 12 9	14,404 10 3	11,591 18 7	12,393 0 11	11,288 11 5
Uardry					573 13 7	488 6 2	363 4 3
Trononga					33 2 8	40 13 8	91 2 7
Beabula			171 11 2	1,582 9 8	1,395 14 0	402 19 7	324 6 3
Wardagey					387 6 5	239 17 3	179 5 1
Hay		21,938 9 1	38,966 17 0	46,087 19 4	36,518 6 0	35,181 15 3	33,470 16 5
Gillenbah					367 4 8	318 18 10	430 19 7
Cudde1					405 12 8	389 0 3	513 16 8
Colombo				3,024 4 10	3,401 6 2	4,145 4 5	3,441 2 4
Widgiewa					1,012 11 10	1,067 13 10	1,637 7 2
Coonong					1,204 13 6	1,005 8 4	1,384 15 9
Bundure					1,639 12 9	1,706 3 5	1,337 9 0
Yathong					313 0 2	310 19 8	954 1 0
Jerilderie				7,909 16 0	9,482 6 2	12,306 13 7	11,588 11 0
Kenny Hill					127 0 2	89 1 11	32 4 11
Narellan					2,216 14 11	2,837 5 11	3,465 19 3
Camden		3,233 14 0	6,606 6 5	8,331 13 1	7,921 10 4	6,642 2 3	7,077 5 5
	579,581 1 8	650,030 2 0	732,162 14 3	849,939 12 0	836,963 13 7	838,453 5 7	829,247 6 0
CLIFTON—KIAMA RAILWAY.							
Clifton							1,375 16 3
Austinnere							44 1 4
Robinsville							100 8 0
North Bulli							0 1 4
Bulli							459 3 9
Corrimal							69 9 8
Wollongong							1,476 7 9
Unanderra							16 17 8
Dapto							65 5 8
Shellharbour							35 11 10
Albion Park							0 2 0
North Kiama							330 19 11
							3,974 5 2
GREAT WESTERN RAILWAY.							
Harris Park					197 12 9	511 9 6	725 7 2
Parramatta	35,008 0 1	39,726 19 8	41,227 7 5	42,028 7 9	43,402 3 11	42,998 2 1	41,995 19 5
Do Park						44 12 11	29 15 9
Westmead					58 4 5	69 1 8	88 15 11
Wertworthville					488 2 4	332 0 2	427 12 5
Toongabbie					136 11 10	165 4 8	224 14 4
Seven Hills	1,501 19 5	1,836 5 9	2,261 3 5	2,353 1 0	2,217 8 7	1,899 9 2	2,281 14 2
Doonside					18 8 2	16 6 3	34 16 10
Crawford's					73 9 10	0 17 10	...
Blacktown	3,154 3 9	5,474 5 9	15,263 17 10	7,196 0 10	8,797 12 10	10,936 10 7	10,825 13 4
Rooty Hill	3,796 9 6	3,758 12 8	4,025 16 11	4,473 15 0	5,031 3 5	4,774 13 8	4,445 0 3
Mount Drutt					1,591 13 1	1,744 2 8	1,438 10 1
St. Mary's	8,170 6 2	7,931 7 4	8,023 9 10	10,295 11 2	8,558 16 5	8,045 4 8	7,564 15 2
Parke					56 15 2	90 15 3	133 3 7
Kingswood					2,854 6 1	5,132 1 5	4,172 6 5
Penrith	12,412 14 4	14,178 6 8	15,744 7 10	18,351 1 5	14,242 8 5	13,760 16 2	14,923 0 7
Emu Plains	7,914 1 0	13,269 9 0	11,281 3 9	11,685 6 2	3,657 8 9	3,423 3 1	4,407 16 0
Hudson's					11,131 9 7	9,092 8 1	6,084 18 6
Lucasville					158 5 7	293 12 1	170 18 9
Glenbrook	775 7 3	724 2 4	643 14 6	695 14 8	345 13 11	356 3 2	324 4 8
Baxland					165 8 8	168 3 8	102 8 8
Kaabar					3 9 10	5 14 11	9 6 9
The Valley					469 15 3	399 1 10	321 4 2
Springwood	3,694 5 5	3,766 11 0	2,912 4 0	2,873 18 7	2,934 1 10	2,723 2 6	2,644 12 3
Faulconbridge					32 12 0	367 16 11	365 1 8
Numantia					307 14 1	276 19 10	220 13 1
Linden			770 7 10	833 0 2	97 5 7	276 12 6	240 11 2
Woodford					594 8 8	521 17 10	394 13 7
Hazebrook					25 7 7	113 12 2	151 3 2
Lawson	1,454 18 7	1,660 11 11	1,716 7 1	1,493 14 10	1,814 19 4	1,777 12 8	2,173 10 2
Wentworth Falls	723 17 3	877 16 3	834 13 0	1,228 12 7	1,137 14 6	1,432 5 9	1,561 5 3
Gladstone					228 13 10	53 3 1	37 15 7
Katoomba	2,389 13 11	3,183 10 11	3,922 10 6	5,212 15 11	6,364 12 10	7,113 5 0	8,141 9 2
North's					7,237 6 9	8,515 5 0	7,658 7 7
Medlow					102 2 11	122 14 10	225 8 10
Blackheath				7,666 7 6	3,525 2 5	4,184 13 7	4,499 4 0

No. 27—continued.

Stations.	1881.	1882.	1883.	1884.	1885.	1886.	1887.
GREAT WESTERN RAILWAY—continued.							
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Mount Victoria	14,011 12 11	18,844 13 9	17,953 19 2	13,445 13 2	8,388 17 0	7,060 10 11	7,220 8 4
Hartley Vale					5,295 18 9	6,609 14 7	6,586 7 10
Main Camp					268 15 8	2,400 18 9	3,223 4 11
Mount Wilson	617 7 11	985 10 8	669 15 3	743 8 11	849 6 1	753 18 7	735 16 11
Clarence	657 19 2	530 9 10	382 15 2	531 5 11	751 2 1	356 6 6	403 10 10
Zig Zag			123 3 9	155 10 8	117 10 9	128 4 5	112 12 3
Mort's					11,641 2 7	10,081 3 5	12,646 19 8
Vale of Clywdd					15,545 13 0	15,725 1 2	19,785 5 8
Esk Bank		51,274 5 3	52,091 10 11	57,218 11 4	10,535 15 9	8,788 18 9	8,863 0 9
Do Siding					11,596 5 3	12,755 6 11	5,336 16 7
Lithgow		5,922 12 1	5,137 14 10	4,861 4 4	18,181 19 7	14,486 10 11	12,522 6 10
Bowenfe's	52,017 6 11	6,085 3 3	2,495 13 4	2,414 14 9	2,835 18 6	2,831 0 11	2,360 18 7
Do Siding					152 12 2	193 3 10	32 3 11
Marrangaroo					75 18 6	68 10 0	87 13 5
Wallacrawang	41,911 10 10	27,971 8 1	11,618 19 0	8,506 1 8	7,758 15 5	6,374 16 10	6,688 14 8
Rydal	1,957 11 4	1,996 6 6	1,831 5 10	5,913 11 8	18,237 13 8	12,510 14 5	6,193 0 2
Sodwalls					164 13 8	135 0 1	130 10 11
Tarana	2,866 4 3	3,142 17 9	3,635 14 0	4,325 16 0	4,555 4 1	4,662 17 9	4,588 14 5
Locksley	447 2 2	607 19 11	681 6 11	816 9 4	872 9 9	488 2 4	757 1 7
Brewongle	3,561 18 5	2,700 12 6	3,223 14 4	2,955 17 6	4,077 16 9	2,705 7 1	3,177 18 3
Raglan	2,046 15 3	1,916 4 8	2,087 0 7	2,614 16 7	2,497 7 11	2,159 17 11	1,947 3 0
Kelso	5,509 10 11	5,768 17 4	6,548 8 5	9,248 14 11	10,333 4 1	10,967 13 11	8,665 18 6
Bathurst	60,734 2 8	67,685 3 2	70,277 9 0	69,731 14 5	71,717 9 0	68,597 3 6	61,282 9 3
Orton Park					104 0 6	96 13 8	113 13 6
Perth	2,601 18 9	2,492 10 8	2,480 8 5	3,045 16 5	3,222 19 4	3,507 18 11	4,380 2 2
George's Plains	2,091 18 7	1,891 2 6	2,000 3 5	2,876 10 2	2,880 6 1	2,157 8 10	1,497 12 11
Wimbledon			566 2 0	814 3 6	879 3 5	949 8 1	909 15 5
Newbridge	4,145 1 6	5,267 15 3	5,308 3 2	5,471 0 10	5,592 2 5	5,153 16 5	6,921 10 9
Blyney	26,957 14 4	30,371 9 8	24,535 6 9	25,442 11 6	51,712 14 6	36,771 9 7	26,057 14 9
Lime Siding					1,504 0 1	719 13 5	246 4 4
Milthorpe	3,383 11 9	4,097 10 11	6,017 17 0	6,884 4 1	6,806 15 8	7,048 4 1	6,944 1 6
Spring Hill	2,491 14 10	2,924 11 11	3,764 14 5	3,126 8 6	3,793 13 11	3,662 6 8	2,278 9 9
Orange Sale Yards					196 19 7	44 15 7	
Huntley					234 13 5	401 0 0	373 13 3
Orange Meat Co					21 16 7	105 8 0	167 19 2
Orange	82,945 19 8	81,183 19 4	87,011 0 2	106,341 10 0	95,086 15 2	63,309 15 11	53,372 17 2
Lawrence					8 0 1	11 0 8	327 1 10
Mullion Creek	534 14 2	568 14 8	663 7 6	978 8 10	904 11 2	637 6 4	678 3 5
Kerr's Creek			295 9 6	424 3 5	749 3 4	621 0 2	425 14 3
Warne	1,550 10 8	1,440 16 5	1,550 7 5	2,174 0 1	2,493 0 1	1,702 11 3	1,421 2 9
Store Creek					18 11 3	114 12 2	87 13 2
Ironbarks	2,855 18 9	3,362 5 5	2,780 3 9	3,112 12 10	2,439 0 9	2,438 5 7	2,323 19 3
Mumbil					414 8 3	1,090 16 8	1,265 11 10
Springs	556 12 1	1,100 8 3	1,309 18 7	1,462 18 6	1,511 7 5	1,208 13 9	1,114 13 2
Apsley					42 1 0	42 15 5	76 8 9
Wellington	32,274 0 1	23,954 14 1	30,269 15 0	22,819 19 11	23,623 4 10	19,233 8 3	20,991 9 5
Mary Vale		608 1 10	728 19 4	953 1 2	1,131 14 1	811 5 10	982 4 3
Ponto					263 0 3	657 3 5	952 13 7
Murrumbidgee	1,570 7 11	862 7 2	1,089 13 2	3,940 18 11	2,141 18 10	1,987 12 11	1,281 16 3
Dubbo	166,696 12 7	236,288 7 8	120,941 15 3	69,923 10 11	78,961 6 6	63,124 12 0	75,751 13 7
Brummagen Creek						0 8 0	
Manoa							6 15 0
Narramine		2,030 7 4	13,540 10 1	13,910 3 0	4,723 7 8	4,425 5 11	5,060 19 10
Trangie			5,936 0 8	5,546 8 7	8,366 1 10	10,485 16 9	11,924 2 9
Kelly's							204 1 8
Nevertire		25,258 12 11	63,731 5 5	19,951 1 0	34,853 16 4	34,225 10 1	38,361 3 9
Mullengudgery			4,293 3 4	574 14 7	943 1 8	1,156 3 0	1,751 2 8
Nyngan			139,793 7 0	189,303 10 6	79,657 6 6	58,329 18 0	64,611 10 3
Girilambone				1,983 10 1	4,849 18 4	7,935 13 1	6,600 18 7
Wilga				1,260 5 1	3,121 2 4	373 10 11	140 2 6
Coolabah				585 5 10	4,739 11 7	4,922 1 9	7,340 18 4
Glenariff					54 12 2	75 12 8	65 15 2
Byrock				36,181 4 1	75,346 6 6	18,625 18 11	15,851 15 11
Mooculta					55 17 5	764 5 11	343 11 10
Bourke					51,085 18 6	135,780 16 7	148,989 16 11
Orange R. C.						180 19 4	128 4 7
Cargo Road					1 18 2	252 12 2	252 7 1
Borenore					12 10 8	7,810 8 11	15,497 3 3
Amaroo					20 17 2	378 5 5	456 19 9
Molong					283 16 6	15,317 10 8	20,483 10 7
Irondale					363 8 6	0 6 7	48 6 10
Piper's Flat			2,097 0 0	2,532 2 2	1,047 12 9	1,390 13 3	1,335 18 2
Cullen's					1,489 3 3	1,737 16 0	2,489 14 10
Ben Bullen					199 6 11	194 7 3	246 3 4
Capertee		21,225 5 7	41,894 2 4	19,362 10 6	2,156 16 6	1,781 13 5	2,214 8 3
Carlos Gap					96 8 4	106 5 3	210 0 2
Excelsior Siding						45 9 1	331 6 3
Ilford					562 12 0	530 19 6	473 15 8
Rylstone				9,769 17 8	10,152 10 6	6,977 6 1	10,117 5 9
Cox's Siding							174 3 0
Lue					1,020 0 11	1,667 15 2	1,475 14 5
Bumberra					149 3 5	114 11 7	131 8 7
Mudgee				16,078 8 3	41,684 8 8	39,342 10 1	41,959 12 1
	597,991 15 1	736,689 5 7	849,064 8 1	875,801 19 8	948,082 11 9	894,429 15 7	912,620 1 11

APPENDIX TO REPORT ON RAILWAYS—1887.

No. 27—continued.

Stations.	1881.	1882.	1883.	1884.	1885.	1886.	1887.
WINDSOR AND RICHMOND RAILWAY.							
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Douglas Siding .....	.....	.....	.....	.....	513 9 3	500 0 7	694 9 0
Schofield's .....	.....	.....	.....	.....	1,061 1 2	398 8 9	487 7 5
Riverstone	6,030 12 0	12,884 1 11	11,662 14 10	11,607 16 11	6,826 4 4	6,282 5 11	6,407 3 5
Richards' .....	.....	.....	.....	.....	3,076 19 5	3,969 13 6	3,323 8 1
Mulgrave	4,023 5 8	3,575 9 6	3,193 16 10	3,224 10 1	2,812 5 8	3,164 15 10	2,508 0 10
Windsor	13,237 5 9	11,710 16 8	13,174 16 2	12,511 2 5	11,912 14 11	12,667 10 1	9,210 16 0
Clarendon	2,146 19 8	2,621 6 3	2,143 18 10	2,439 0 7	2,956 15 0	1,335 19 9	3,969 7 3
Richmond	7,756 11 6	8,184 17 3	8,321 15 7	8,889 9 1	9,506 18 5	9,614 2 0	9,477 7 7
	33,194 14 7	38,976 11 7	38,497 2 3	38,671 19 1	38,666 8 2	37,932 16 5	36,077 19 7
GREAT NORTHERN RAILWAY.							
Central Office	1,299 9 0	2,562 14 1	3,257 12 1	3,623 9 2	4,284 18 5	5,088 2 10	6,129 10 10
Newcastle	129,159 5 6	155,519 10 7	204,554 11 1	234,297 1 10	244,117 16 10	224,384 19 8	245,632 13 3
Honeysuckle Point	7,812 13 7	7,811 18 2	8,005 11 6	8,500 14 1	10,282 12 1	9,680 9 11	11,368 12 2
Bullock Island	11,133 7 9	13,747 14 7	17,309 10 3	16,891 0 6	9,798 19 5	5,215 2 10	1,894 9 0
Wickham Siding .....	.....	101 11 6	125 1 8	292 5 6	313 2 2	262 4 1	Cr. 81 9 8
Weigh Bridge	46,169 9 1	63,081 5 8	67,064 5 4	74,831 18 2	76,695 18 10	77,608 12 7	79,012 10 6
Hamilton	1,664 3 11	1,549 6 0	1,799 19 11	2,290 14 7	4,396 9 5	6,053 16 2	5,599 13 4
Waratah	6,157 17 5	6,718 4 5	7,123 17 6	7,337 4 7	7,102 0 9	6,970 6 9	7,577 13 11
Sandgate	46 3 11	145 4 7	162 18 7	242 0 10	356 10 7	343 12 7	372 6 0
General Cemetery	48 6 5	243 2 8	377 6 0	566 16 0	627 11 6	681 13 3	696 11 7
Hexham	2,026 1 9	1,771 7 8	1,817 0 11	2,000 10 5	2,472 4 3	2,645 13 10	2,814 17 5
Tarro	455 17 8	587 8 9	720 4 6	952 4 11	770 1 11	793 10 8	816 16 6
Woodford	348 5 1	673 18 3	777 13 0	655 13 11	679 8 4	417 10 5	478 10 7
Victoria-street	186 6 1	213 12 9	206 3 1	193 5 0	220 9 9	236 19 4	327 1 0
East Maitland	8,360 1 10	10,260 12 1	10,082 19 4	12,428 0 11	11,946 14 7	13,735 18 10	13,634 10 8
High-street	3,964 17 1	4,297 8 8	4,410 18 7	3,654 13 3	3,525 4 1	3,518 15 5	3,511 15 0
West Maitland	31,112 4 5	33,215 15 8	36,937 0 5	39,562 15 11	35,926 4 5	34,749 5 7	36,204 8 6
Northumberland-st. .....	.....	.....	.....	779 5 11	1,211 2 4	1,142 7 0	1,079 13 10
Morpeth	90,679 14 5	94,149 4 4	92,335 17 3	78,044 4 11	74,222 4 3	74,317 16 4	77,821 19 1
Wallsend	2,859 2 1	3,538 0 8	4,594 6 9	6,507 6 3	7,254 6 5	6,711 8 7	7,335 5 0
	343,483 7 0	400,188 1 1	461,722 17 9	493,651 6 8	496,204 0 4	474,558 6 8	502,227 8 6
Farley	5,275 17 3	11,347 10 3	12,577 14 4	10,917 15 0	9,377 1 6	8,705 14 6	6,053 15 4
Rutherford .....	.....	.....	.....	.....	.....	.....	0 17 7
Lochinvar	1,829 17 10	2,335 12 0	1,838 1 3	1,759 4 8	1,332 13 5	1,722 5 8	1,529 16 1
Allandale	302 0 7	316 11 3	607 12 6	740 10 2	845 15 8	883 3 6	1,034 6 11
Greta	2,515 2 11	3,100 17 11	3,228 15 1	3,438 6 4	3,362 3 9	3,710 9 1	3,507 2 0
do Coal Siding .....	.....	.....	.....	.....	.....	27 14 11	.....
Anvil Creek Coal Siding .....	.....	.....	.....	.....	21 17 11	.....	4 16 0
Branxton	3,954 4 11	3,766 17 2	4,314 2 9	3,388 8 1	3,848 3 5	3,255 17 3	3,257 16 0
Belford	115 3 0	147 16 9	147 9 2	201 17 4	201 1 1	216 9 0	338 6 4
Whittingham	322 13 2	364 11 8	411 12 9	493 16 6	531 13 3	657 11 0	770 13 5
Singleton	14,407 5 6	20,007 17 11	20,959 11 2	20,555 15 9	20,473 17 2	19,115 8 4	17,591 7 8
do Coal Siding	0 10 0	4 9 11	18 14 5	389 10 0	172 6 1	2 12 0	5 8 6
Rix Creek	1 0 6	.....	.....	.....	182 2 9	272 0 11	846 13 6
Blackwall Siding .....	.....	.....	.....	.....	155 3 3	748 2 9	611 4 6
Glennie's Creek	307 6 3	388 17 1	392 11 1	504 15 10	692 1 6	577 19 1	669 2 3
Ravenworth	713 18 8	875 7 6	1,009 2 2	999 3 4	867 14 4	920 6 10	779 3 1
Liddell	48 12 5	79 9 1	82 18 11	121 6 9	139 1 11	134 3 1	123 14 8
Grass Tree	53 6 3	81 8 1	79 2 0	93 18 7	97 1 2	92 6 0	86 7 8
Musclebrook	11,005 7 11	13,915 0 1	14,070 10 3	14,355 1 8	13,286 11 6	12,814 9 1	13,275 11 0
Aberdeen	1,064 2 10	1,479 12 0	1,270 11 11	1,719 10 6	1,620 8 5	1,388 19 5	1,373 0 2
Scone	5,534 17 10	6,105 17 4	6,987 10 2	7,565 4 10	8,191 17 6	7,280 8 6	8,174 13 2
Park	64 9 2	84 11 8	95 9 11	120 6 1	111 14 7	98 19 0	81 19 10
Wingen	934 14 8	841 5 3	958 19 8	1,183 4 2	907 10 4	904 9 0	1,039 9 11
Blandford	354 12 7	1,245 8 0	1,484 18 10	1,385 18 3	1,561 7 9	1,457 15 10	1,648 10 0
Murrurundi	7,155 14 0	6,384 15 2	7,442 7 11	7,642 17 3	8,161 13 2	7,915 12 3	5,816 10 4
Sewl's Siding .....	.....	.....	.....	.....	367 7 5	.....	.....
Temple Court	225 7 10	235 14 6	191 10 0	187 12 0	188 0 2	208 8 1	129 0 9
Doughboy Hollow	550 5 7	795 5 0	679 7 6	585 18 6	589 10 3	423 17 5	674 12 4
Willow Tree	2,981 2 4	3,150 7 4	3,427 12 5	3,934 9 0	2,960 19 4	3,332 0 5	3,688 0 3
Braefield	20 16 1	25 15 6	33 10 10	39 0 5	27 4 7	24 10 11	21 2 2
Quirindi	9,907 16 1	13,505 5 10	16,954 15 1	16,478 14 1	14,067 13 11	15,748 16 9	14,106 17 3
Quipolly	169 13 0	208 3 8	234 11 1	262 0 1	276 0 1	267 8 0	236 9 3
Werris Creek	1,795 5 0	2,489 9 1	2,984 18 0	3,750 6 10	3,611 5 6	3,447 7 11	3,583 4 9
Terrible Vale .....	.....	.....	.....	.....	.....	14 8 1	178 19 11
Currabubula	1,132 3 4	1,137 0 1	1,292 3 0	1,383 10 10	1,146 12 8	1,120 8 9	1,491 8 11
Duri	111 0 4	167 6 2	167 8 11	193 11 9	232 15 7	195 2 0	206 1 2
West Tamworth .....	.....	66,767 6 1	36,186 13 10	23,627 8 8	18,322 19 10	13,839 6 2	13,661 16 2
Tamworth	109,973 19 10	10,769 0 11	18,119 3 11	30,406 12 1	34,314 12 4	32,552 3 8	32,168 7 11
Tintinhull .....	.....	.....	.....	.....	40 12 5	65 12 5	51 17 11
Moonbi .....	.....	12,634 7 0	2,545 13 10	2,469 6 2	2,775 9 2	2,371 15 5	1,765 3 7

No. 27—continued.

Stations.	1881.	1882.	1883.	1884.	1885.	1886.	1887.
GREAT NORTHERN RAILWAY—continued.							
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Farquharson's Siding	.....	.....	.....	.....	161 18 4	224 0 0	159 14 4
Macdonald River	.....	768 9 4	1,027 2 11	843 11 11	442 13 7	462 7 8	717 12 3
Walcha Road	.....	2,876 19 7	6,814 14 1	9,506 2 6	7,878 6 10	9,099 2 5	8,575 12 5
Wollun	.....	.....	63 6 7	149 12 2	111 7 1	136 3 5	175 6 3
Kentucky	.....	634 12 8	1,334 12 2	1,129 16 8	1,117 6 7	1,239 3 3	1,117 6 0
Uralla	.....	36,210 2 6	53,861 4 6	32,380 11 3	13,399 3 3	12,717 10 8	15,517 12 9
Kelly's Plains	.....	.....	24 2 6	139 5 6	143 8 7	135 4 4	132 10 8
Armidale	.....	.....	65 719 7 2	63,327 14 4	36,332 10 1	34,673 8 11	34,686 0 6
Eversleigh	.....	.....	.....	498 7 4	974 14 0	1,301 2 9	987 6 7
Duval	.....	.....	.....	.....	.....	6 13 6	47 18 9
Black Mountain	.....	.....	.....	473 13 7	814 0 4	1,095 11 3	977 17 3
Guyra	.....	.....	.....	5,979 16 0	12,306 14 4	9,989 0 6	6,826 6 1
Llangothlin	.....	.....	.....	28 3 0	62 9 2	123 12 9	122 8 2
Ben Lomond	.....	.....	.....	847 5 10	1,030 11 6	1,288 3 9	1,115 7 5
Glencoe	.....	.....	.....	729 4 9	1,155 10 8	1,807 0 0	1,678 15 8
Stonehenge	.....	.....	.....	0 4 2	112 18 2	260 2 8	144 1 9
Glen Innes	.....	.....	.....	38,021 18 9	85,098 2 3	59,620 10 6	37 912 13 2
Mill Siding	.....	.....	.....	.....	.....	0 10 2	.....
Yarrowford	.....	.....	.....	.....	.....	28 11 6	58 2 7
Dundee	.....	.....	.....	.....	.....	793 14 10	1,328 7 4
Deepwater	.....	.....	.....	.....	.....	4,344 17 5	13,157 8 10
Bolivia	.....	.....	.....	.....	.....	388 14 3	637 0 0
Sandy Flat	.....	.....	.....	.....	.....	44 13 0	130 7 1
Tenterfield	.....	.....	.....	.....	.....	12 375 10 9	30,502 13 0
	182,828 7 8	225,249 1 4	289,659 14 7	314,950 9 3	316,203 19 5	297,769 13 3	297,291 17 1
Broadmeadow	.....	.....	.....	.....	.....	.....	303 9 1
Adamstown	.....	.....	.....	.....	.....	.....	59 2 4
Cockle Creek	.....	.....	.....	.....	.....	.....	392 0 5
Winding Creek	.....	.....	.....	.....	.....	.....	0 9 5
Teralba	.....	.....	.....	.....	.....	.....	756 9 3
Wye	.....	.....	.....	.....	.....	.....	332 15 8
Awaba	.....	.....	.....	.....	.....	.....	105 0 4
Morrisett	.....	.....	.....	.....	.....	.....	511 17 0
Norahville	.....	.....	.....	.....	.....	.....	34 2 4
Wyong	.....	.....	.....	.....	.....	.....	460 3 1
Ourimbah	.....	.....	.....	.....	.....	.....	266 18 5
Narara	.....	.....	.....	.....	.....	.....	12 7 0
Gosford	.....	.....	.....	.....	.....	.....	2,405 7 5
Sydney	.....	.....	.....	.....	.....	.....	150 13 7
	.....	.....	.....	.....	.....	.....	5,790 15 4
Gap	154 6 0	83 5 1	88 8 6	67 15 11	107 6 4	111 11 3	87 19 9
Breeza	3,251 10 9	5,856 13 0	7 378 11 5	4 792 2 10	3,926 1 11	3,787 6 0	3,419 4 1
Curlewis	1,022 9 0	1,409 6 1	1,650 8 6	1,231 4 0	1,214 7 7	1,064 11 10	1,599 2 7
Gunnedah	80,972 0 5	65,641 18 9	24,057 14 5	22,596 18 3	18,204 19 11	16,193 3 7	15,662 2 6
Emerald Hill	.....	.....	97 15 11	217 1 5	230 11 2	327 18 3	249 6 1
Boggabri	.....	18,431 0 4	7,027 6 8	5,502 7 9	5,029 6 2	5,184 1 6	4,558 13 11
Baan Baa	.....	.....	49 5 5	718 10 7	1,610 7 5	1,074 12 7	1,403 15 0
Turrawan	.....	53 1 8	260 1 3	277 14 3	865 2 5	455 11 4	337 4 11
Narrabri	.....	21,827 4 4	90,894 14 9	67,025 7 11	59,175 5 0	52,243 18 1	63,998 5 5
	85,400 6 2	113,302 9 3	131,504 6 10	102,429 2 11	90,363 7 11	80,442 14 5	91,225 14 3
	611,712 0 10	738,739 11 8	882,886 19 2	911,030 18 10	902,771 7 8	852,770 14 4	896,535 15 2
SUMMARY.							
Suburban	1026076 0 4	1177978 16 5	1280153 14 10	1396491 13 3	1513124 4 2	1552785 3 11	1604886 18 0
Clifton, Kiama	.....	.....	.....	.....	.....	.....	3,974 5 2
Southern	579,581 1 8	659,030 2 0	732,162 14 3	849,939 12 0	836,963 13 7	838,453 5 7	829,247 6 0
Western	597,991 15 1	736,682 5 7	842,064 8 1	875,801 19 8	948,082 11 9	894,429 15 7	912,620 1 11
Richmond	33,194 14 7	38,976 11 7	38,497 2 3	38,671 19 1	38,666 8 2	37,932 16 5	36,077 19 7
	2236843 11 8	2603674 15 7	2899877 19 5	3160905 4 0	3336836 17 8	3323601 1 6	3386806 10 8
Northern	611,712 0 10	738,739 11 8	882,886 19 2	911,030 18 10	902,771 7 8	852,770 14 4	896,535 15 2
Mails, &c.	39,895 13 0	59,617 15 0	86,624 2 8	107,561 15 0	116,736 7 0	151,233 5 2	142,095 10 2
Total	2888451 5 6	3402032 2 3	3869389 1 3	4179497 17 10	4356344 12 4	4327605 1 0	4425437 16 0

No. 28.*

RETURN showing the LIVE STOCK EARNINGS for the years 1886 and 1887.

Months.	1886.					1887.				
	Southern.	Western.	Richmond.	Northern.	Total.	Southern.	Western.	Richmond.	Northern.	Total.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
January.....	5,903 6 6	4,644 15 11	32 9 7	1,006 6 6	11,586 18 6	5,058 16 0	9,046 12 3	16 17 11	1,093 12 0	15,215 18 2
February.....	4,410 7 0	6,820 1 1	23 7 8	1,187 18 6	12,441 14 3	5,529 12 3	9,893 14 7	20 18 9	1,300 17 10	16,745 3 5
March.....	4,809 18 0	9,588 5 6	24 17 8	1,536 0 5	15,959 1 7	4,452 5 11	9,934 4 4	52 5 6	1,898 9 6	16,337 5 3
April.....	5,512 17 10	7,747 17 11	18 19 4	2,107 11 3	15,387 6 4	3,578 19 5	7,724 8 5	24 2 9	1,345 11 4	12,673 1 11
May.....	6,247 13 7	10,230 5 6	23 15 2	2,522 17 0	19,024 11 3	3,165 16 0	9,333 7 7	23 9 7	1,286 7 8	13,809 0 10
June.....	4,981 19 2	8,255 14 6	14 2 0	967 2 3	14,218 17 11	2,557 10 5	9,661 7 7	14 14 7	1,552 19 5	13,786 12 0
July.....	3,520 9 4	11,245 18 10	25 19 9	2,214 16 9	17,007 4 8	2,525 12 3	10,940 5 5	28 3 0	1,695 18 3	15,189 18 11
August.....	2,080 10 7	9,124 7 4	29 10 7	2,601 6 8	13,835 15 2	3,515 6 11	14,060 14 10	18 3 5	2,277 2 6	19,871 7 8
September.....	4,252 7 0	10,721 17 10	34 2 2	3,435 15 1	18,444 2 1	4,844 17 2	10,074 1 1	22 4 1	3,061 3 8	18,002 6 0
October.....	4,213 11 6	11,284 9 5	60 0 7	2,974 9 5	18,532 10 11	3,446 2 11	8,998 6 8	19 6 10	1,391 0 7	13,854 17 0
November.....	6,070 16 7	8,431 0 10	21 11 4	2,398 16 5	16,922 5 2	4,441 19 4	11,311 8 0	19 9 10	1,288 17 2	17,061 14 4
December.....	5,221 6 2	9,201 10 6	22 15 9	2,003 12 8	16,449 5 1	2,279 14 8	6,592 4 1	12 5 4	940 2 0	9,824 6 1
Total.....	57,225 3 3	107,296 5 2	331 11 7	24,956 12 11	189,809 12 11	45,396 13 3	117,570 14 10	272 1 7	19,132 1 11	182,371 11 7

* Includes Camden Line.

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APPENDIX TO REPORT ON RAILWAYS—1887.

No. 29.*

RETURN of the quantity of Wool carried on the Railways of New South Wales, and the amount received therefrom, in 1886 and 1887.

APPENDIX TO REPORT ON RAILWAYS—1887.

Months.	1886.									1887.								
	Bales.			Weight.			Freight.			Bales.			Weight.			Freight.		
	S. & W.	North.	Total.	S. & W.	North.	Total.	S. & W.	North.	Total.	S. & W.	North.	Total.	S. & W.	North.	Total.	S. & W.	North.	Total.
	No.	No.	No.	Tons.	Tons.	Tons.	£	£	£	No.	No.	No.	Tons.	Tons.	Tons.	£	£	£
January	15,941	5,067	21,008	2,529	882	3,411	5,722	2,397	8,119	22,584	9,297	31,881	3,759	1,746	5,505	11,550	5,068	16,618
February	8,343	2,483	10,826	1,255	394	1,649	3,109	1,179	4,288	9,845	2,570	12,415	1,592	466	2,058	4,535	1,329	5,864
March	3,707	1,593	5,300	533	224	757	1,113	761	1,874	8,353	5,827	14,180	1,312	904	2,216	3,953	2,935	6,888
April	972	415	1,387	131	63	194	313	200	513	2,962	2,680	5,642	464	371	835	1,255	1,281	2,536
May	1,469	540	2,009	204	58	262	340	224	564	2,371	1,027	3,398	364	156	520	1,186	503	1,689
June	894	64	958	131	12	143	214	26	240	959	245	1,204	155	37	192	418	89	507
July	898	237	1,135	132	38	170	282	111	393	1,124	117	1,241	187	22	209	427	42	469
August	2,099	183	2,282	363	34	397	1,037	75	1,112	8,169	1,236	9,405	1,343	216	1,559	4,902	591	5,493
September	31,315	9,533	40,848	5,655	1,861	7,516	18,222	4,640	22,862	41,965	15,690	57,655	7,305	2,967	10,272	23,764	7,545	31,309
October	56,609	16,883	73,492	10,172	3,356	13,528	31,478	8,455	39,933	84,888	28,579	113,467	15,054	5,327	20,381	47,038	13,684	60,722
November	73,537	23,769	97,306	13,217	4,699	17,916	38,485	12,396	50,881	88,949	29,964	118,913	15,643	5,578	21,221	47,033	15,585	62,618
December	43,959	23,436	67,395	7,697	4,486	12,183	21,817	13,197	35,014	50,142	18,137	68,279	8,770	3,345	12,115	24,377	9,693	34,070
Total	239,743	84,203	323,946	42,019	16,107	58,126	122,132	43,661	165,793	322,311	115,369	437,680	55,948	21,135	77,083	170,438	58,345	228,783
Increase .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	82,568	31,166	113,734	13,929	5,028	18,957	48,306	14,684	62,990
Decrease .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

* Includes Camden Line.

No. 30.

GREAT SOUTHERN, WESTERN, AND NORTHERN RAILWAYS.

RETURN of the number of Bales of Wool forwarded from the undermentioned Stations, from 1st September, 1886, to 30th April, 1887, and from 1st September, 1887, to 30th April, 1888.

Stations.	1886-1887.	1887-1888.	Stations.	1886-1887.	1887-1888.
SOUTHERN AND BRANCH LINES.					
	Bales.	Bales.		Bales.	Bales.
Sydney	6,361	2,421	Cuddell	39	68
Darling Harbour	5,452	6,899	Colombo	620	1,528
Granville	1,075	1,251	Widgieva	1,405	1,840
Liverpool	8,078	7,929	Coonong	82	389
Minto	11	12	Bundure	1,735	275
Campbelltown	21	39	Yathong	65	839
Menangle	12	26	Jerilderie	4,173	4,600
Douglas Park	6	9	Camden	35	26
Mittagong	70	37			
Bowral	6	4		118,485	146,465
Moss Vale	40				
Badgery's	2		WESTERN LINES.		
Barber's Creek	1		Parramatta	12	
Morrice's	1		Blacktown	4	8
Marulan	555	510	Penrith	14	7
Carrick	31	32	Mount Victoria	110	302
Towrang	376	417	Hartley Vale		2
Goulburn	5,265	5,739	Esk Bank	5	
Breadalbane	235	253	Bowenfels	44	26
Gunning	1,525	710	Wallerawang	93	87
Jerrawa	39	75	Rydal	55	72
Yass	2,647	2,818	Sodwalls	24	44
Bowling	1,819	1,848	Tarana	541	641
Binalong	2,650	3,268	Locksley	21	24
Rocky Ponds		4	Brewongle	175	141
Cunningar	625	746	Raglan	95	78
Harden	1,173	1,237	Kelso	604	752
Murrumburrah	85	241	Bathurst	1,421	1,433
Nubba	120		Perth	767	814
Wallendbeen	1,179	1,585	George's Plains	22	30
Cootamundra	2,727	3,609	Wimbleton	148	238
Cungegong	137	157	Newbridge	666	947
Bethungra	491	658	Blayney	2,968	1,940
Illabo	891	794	Millthorpe	635	877
Junee Junction	681	682	Spring Hill	141	117
Harefield	293	578	Orange	1,312	830
Bomen	652	736	Mullion Creek	72	76
Wagga	4,903	6,288	Kerr's Creek	21	29
Sandy Creek	35	714	Warne	342	503
The Rock	2,811	3,635	Store Creek	43	
Yerong Creek	1,484	2,771	Ironbarks	112	128
Doodle Cooma	246	401	Mumbil	716	757
Culcairn	916	1,363	Springs	267	298
Gerogery	428	507	Wellington	1,916	1,768
Yambla	40		Mary Vale	45	71
Albury	327	4,289	Ponto	168	151
Bangalore	85	156	Murrumbidgee	718	786
Lake Bathurst	25	191	Dubbo	12,317	15,102
Tarago	891	980	Narramine	1,924	2,355
Bungendore	5,916	2,058	Trangie	6,292	7,534
Queanbeyan		3,196	Nevertire	12,779	15,172
Michelago		3,911	Mullengudgery	506	563
Brawlin	18	25	Nyngan	16,470	20,137
Muttama	46	136	Girilambone	2,975	5,180
Bongalong		352	Coolabah	2,697	3,348
Coolac	1,182	926	Byrock	4,981	5,113
Gundagai	3,745	3,392	Mooculta	100	
King's Vale	119	67	Bourke	29,570	39,400
Young	11,204	15,557	Douglas Siding	1,102	1,165
Koorawatha	3		Riverstone	1	98
Cowra	1,518	5,607	Richard's Siding	34	
Old Junee	3,361	4,126	Mulgrave	648	882
Coolaman	1,678	2,662	Richmond	1	
Devlin's Siding	1,058	2,041	Lyndhurst		21
Grong Grong	603	1,280	Woodstock		11
Narrandera	5,199	5,875	Borenore	8,383	10,085
Yanko	986	1,169	Amaroo	109	175
Whitton	4,902	8,994	Molong	4,161	5,220
Darlington	1,551	1,978	Piper's Flat	18	
Benerambah	854		Cullen's Siding	10	
Bringagee	346	309	Capertee	353	272
Groongal	1,037	946	Ilford	145	
Carrathool	2,421	2,222	Rylstone	732	743
Uardry	539		Lue	871	720
Tnoononga	5	61	Mudgee	8,683	7,947
Beabula	203	63			
Hay	4,228	3,328		130,159	155,220
Gillenhah	86				

No. 30—*continued.*

Stations.	1886-1887.	1887-1888.	Stations.	1886-1887.	1887-1888.
	Bales.	Bales.		Bales.	Bales.
Newcastle	444	750	Moonbi	722	530
Honeysuckle Point .....	.....	1	Farquharson's Siding .....	.....	238
Hamilton	176	157	M'Donald River	470	385
Hexham .....	.....	12	Walcha Road	4,082	4,153
Woodford	37	.....	Wollun .....	.....	112
East Maitland	1,722	1,197	Kentucky	782	799
West Maitland	317	285	Uralla	4,365	4,417
Farley	2	.....	Kelly's Plains .....	.....	3
Lochinvar	14	8	Armidale	3,020	2,920
Branxton	119	135	Eversleigh.....	503	573
Belford .....	.....	31	Black Mountain	344	301
Whittingham .....	.....	27	Guyra	966	914
Singleton	284	235	Llangothlin .....	.....	9
Glennie's Creek	25	27	Ben Lomond.....	407	340
Ravensworth.....	394	417	Glencoe.....	144	79
Liddell .....	.....	23	Stonehenge .....	.....	35
Musclebrook.....	3,747	4,750	Glen Innes	5,321	4,429
Aberdeen	221	257	Dundee	882	306
Scone	3,529	3,014	Deepwater.....	589	580
Wingen	332	440	Bolivia	85	33
Blandford	1,065	1,196	Sandy Flat .....	.....	50
Murrurundi	176	204	Tenterfield	404	312
Doughboy Hollow	256	576	Breeza	723	607
Willow Tree	2,477	3,527	Curlewis	299	703
Quirindi	4,986	5,413	Gunnedah.....	5,322	6,588
Quipolly .....	.....	10	Emerald Hill .....	.....	25
Werris Creek	300	424	Boggabri	1,544	1,604
Terrible Vale .....	.....	8	Baan Baa	54	46
Currabubula.....	219	787	Turrarran .....	.....	33
Duri .....	.....	30	Narrabri	31,506	38,743
West Tamworth	9,847	11,281	Morpeth	293	73
Tamworth.....	434	381	Wallsend	5	1
			Total.....	93,965	105,544

SUMMARY.

	1886-1887.	1887-1888.
Southern and Western Railway.....	Bales. 248,644	Bales. 301,685
Northern Line	93,965	105,544
Total	342,609	407,229

No. 31.

STATEMENT of the Value of LIVE STOCK and other EXPORTS and IMPORTS across the Border during the year 1887.

	Value of Live Stock.						Quantity and Value of Wool.			Other Exports.	Exports--	Imports--
	Horses.	Cattle.	Sheep.	Pigs.	Goats.	Total.	Bales.	lb.	Value.	Value.	Total Value.	Total Value.
	£	£	£	£	£	£	No.		£	£	£	£
Albury to Victoria	101,520	287,333	29,495	1,104	.....	419,452	19,647	7,149,090	273,368	61,822	754,642	820,100
Corowa do.	1,023	35,785	65,653	71	.....	102,532	16,096	5,907,929	236,570	18,253	357,355	96,178
Euston do.	70	4,154	3,750	.....	.....	7,974	2,113	666,033	41,186	84	49,244	9,340
Tochmwal do.	60	5,615	6,273	.....	.....	11,948	1,715	600,919	23,676	518	36,142	33,922
Moama do.	5,876	226,573	253,571	635	.....	486,655	28,071	11,090,319	455,594	59,610	1,001,859	330,705
Wentworth to { Victoria	20	.....	6,878	.....	.....	6,898	16,995	6,022,901	302,134	2,564	311,596	52,623
Wentworth to { South Australia .....	.....	.....	4,430	.....	.....	4,430	47,142	15,584,255	764,746	17,773	786,949	230,764
Swan Hill (Crossing) to Victoria	520	13,119	27,808	.....	.....	41,447	48,374	14,462,701	821,188	1,733	864,368	40,893
Howlong do.	850	18,337	6,633	235	.....	26,055	104	39,142	1,226	788	28,069	11,094
Thackaringa to { South Australia	650	48,979	44,911	.....	.....	94,540	10,795	3,797,070	107,175	524,577	726,292	526,152
Thackaringa to { Queensland	160	820	.....	.....	.....	980	.....	.....	.....	.....	980	.....
Mulwala do.	545	4,191	11,268	261	.....	16,265	35	12,517	429	1,285	17,979	23,446
Boggabilla do. ....	.....	.....	.....	.....	.....	.....	110	60,500	2,374	350	2,724	121,094
Barrington do.	1,085	984	200,061	.....	.....	202,130	.....	.....	.....	24,155	226,285	500,748
Wilcannia do. ....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8,928	8,928	.....
Tenterfield do. ....	.....	.....	.....	.....	.....	.....	3	1,000	25	125	150	1,275
Stanthorpe do. ....	.....	.....	.....	.....	.....	.....	129	30,558	1,473	17,370	18,843	3,175
Bourke do. ....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14,216	14,216	.....
Total.....1887	112,379	645,890	660,731	2,306	.....	1,421,306	191,329	65,424,934	3,031,164	754,151	5,205,621	2,801,509
Total.....1886	92,063	286,066	506,698	892	.....	885,719	160,273	59,092,810	2,590,540	613,815	4,090,074	1,680,701
Increase.....	20,316	359,824	154,033	1,414	.....	535,587	31,056	6,332,124	440,624	140,336	1,116,547	1,120,808

No. 32.

CENTRAL RAILWAY OFFICE.

STATEMENT of the Business transacted and Revenue received during the year 1887.

Date.	Sleeping-berths.	Parcels.						Passengers.						Miscellaneous.	Tramways.		Parcels.					Value of Sleeping-berths.	Total Amount.		
		Northern.			Southern & Western.			Northern.			Southern and Western.				Number of Tickets.	Amount.	Northern.		Southern and Western.						
		In.	Out.	Cloak.	In.	Out.	Total.	1st Class.	2nd Class.	Amount.	1st Class.	2nd Class.	Amount.				Inwards.	Outwards.	Cloaked.	Inwards.	Outwards.				
																								£ s. d.	£ s. d.
1887.									£ s. d.			£ s. d.	£ s. d.		£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
January ..	533	485	1,442	391	1,274	10,242	13,834	35	22	1,308 16 4	1,321	290	6,445 0 9	55 15 10	3,912,423	16,301 15 3	53 15 1	168 15 10	7 0 0	87 2 10	622 14 7	327 2 6	25,377 19 0		
February ..	502	592	1,740	330	1,427	9,431	13,520	37	18	174 6 2	1,093	206	3,169 2 4	6 7 0	3,671,323	15,297 4 0	73 18 8	193 7 11	3 4 0	99 13 11	589 17 7	308 12 6	19,905 14 1		
March	550	607	1,810	367	1,477	10,816	15,077	47	19	205 2 6	1,493	245	3,290 13 5	5 6 5	4,097,892	17,074 11 0	62 3 10	206 9 3	11 0 0	100 11 0	689 5 9	338 7 6	21,973 10 8		
April	773	688	1,850	385	1,200	9,991	14,114	43	23	138 11 0	1,826	351	4,023 16 9	6 16 6	3,737,751	15,573 19 3	55 2 8	218 18 1	6 2 0	93 12 9	633 9 7	468 7 6	21,271 16 1		
May	509	676	2,174	418	1,862	9,997	14,627	43	11	138 14 7	796	186	2,388 19 6	11 18 4	3,705,663	15,440 5 8	68 16 7	261 5 1	9 12 0	102 6 6	695 9 5	311 10 0	19,428 17 8		
June	563	611	1,861	377	1,245	7,258	11,352	79	29	193 0 6	1,326	212	3,378 7 1	6 2 11	3,593,863	14,974 8 10	67 4 11	212 4 0	13 0 0	101 0 11	593 4 11	346 7 6	19,885 1 7		
July	543	636	1,729	306	1,226	7,026	10,923	34	10	139 10 5	895	171	3,162 11 3	20 2 10	3,342,810	13,928 6 6	70 15 3	207 4 1	6 16 0	111 15 2	587 6 8	332 15 0	18,567 3 2		
August	516	655	1,982	317	1,180	7,060	11,194	27	11	58 10 7	807	190	2,781 9 6	7 6 6	3,485,243	14,521 16 11	75 14 11	228 3 0	8 13 0	96 9 11	618 14 9	317 17 6	18,715 1 7		
September..	584	679	1,879	329	1,234	7,049	11,170	29	10	92 19 8	1,591	269	2,975 7 10	9 3 8	3,562,063	14,839 18 10	79 9 6	209 10 1	7 18 0	96 5 4	590 5 11	353 0 0	19,243 18 10		
October....	720	611	2,041	381	1,272	7,132	11,437	22	13	22 4 7	1,710	247	6,337 1 4	4 12 0	3,047,855	15,199 4 4	64 11 10	233 6 5	7 12 0	89 1 6	648 5 7	443 5 0	23,049 4 7		
November..	445	615	1,875	385	1,303	7,992	12,175	24	21	85 13 11	1,316	353	2,810 15 5	5 12 6	3,403,011	14,200 0 11	68 8 0	229 1 11	10 0 0	86 13 1	700 18 4	274 15 0	18,502 4 1		
December..	623	849	1,933	393	1,677	8,859	13,711	136	28	206 12 10	1,876	415	4,696 12 10	4 5 0	4,066,922	16,945 10 2	103 11 10	254 14 4	11 14 0	104 18 10	724 4 10	386 7 6	23,438 12 2		
	6,866	7,704	22,316	4,379	15,882	102,853	153,134	556	215	2,764 8 1	16,050	3,142	45,469 18 0	143 9 6	44,231,835	184,297 1 8	843 13 1	2,623 0 0	102 16 0	1,172 11 9	7,733 17 11	4,213 7 6	243,364 3 6		

SUMMARY.

	1886.		1887.			1886.	1887.
	£	s. d.	£	s. d.			
Freight, &c., Railway Department.....	64,524	6 7	65,067	1 10	Number of Parcels booked	162,582	153,134
Tramway Tickets sold	194,919	6 7	184,297	1 8	„ Passengers booked.....	22,207	19,963
					„ Tramway Tickets sold	46,519,060	44,231,835
					„ Sleeping-berth Tickets sold	7,359	6,866
Decrease for 1887—£10,079 9 8			£259,443 13 2	£249,364 3 6			

No. 33.

RETURN of the quantity of COAL exported from Newcastle to Intercolonial and Foreign Ports in 1886 and 1887, showing the increase and decrease in each.

Countries.	1887.	1886.	Increase.	Decrease.
	Tons.	Tons.	Tons.	Tons.
Victoria	708,559	628,141	80,418	.....
New Zealand	150,108	164,453	.....	14,345
South Australia	123,518	139,476	.....	15,958
Tasmania	38,974	46,269	.....	7,295
Western Australia	13,786	11,576	2,210	.....
Fiji	21,081	20,719	362	.....
Queensland	15,668	20,417	.....	4,749
Total, Intercolonial	1,071,694	1,031,051	40,643	.....
Foreign—				
Peru	6,549	3,491	3,058	.....
New Caledonia	12,293	8,957	3,336	.....
India	48,215	72,292	.....	24,077
United States	248,325	184,048	64,277	.....
Hong Kong	83,355	96,931	.....	13,576
China	1,366	2,475	.....	1,109
Mauritius	8,846	5,853	2,993	.....
Phillipine Islands.....	37,548	34,521	3,027	.....
Chili	47,153	35,720	11,433	.....
Sandwich Islands	10,720	22,037	.....	11,317
Java	46,113	28,448	17,665	.....
Panama	577	2,655	.....	2,078
Bankok .....	.....	1,885	.....	1,885
Guam .....	.....	1,795	.....	1,795
Mexico	2,310	8,071	.....	5,761
New Guinea .....	.....	600	.....	600
South Sea Islands.....	249	3,664	.....	3,415
Curragal	1,380	.....	1,380	.....
Cape of Good Hope.....	433	.....	433	.....
Solomon Islands	307	.....	307	.....
Singapore (included with India on previous returns).....	30,953	.....	30,953	.....
Total, Foreign	586,692	513,443	73,249	.....
Grand Total	1,658,386	1,544,494	113,892	.....

PORT OF NEWCASTLE.

Foreign and Intercolonial Shipping out of Newcastle 1886 and 1887.

1886.		1887.		Decrease.	Increase.
No. of Vessels.	Tonnage.	No. of Vessels.	Tonnage.	No. of Vessels.	Tonnage.
1,335	1,097,382	1,334	1,154,439	1	57,057

NUMBER of Tons and Value of COAL Exported.

Foreign and Intercolonial.

1887.		1886.		Increase.	
Tons.	Value.	Tons.	Value.	Tons.	Value.
1,658,386	£ 886,921	1,544,494	£ 828,189	113,892	£ 58,732

Coastwise.

	1887.		1886.	
	No. of Vessels.	Tons.	No. of Vessels.	Tons.
Outwards	1,853	428,393	1,963	501,718

No. 35.

MONTHLY Return of COAL forwarded from Western Collieries during 1887.

Months.	North's.			Main Camp.			Mort's (Zig-Zag).			Vale of Clwydd.			Eskbank.																	
	T.	c.	q.	£	s.	d.	T.	c.	q.	£	s.	d.	T.	c.	q.	£	s.	d.												
January	2,010	1	0	533	12	5	790	4	1	251	7	2	2,508	13	0	1,011	19	2	2,456	2	0	951	16	2	1,185	14	0	432	10	9
February	2,351	14	1	634	7	9	737	2	3	241	11	5	2,469	19	0	960	1	5	2,384	6	0	949	3	2	778	1	0	280	17	7
March	2,374	14	1	652	4	2	631	18	2	206	4	0	2,842	7	2	1,098	12	5	3,568	18	0	1,397	0	1	499	3	0	176	18	9
April	2,420	19	2	641	13	9	904	2	3	298	10	6	2,598	18	0	1,040	11	10	3,836	18	0	1,534	6	1	869	12	0	309	0	1
May	2,886	6	3	772	12	0	898	16	2	296	12	10	3,265	2	0	1,291	8	11	5,575	0	0	2,214	6	7	1,205	8	0	430	14	9
June	2,370	9	1	649	8	5	868	0	2	275	13	11	2,777	7	0	1,073	5	6	5,551	2	0	2,221	4	0	1,915	16	0	704	6	9
July	2,406	1	0	653	2	3	1,100	19	3	355	5	11	3,006	0	0	1,172	18	8	5,702	17	0	2,230	8	9	1,728	16	0	656	2	0
August	2,486	16	1	669	6	6	1,352	5	3	422	5	8	2,972	5	0	1,181	6	9	6,244	6	0	2,434	13	4	741	6	0	308	3	7
September	2,593	19	0	702	14	2	972	16	3	293	17	9	2,481	4	0	943	4	0	4,870	10	0	1,891	15	9	1,975	10	0	726	2	7
October	2,139	12	1	579	18	0	734	12	2	219	9	10	1,902	17	0	714	10	2	4,104	2	0	1,559	1	0	1,809	16	0	661	8	0
November	2,178	2	1	586	13	1	480	2	2	147	12	10	3,130	17	0	1,177	6	3	3,355	4	0	1,268	8	6	1,318	1	0	411	4	11
December	2,150	13	1	578	17	5	533	4	2	161	10	1	2,709	9	0	1,039	9	9	3,110	15	0	1,168	1	11	1,208	6	2	345	12	6
	28,369	9	0	7,654	9	11	10,004	7	0	3,170	1	11	32,664	18	2	12,704	14	10	50,760	0	0	19,820	5	4	15,295	9	2	5,443	2	3
	Lithgow Valley.			Bowenfels Siding.			Carlo's Gap.			Cox's Siding.			Total.																	
	T.	c.	q.	£	s.	d.	T.	c.	q.	£	s.	d.	T.	c.	q.	£	s.	d.	T.	c.	q.	£	s.	d.	T.	c.	q.	£	s.	d.
January	1,242	2	3	434	3	3	.....	.....	.....	20	17	0	5	5	6	.....	.....	.....	10,213	14	0	3,620	14	5	.....	.....	.....	.....	.....	.....
February	1,192	9	0	464	5	5	.....	.....	.....	25	5	0	3	14	8	.....	.....	.....	9,938	17	0	3,534	1	5	.....	.....	.....	.....	.....	.....
March	1,564	18	2	581	4	10	.....	.....	.....	31	19	2	7	7	10	.....	.....	.....	11,513	19	1	4,119	12	1	.....	.....	.....	.....	.....	.....
April	1,135	0	3	417	13	2	.....	.....	.....	126	5	0	8	4	4	.....	.....	.....	11,891	16	0	4,249	19	9	.....	.....	.....	.....	.....	.....
May	2,163	7	0	777	1	2	.....	.....	.....	19	9	2	8	5	1	.....	.....	.....	16,013	9	3	5,791	1	4	.....	.....	.....	.....	.....	.....
June	1,559	0	0	518	6	2	18	14	0	.....	.....	.....	6	0	0	0	13	6	.....	.....	.....	15,066	8	3	.....	.....	.....	.....	.....	.....
July	2,304	19	2	854	4	1	.....	.....	.....	29	15	1	5	2	3	.....	.....	.....	16,279	8	2	5,927	3	11	.....	.....	.....	.....	.....	.....
August	1,672	2	0	621	17	3	.....	.....	.....	24	13	2	7	8	3	.....	.....	.....	15,493	14	2	5,645	1	4	.....	.....	.....	.....	.....	.....
September	1,730	4	3	659	5	0	.....	.....	.....	23	8	3	7	4	2	241	18	1	40	3	2	14,889	11	2	.....	.....	.....	.....	.....	.....
October	1,284	19	0	490	9	7	.....	.....	.....	11	18	2	4	15	0	179	0	2	32	17	5	12,226	17	3	.....	.....	.....	.....	.....	.....
November	1,161	19	0	462	9	0	8	13	0	.....	.....	.....	30	7	2	11	7	0	44	16	11	11,966	12	3	.....	.....	.....	.....	.....	.....
December	1,455	6	2	587	18	10	.....	.....	.....	72	9	0	27	14	10	251	14	3	44	15	0	11,491	18	2	.....	.....	.....	.....	.....	.....
	18,466	8	3	6,868	17	9	27	7	0	1	14	0	422	8	2	97	2	5	976	0	0	162	12	6	156,986	8	1	55,923	0	11

APPENDIX TO REPORT ON RAILWAYS—1887.

No. 36.

MONTHLY RETURN of SHALE carried from Joadza Siding, Hartley Vale, and Doughboy Hollow during the year 1887.

Month.	Joadza Siding.		Hartley Vale.		Doughboy Hollow.		Total.	
	T. c. q. lb.	£ s. d.	T. c. q. lb.	£ s. d.	T. c. q. lb.	£ s. d.	T. c. q. lb.	£ s. d.
January	542 0 0 0	177 10 8	594 11 0 0	205 10 1	5 15 0 0	2 19 2	1,142 6 0 0	385 19 11
February	449 17 0 0	149 5 3	655 14 0 0	226 4 3	5 4 2 0	2 19 6	1,110 15 2 0	378 9 0
March	1,504 0 0 0	496 4 11	650 9 2 0	225 15 7	39 4 1 14	19 9 0	2,193 13 3 14	741 9 6
April	1,513 6 1 0	493 6 2	867 18 2 0	296 5 4	20 0 0 0	9 18 2	2,401 4 3 0	799 9 8
May	1,986 5 0 0	662 8 6	201 6 1 0	71 19 6	34 1 3 0	17 7 5	2,221 13 0 0	751 15 5
June	2,254 0 0 0	743 19 8	256 2 1 0	86 7 1	25 18 1 0	12 19 3	2,536 0 2 0	843 6 0
July	3,301 5 0 0	1,090 14 11	331 19 0 0	116 0 2	26 0 0 0	12 17 5	3,659 4 0 0	1,219 12 6
August	2,457 0 0 0	807 9 8	491 18 0 0	170 2 7	18 10 1 0	9 8 10	2,967 8 1 0	987 1 1
September	1,609 0 0 0	537 8 2	660 13 2 0	225 6 1	21 17 0 0	10 14 11	2,291 10 2 0	773 9 2
October	1,174 18 0 0	387 12 4	875 0 0 0	300 11 9	12 3 0 0	6 2 11	2,062 1 0 0	694 7 0
November	2,537 0 0 0	825 11 9	349 4 2 0	119 8 7	14 1 0 0	6 18 2	2,900 5 2 0	951 18 6
December	517 0 0 0	176 4 5	341 1 1 0	115 8 3	13 19 0 0	6 17 3	872 0 1 0	298 9 11
Total	19,845 11 1 0	6,547 16 5	6,275 17 3 0	2,158 19 3	236 14 0 14	118 12 0	26,358 3 0 14	8,825 7 8

No. 37.

RETURN of O.H.M.S. Coal forwarded from the Western Collieries during the year 1887.

Months.	North's Siding.		Main Camp.		Mort's Siding.		Vale of Clywdd.		Eskbank.	
	Tons cwts. qrs.	£ s. d.	Tons cwts. qrs.	£ s. d.	Tons cwts. qrs.	£ s. d.	Tons cwts. qrs.	£ s. d.	Tons cwts. qrs.	£ s. d.
January.....	310 8 0	174 12 9	.....	.....	2,531 5 0	972 14 4	2,127 3 0	1,626 7 9	3,434 17 2	1,015 16 8
February.....	336 9 0	205 1 7	.....	.....	1,850 18 0	727 4 11	1,381 3 0	985 6 7	3,583 1 0	1,151 17 9
March.....	325 17 0	197 16 1	.....	.....	2,319 11 0	1,242 14 8	1,779 10 0	896 3 7	4,481 18 3	1,456 11 10
April.....	943 5 0	650 12 10	.....	.....	2,264 13 0	1,209 5 4	683 14 0	342 14 10	3,751 4 0	1,136 15 4
May.....	1,252 8 0	862 7 9	.....	.....	2,135 4 0	1,255 13 9	13 8 0	8 15 1	3,045 19 0	996 2 1
June.....	1,084 1 1	755 11 2	.....	.....	3,246 14 0	1,050 9 0	.....	.....	3,955 10 0	1,327 2 5
July.....	519 5 0	355 7 8	55 2 0	42 8 4	3,943 11 0	2,120 10 9	448 6 0	85 0 0	2,893 7 0	1,198 16 6
August.....	.....	.....	55 1 0	55 9 2	4,966 0 0	2,709 11 6	1,374 16 0	452 14 8	3,416 18 0	1,026 13 7
September.....	703 7 0	529 15 10	.....	.....	3,408 1 0	1,508 7 5	1,069 18 0	786 19 9	2,609 4 0	852 1 1
October.....	1,558 10 0	1,080 17 8	6 1 3	1 12 6	1,981 18 3	880 11 10	1,805 7 0	628 18 11	4,451 9 0	1,597 14 3
November.....	1,764 10 0	1,229 16 3	.....	.....	2,045 10 0	788 7 6	1,277 6 0	430 8 2	5,412 16 0	1,325 13 0
December.....	1,695 8 0	1,160 17 11	.....	.....	1,804 18 0	697 9 0	858 3 0	245 18 3	4,322 18 1	1,375 9 8
Total	10,553 8 1	7,202 17 6	116 4 3	99 10 0	32,498 3 3	15,763 0 0	13,418 14 0	6,489 7 7	45,359 2 2	14,460 14 2
	Lithgow.		Bowenfels Siding.		Carlo's Gap.		Cox's Siding.		Total.	
	Tons cwts. qrs.	£ s. d.	Tons cwts. qrs.	£ s. d.	Tons cwts. qrs.	£ s. d.	Tons cwts. qrs.	£ s. d.	Tons cwts. qrs.	£ s. d.
January.....	2,585 19 0	1,009 13 1	77 15 0	35 15 3	.....	.....	.....	.....	11,067 7 2	4,834 19 10
February.....	2,492 13 0	1,296 17 10	1,029 17 2	1,463 9 4	.....	.....	.....	.....	10,674 1 2	5,829 18 0
March.....	3,226 2 0	1,636 12 0	42 9 3	3 3 9	.....	.....	.....	.....	12,175 8 2	5,433 1 11
April.....	3,579 10 3	1,628 2 1	65 18 0	37 18 10	.....	.....	.....	.....	11,288 4 3	5,005 9 3
May.....	3,526 1 3	1,231 4 6	277 5 0	562 15 11	.....	.....	.....	.....	10,250 5 3	4,916 19 1
June.....	3,772 0 0	1,421 15 4	155 5 1	91 1 3	.....	.....	.....	.....	12,213 10 2	5,245 19 2
July.....	3,384 15 0	1,564 11 0	.....	.....	.....	.....	.....	.....	11,244 6 0	5,366 14 3
August.....	4,911 16 0	2,414 9 4	.....	.....	.....	.....	.....	.....	14,724 11 0	6,658 18 3
September.....	4,527 2 0	2,250 12 10	95 1 0	29 14 0	.....	.....	13 4 2	5 9 3	13,085 17 2	5,963 0 2
October.....	4,097 5 2	2,337 6 5	.....	.....	11 7 0	4 15 0	.....	.....	13,911 19 0	6,531 16 7
November.....	3,012 2 2	1,541 6 11	.....	.....	.....	.....	.....	.....	13,512 4 2	5,315 11 10
December.....	3,927 3 1	1,920 5 4	.....	.....	.....	.....	21 10 0	7 9 3	12,630 0 2	5,407 9 5
Total	43,042 10 3	20,252 16 8	1,743 11 2	2,223 18 4	11 7 0	4 15 0	34 14 2	12 18 6	146,777 17 0	66,509 17 9

No. 38.

GREAT NORTHERN RAILWAY.

ABSTRACT of the Tonnage and Amount received for carriage of COAL shipped at the Government Cranes and Staiths, Newcastle and Bullock Island, during 1886-87.

Companies.	1886.		1887.		Increase, 1887		Decrease, 1887.	
	Tons.	Freight.	Tons.	Freight.	Tons.	Freight.	Tons.	Freight.
		£		£		£		£
A. A Company	162	9	29	2	..	..	133	7
Blackwall	1,424	746	1,416	613.	..	..	8	133
Burwood	95,150	3,965	151,249	6,302	56,099	2,337	..	..
Co-operative	240,249	12,728	224,230	10,853	..	..	16,019	1,875
Elliott's	16	3	35	5	19	2	..	..
Ferndale	13,917	601	9,653	252	..	..	4,264	349
Greta	107,986	9,953	109,123	10,014	1,137	61	..	..
Goose	478	20	299	12	..	..	179	8
Hill Side	1,900	79	3,199	133	1,299	54	..	..
Lambton	118,713	4,946	175,049	7,294	56,336	2,348	..	..
Lambton, New	64,262	2,618	69,031	2,804	4,769	186	..	..
Minmi	177,671	8,884	161,565	8,076	..	..	16,106	808
Maryville	26,199	994	11,739	330	..	..	14,463	664
Purified Coke	4,443	185	4,795	200	352	15	..	..
Rix Creek	1,060	152	1,736	566	676	414	..	..
Rathluba	6	1	6	1	..	..	..	..
Sneddon's, Wallsen I.	14,838	742	14,448	677	..	..	390	65
South Ferndale	540	22	..	..	..	..	540	22
Wallsend Tunnels	483,878	20,250	491,774	20,595	7,896	345	..	..
Newcastle	183,992	7,668	188,139	7,838	4,147	170	..	..
Waratah	25,619	1,063	32,119	1,335	6,500	272	..	..
Wickham & Bullock Island	58,610	2,141	59,749	1,526	1,139	..	..	615
Tighe's Hill	11,365	474	7,269	297	..	..	4,096	177
Anvil Creek	794	76	6,805	625	6,011	549	..	..
Pride of Ferndale	369	15	1,895	79	1,526	64	..	..
Hughes & Tunks	140	6	..	..	..	..	140	6
Thornley	5	1	..	..	..	..	5	1
Great Northern	89	7	5,355	304	5,266	297	..	..
Gladstone	..	..	74	29	74	29	..	..
Yates (Wye)	..	..	4	..	4	..	..	..
Homeville	..	..	2,148	161	2,148	161	..	..
Dunkirk	..	..	444	19	444	19	..	..
South Wallsend	..	..	7	1	7	1	..	..
Total	1,633,875	78,349	1,733,381	80,943	155,849	7,324	56,343	4,730
Less local consumption	60,389	4,032	57,782	4,148	..	116	2,607	..

No. 39.

ABSTRACT of the Tonnage and amount received for the carriage of COAL and SHALE from the various Mines on the Great Southern and Western Railways in 1886 and 1887.

	1886.		1887.		Increase, 1887.		Decrease, 1887.	
	Tons.	Freight.	Tons.	Freight.	Tons.	Freight.	Tons.	Freight.
		£		£		£		£
Joadza	23,141	8,133	23,255	8,077	114	..	..	50
Austermere	2,079	472	2,331	579	252	107	..	..
Erith	946	132	..	..	..	..	946	132
North's	31,484	8,580	28,369	7,654	..	..	3,115	926
Hartley Vale	6,008	2,070	6,276	2,159	268	89	..	..
Main Camp	7,021	2,373	10,004	3,170	2,983	797	..	..
Lithgow Valley—								
Mort's (Zig Zag)	26,937	10,099	32,666	12,705	5,729	2,606	..	..
Vale of Clwydd	40,702	15,778	50,760	19,820	10,058	4,042	..	..
Esk Bank	33,978	12,774	15,296	5,443	..	..	18,682	7,331
Lithgow	19,714	7,791	18,467	6,869	..	..	1,247	922
Bowenfels Company	980	208	27	2	..	..	953	206
Carlo's Gap	255	61	422	97	167	36	..	..
Cox's Siding	..	..	976	163	976	163	..	..
Total	193,245	68,471	188,849	66,738	20,547	7,840	24,943	9,573

No. 40.

ABSTRACT of the total quantity of COAL and SHALE carried on Great Southern, Western, and Northern Railways during 1886 and 1887, and the amount of Freight received therefrom.

	1886.		1887.		Increase, 1887.		Decrease, 1887.	
	Tons.	Freight.	Tons.	Freight.	Tons.	Freight.	Tons.	Freight.
COAL.								
Newcastle Lines.....	1,633,875	£ 78,349	1,733,381	£ 80,943	99,506	£ 2,594	.....	.....
Great Southern Railway—								
Joadza Siding	2,934	1,421	3,410	1,529	476	108	.....	.....
Austermere	2,079	472	2,331	579	252	107	.....	.....
Erith	946	132	.....	.....	.....	.....	946	132
Great Western Railway—								
North's	31,484	8,580	28,369	7,654	.....	.....	3,115	926
Main Camp	7,021	2,373	10,004	3,170	2,983	797	.....	.....
Lithgow Valley Mines...	122,311	46,650	117,216	44,839	.....	.....	5,095	1,811
Carlo's Gap	255	61	422	97	167	36	.....	.....
Cox's Creek .....	.....	.....	976	163	976	163	.....	.....
SHALE.								
Great Southern Railway—								
Joadza Siding	20,207	6,712	19,845	6,548	.....	.....	362	164
Great Western Railway—								
Hartley Vale	6,008	2,070	6,276	2,159	268	89	.....	.....
Great Northern Railway—								
Doughboy Hollow .....	.....	.....	237	118	237	118	.....	.....
Total	1,827,120	146,820	1,922,467	147,799	104,865	4,012	9,518	3,033

No. 41.*

RETURN of the numbers and percentage proportion of FIRST and SECOND CLASS PASSENGERS on the Great Southern, Western, and Richmond and Northern Lines, and the amount received from that source during 1887.

	First Class.	Second Class.	Total.
	No.	No.	No.
South and West—			
Passengers	2,531,452	5,492,660	8,024,112
Season Tickets	2,184,616	1,490,266	3,674,882
Workmen's Tickets .....	.....	1,714,980	1,714,980
Northern—			
Passengers	162,707	691,440	854,147
Season Tickets	101,378	99,830	201,208
Workmen's Tickets .....	.....	9,984	9,984
All Lines	4,980,153	9,499,160	14,479,313
Amount received—			
South and West—			
Passengers	£ 266,169	£ 282,393	£ 548,562
Season Tickets	29,342	11,053	40,395
Workmen's Tickets .....	.....	12,695	12,695
Northern—			
Passengers	42,471	66,355	108,826
Season Tickets	2,649	833	3,482
Workmen's Tickets .....	.....	63	63
All Lines	310,631	373,392	714,023
Percentage number—			
South and West			
.....	No. 35'16	No. 64'84	No. 100'00
Northern			
.....	24'79	75'21	100'00
All Lines	34'39	65'61	100'00
Percentage amount received—			
South and West			
.....	£ 49'12	£ 50'88	£ 100'00
Northern			
.....	40'15	59'85	100'00
All Lines	47'71	52'29	100'00

* Includes Tramways.

No. 42.

RETURN of the MILEAGE of SUBURBAN PASSENGERS during 1886 and 1887.

Description.		1886.	1887.
No. of Passengers	No.	6,478,973	6,126,613
„ Workmen's journeys	„	1,763,952	1,708,620
„ Season Ticket-holders' journeys	„	3,466,106	3,475,593
Total Passenger journeys		11,709,036	11,310,826
No. of miles travelled	Miles.	60,313,463	59,998,460
Average mileage per passenger	„	5'15	5'30
Amount received for passengers	£	156,649 12 4	158,866 14 2
Average receipts per mile per passenger	d.	0'62	0'64

No. 43.

RETURN of the Number of TICKETS issued, and amounts for same, Suburban Stations to Suburban Stations, during the year 1887.

Stations.	Down.					Up.							Total number issued—Up.	Total amounts.	Total number of Passengers—Up and Down.		
	Number issued.				Total number issued—Down.	Total amounts.	Number issued.				Total number issued—Up.	Total amounts.					
	Single.		Return.				Single.		Return.								
1	2	1	2	£ s. d.	1	2	1	2	£ s. d.								
Central.....	227	59	830	199	1,315	68	14	13	.....	.....	.....	.....	.....	.....	1,315		
Sydney.....	153,203	314,324	225,465	347,976	1,040,968	35,180	7	9½	.....	.....	.....	.....	.....	.....	1,040,968		
Eveleigh.....	6,801	64,443	11,779	67,288	150,311	2,930	0	5½	590	3,188	109	420	4,307	27	11	9	154,618
McDonald Town.....	2,118	9,983	3,364	13,008	23,473	530	0	0	5,532	35,461	3,064	10,242	54,299	583	14	7	82,772
Newtown.....	11,317	50,773	18,649	63,870	144,009	3,186	12	3	9,675	39,127	6,157	17,948	72,907	826	14	10	217,516
Stammore.....	2,792	3,038	8,644	3,682	13,156	414	5	4	10,319	10,343	28,013	13,098	61,773	1,315	2	10	79,929
Petersham.....	7,650	24,836	18,167	29,233	79,886	2,054	8	0	28,730	76,918	69,637	102,016	277,301	5,139	15	1	357,187
Lewisham.....	1,088	2,626	3,241	3,342	10,297	182	15	10	4,106	7,842	17,182	14,929	44,059	1,038	3	11	54,356
Summer Hill.....	3,401	9,171	7,899	11,880	32,351	776	0	10	18,240	36,498	67,987	74,216	196,941	4,677	1	9	229,292
Ashfield.....	3,514	8,173	8,746	9,821	30,254	727	7	3	17,825	33,305	62,432	73,924	187,486	5,155	0	0	217,740
Croydon.....	2,155	7,875	4,882	9,745	24,657	409	7	8	8,277	18,693	23,696	43,091	98,757	3,014	4	5	123,414
Burwood.....	3,377	9,520	4,740	8,045	25,682	569	11	2	17,543	39,325	65,300	88,410	210,578	7,411	13	2	236,260
Strathfield.....	1,052	2,976	2,075	3,401	9,504	248	4	1	6,157	8,104	21,356	15,327	50,944	1,802	5	4	60,448
Homebush.....	329	2,231	992	2,333	5,935	154	3	1	3,415	10,709	10,458	21,551	46,133	1,409	12	0	52,068
Flemington.....	3	93	2	48	146	2	14	1	266	680	149	1,037	2,132	68	14	11	2,278
Rookwood.....	331	3,676	696	7,883	12,586	264	12	7	1,476	13,610	3,156	31,037	49,279	1,995	8	3½	61,865
Auburn.....	422	4,636	1,650	13,494	20,202	346	6	2	1,246	9,148	2,323	20,669	33,836	1,658	19	2	54,088
Clyde.....	80	1,458	109	1,852	3,499	28	0	5	192	2,396	415	4,757	7,760	371	15	2	11,259
Granville.....	1,393	11,698	4,571	16,234	33,901	303	9	8	2,796	18,069	5,946	33,656	60,467	3,064	10	8	94,368
Harris Park.....	59	95	3	3	160	1	4	7	656	2,425	2,518	6,833	12,432	699	5	1	12,592
Parramatta.....	.....	.....	.....	.....	.....	.....	.....	.....	22,310	62,759	33,151	63,219	181,439	9,745	14	8	181,439
Erskineville.....	1,293	8,887	3,100	17,134	30,504	635	3	2½	2,309	14,647	1,469	3,003	21,428	230	19	11	51,932
St. Peters.....	1,833	10,615	4,376	17,914	31,738	803	5	5	4,397	21,479	3,757	12,813	42,446	490	14	7	77,184
Marrickville.....	728	4,666	1,887	11,442	18,723	415	8	10½	4,583	21,370	7,186	31,435	64,574	1,083	15	2	83,297
Tempe.....	426	3,579	1,361	4,860	10,226	177	11	3½	4,547	9,121	7,536	12,095	33,299	763	11	2	43,525
Arncliffe.....	365	1,653	952	2,127	5,097	70	7	10	3,402	9,111	7,998	15,504	36,015	943	12	0	41,112
Rockdale.....	507	2,885	784	2,384	6,560	76	10	5	4,144	17,622	11,205	33,765	71,736	2,118	4	1	78,296
Kogarah.....	150	1,076	329	794	2,349	32	7	8	5,190	13,390	11,214	23,562	53,356	1,803	18	11	55,705
Carlton.....	26	331	63	164	584	4	1	6	497	2,660	892	6,371	10,420	364	7	3	11,004
Hurstville.....	.....	.....	.....	.....	.....	.....	.....	.....	3,072	14,694	5,805	22,711	46,285	1,793	0	11	46,285
Rhodes.....	.....	.....	.....	.....	.....	.....	.....	.....	42	72	117	191	422	23	2	3	422
Meadow Bank.....	.....	.....	.....	.....	.....	.....	.....	.....	142	54	136	140	472	28	15	2	472
Ryde.....	.....	.....	.....	.....	.....	.....	.....	.....	1,299	4,887	1,294	2,172	9,652	474	13	8	9,652
Total.....	206,645	565,376	339,446	670,206	1,781,673	50,649	1	7	192,975	557,707	487,161	805,142	2,042,985	60,129	2	8½	3,824,658
Return Tickets — Return Journeys.....	.....	.....	487,161	805,142	1,292,303	.....	.....	.....	.....	.....	339,446	670,206	1,009,652	.....	.....	.....	2,301,955
Grand Total.....	206,645	565,376	826,607	1,475,348	3,073,976	50,649	1	7	192,975	557,707	826,607	1,475,348	3,052,637	60,129	2	8½	6,126,613

APPENDIX TO REPORT ON RAILWAYS—1887.

No. 43—continued.

RETURN of the number of SEASON TICKETS issued, and Amounts received for same, by each Suburban Station during the year 1887.

Stations.	Monthly.		Quarterly.		Half-yearly.		Yearly.		Total.		Total Amount.	
	1.	2.	1.	2.	1.	2.	1.	2.	1.	2.	1st Class.	2nd Class.
1887.											£ s. d.	£ s. d.
Sydney.....	55	73	70	23	32	2	90	...	247	98	2,981	3 5 127 2 4
Eveleigh.....	5	5	5	1	...	...	...	...	10	6	79	5 8 2 7 2
Macdonald Town...	40	196	11	43	2	6	...	...	53	245	28	15 11 97 7 11
Newtown.....	135	1,055	65	188	34	57	17	9	251	1,309	306	12 4 507 0 6
Stanmore.....	399	341	160	42	80	23	18	...	657	406	778	6 4 175 11 8
Petersham.....	1,068	1,441	481	384	396	183	89	32	2,034	2,040	2,928	17 2 1,291 5 1
Lewisham.....	184	154	69	32	42	11	10	1	305	198	392	4 4 131 17 3
Summer Hill.....	639	878	343	354	294	134	70	19	1,346	1,385	2,480	15 4 1,190 13 0
Ashfield.....	607	613	360	264	272	95	102	21	1,341	993	2,917	18 1 988 16 5
Croydon.....	360	279	198	177	133	80	34	3	725	539	1,538	19 11 646 15 5
Burwood.....	561	597	348	193	292	80	76	10	1,277	880	3,260	13 6 1,054 15 9
Strathfield.....	211	69	223	60	158	6	32	2	624	137	1,784	0 1 186 15 5
Homebush.....	132	55	77	28	106	22	31	1	346	106	1,085	17 7 156 1 6
Rookwood.....	39	197	21	79	10	30	4	...	74	306	177	17 4 333 8 1
Auburn.....	5	112	29	35	4	6	4	2	42	155	152	16 5 185 4 7
Granville.....	36	153	43	64	27	18	1	...	107	235	1,205	10 10 289 15 9
Parramatta.....	209	384	175	120	73	27	11	1	468	532	1,548	4 11 799 14 9
Erskineville.....	2	39	4	8	1	3	...	...	7	50	10	2 3 21 14 8
St. Peters.....	22	270	23	30	2	12	1	...	48	312	39	4 1 91 17 10
Marrickville.....	61	270	32	97	24	40	1	3	118	410	160	16 5 240 12 8
Tempe.....	33	367	73	51	29	18	14	4	149	440	319	10 1 258 12 1
Arncliffe.....	56	142	29	56	27	18	8	...	120	216	258	11 5 190 1 3
Rockdale.....	95	242	46	130	40	49	7	3	188	424	417	3 7 422 12 4
Kogarah.....	83	182	33	88	26	17	1	...	143	287	304	14 9 271 18 5
Carlton.....	2	60	...	15	...	...	...	...	2	75	1	5 6 63 4 0
Hurstville.....	19	103	40	44	30	8	4	1	93	156	316	5 2 179 12 9
Ryde.....	19	13	7	6	1	...	2	...	29	19	174	7 3 23 15 6
Total.....	5,077	8,290	2,965	2,612	2,135	945	627	112	10,804	11,959	25,549	19 8 9,928 14 1

*All tickets brought into months.

RETURN of the number of Workmen's Weekly Tickets issued, and Amounts received for same, by each Suburban Station during the year 1887.

	Weekly Tickets issued.	Amounts.		Weekly Tickets issued.	Amounts.
	2nd Class.	£ s. d.		2nd Class.	£ s. d.
Sydney.....	18,246	1,966 12 11	Auburn.....	3,589	438 0 9
Eveleigh.....	6,255	781 6 0	Granville.....	3,330	416 18 7
Macdonald Town.....	13,555	655 9 4	Parramatta.....	4,170	527 17 10
Newtown.....	18,226	1,125 15 8	Erskineville.....	3,802	263 18 1
Stanmore.....	2,616	164 14 8	St. Peters.....	5,744	350 4 9
Petersham.....	15,156	1,214 17 0	Marrickville.....	6,651	506 19 9
Lewisham.....	1,497	125 11 9	Tempe.....	3,092	264 9 3
Summer Hill.....	5,512	488 15 1	Arncliffe.....	2,359	222 11 3
Ashfield.....	4,701	453 14 0	Rockdale.....	5,117	539 4 4
Croydon.....	3,886	383 17 1	Kogarah.....	3,510	400 7 5
Burwood.....	4,626	485 10 11	Carlton.....	823	102 16 5
Strathfield.....	809	84 2 8	Hurstville.....	1,948	273 3 7
Homebush.....	794	91 18 6			
Rookwood.....	2,371	281 18 7	Total.....	142,385	12,610 16 2

No. 44.

DETAILED STATEMENT of the MILEAGE of ENGINES, for the twelve months ending 31st December, 1887.

Train Miles.	Suburban.	Illawarra.	Southern.	Western.	Richmond.	Murrumburrah to Cowra.	North Coast Line.	Northern.	Total.
Passenger	420,822	165,727	903,966	680,093	26,093	15,047	57,762	468,854	2,738,364
„ Special	4,494	7,917	19,208	13,265	1,706	754	7,558	12,415	67,317
Funeral	12,684	.....	.....	.....	.....	.....	.....	3,897	16,581
Goods	16,098	14,637	942,575	1,654,260	27,360	15,258	16,929	555,360	3,242,477
„ Special	468	863	142,695	83,051	212	2,054	1,156	28,905	259,404
Coal .....	.....	.....	.....	.....	.....	.....	962	147,002	147,964
Total Train Miles	454,566	189,144	2,008,444	2,430,669	55,371	33,113	84,367	1,216,433	6,472,107
Increase	3,176	38,725	.....	.....	.....	12,299	71,570	.....	.....
Decrease .....	.....	.....	45,261	61,765	1,148	.....	.....	24,754	7,158
OTHER MILES.									
Shuating	67,235	29,357	475,537	344,234	16,402	2,617	12,718	460,585	1,408,685
Water .....	.....	.....	21,353	24,947	.....	2,150	.....	41	48,491
Coal	135	.....	13,136	2,073	.....	.....	.....	.....	15,344
Ballasting	5,541	5,930	51,380	111,783	1,266	12,969	4,658	37,466	230,993
Empty	5,695	6,453	72,594	99,306	494	444	1,575	22,482	209,043
Total other Miles	78,606	41,740	634,000	582,343	18,162	18,180	18,951	520,574	1,912,556
Grand Total.....	533,172	230,884	2,642,444	3,013,012	73,533	51,293	103,318	1,737,007	8,384,663
Total Increase.....	3,724	52,557	.....	.....	.....	21,491	86,564	3,269	117,275
„ Decrease.....	.....	.....	23,908	25,893	529	.....	.....	.....	.....

No. 45.

ANNUAL and DAILY MILEAGE of TRAINS, including Sundays, 1886 and 1887.

	1886.		1887.	
	Annual.	Daily.	Annual.	Daily.
TRAIN MILES.				
Suburban	451,390	1,237	454,566	1,245
Illawarra	150,419	412	189,144	518
Southern	2,053,705	5,627	2,008,444	5,503
Western	2,492,434	6,829	2,430,669	6,659
Richmond	56,519	155	55,371	152
Murrumburrah to Cowra	20,814	57	33,113	21
North Coast Line	12,797	35	84,367	231
Northern	1,241,187	3,400	1,216,433	3,333
Total Train Miles	6,479,265	17,752	6,472,107	17,732
CLASS OF ENGINE.				
Passenger	2,764,971	7,575	2,822,262	7,732
Goods	3,714,294	10,177	3,649,845	10,000
Total.....	6,479,265	17,752	6,472,107	17,732
OTHER MILEAGE.				
Suburban	78,058	214	78,606	215
Illawarra	27,908	76	41,740	114
Southern	612,647	1,679	634,000	1,737
Western	546,471	1,497	582,343	1,596
Richmond	17,543	48	18,162	50
Murrumburrah to Cowra	8,988	24	18,180	50
North Coast Line	3,957	11	18,951	52
Northern	492,551	1,350	520,574	1,426
Total other Mileage	1,788,123	4,899	1,912,556	5,240
CLASS OF WORK.				
Shunting	1,307,632	3,583	1,408,685	3,860
Water	74,776	205	48,491	133
Coal	15,013	41	15,344	42
Ballasting.....	221,621	607	230,993	633
Empty	169,081	463	209,043	572
Total.....	1,788,123	4,899	1,912,556	5,240
Total with shunting, &c.	8,267,388	22,651	8,384,663	22,972
Average daily work per engine .....	.....	43'72	.....	41'62
Do including shunting, &c.....	.....	55'79	.....	53'92
Number of engines	406		426	

No. 46.

DETAIL of MILEAGE of each Engine for the year ending 31st December, 1887.

No.	Class of Engine.	Total Mileage of each Engine.	No.	Class of Engine.	Total Mileage of each Engine.
GREAT SOUTHERN, WESTERN, AND RICHMOND LINES.					
1	Goods	24,781	81	Passenger	21,108
2	"	25,347	82	"	6,867
3	"	15,421	83	"	13,392
4	"	25,261	84	"	16,469
5	Passenger	22,436	85	"	15,380
10	"	30,276	86	"	12,407
13	"	6,534	87	"	9,548
14	"	8,529	88	"	9,222
15	"	25,052	89	"	31,362
16	"	35,356	90	"	6,103
17	Goods	19,350	91	"	6,885
18	"	24,069	92	"	21,812
19	"	11,862	93	Goods	26,911
20	"	19,792	94	"	18,097
21	"	14,382	95	"	25,421
22	"	23,030	96	"	17,424
23	Passenger	21	97	"	12,679
24	"	3,953	98	"	19,135
25	"	Nil.	99	"	24,004
26	"	18,114	100	"	28,078
27	"	9,359	101	"	31,906
28	"	5,526	102	"	16,297
29	"	2,775	103	"	26,659
30	"	6,705	104	"	34,496
31	"	6,588	105	"	Nil.
32	"	20,270	106	"	19,941
33	"	13,975	107	"	16,364
34	"	4,902	108	"	14,090
35	"	21,286	109	"	26,991
36	"	32,613	110	"	14,871
37	"	15,357	111	"	4,785
38	"	28,498	112	"	18,764
39	"	15,628	113	"	26,896
40	Goods	26,170	114	"	24,191
41	"	18,193	115	"	26,531
42	"	11,766	116	"	27,043
43	"	23,795	117	"	15,429
44	"	13,935	118	Passenger	30,141
45	"	21,807	119	"	17,682
46	"	4,148	120	"	7,544
47	"	27,824	121	"	23,022
48	"	4,164	122	"	31,308
49	"	10,634	123	"	13,159
50	"	13,969	124	"	23,807
51	"	11,183	125	"	21,844
52	"	25,306	126	"	19,629
53	"	14,667	127	"	21,624
54	"	21,570	128	"	5,803
55	"	15,642	129	"	16,292
56	"	8,830	130	"	8,806
57	"	23,008	131	Goods	21,889
58	"	24,828	132	"	27,213
59	"	13,108	133	"	20,050
60	"	31,695	134	"	26,150
61	"	Nil.	135	"	Nil.
62	"	Nil.	136	"	Nil.
63	"	20,512	137	"	35,655
64	"	25,228	138	"	22,614
65	"	12,233	139	"	6,563
66	Passenger	Nil.	140	"	7,719
67	"	25,379	141	"	15,535
68	"	11,186	142	"	19,532
69	"	15,848	143	Passenger	12,206
70	"	16,967	144	"	17,284
71	"	9,715	145	"	13,704
72	"	6,969	146	"	21,652
73	"	7,975	147	"	15,526
74	"	10,047	148	"	19,770
75	"	17,304	149	"	6,949
76	"	15,795	150	"	13,660
77	"	21,844	151	"	13,798
78	"	2,129	152	"	37,977
79	"	41,922	153	"	9,111
80	"	4,914	154	"	14,274
			155	"	5,306

No. 46—continued.

No.	Class of Engine.	Total Mileage of each Engine.	No.	Class of Engine.	Total Mileage of each Engine.
GREAT SOUTHERN, WESTERN, AND RICHMOND LINES—continued.					
156	Passenger	18,404	247	Goods	15,815
157	"	26,298	248	"	22,207
158	"	16,493	249	"	34,796
159	"	18,132	250	"	11,549
160	"	28,864	251	"	15,368
161	"	20,947	252	"	15,190
162	"	24,888	253	"	20,866
163	"	23,377	254	"	19,246
164	Goods	13,471	255	Passenger	13,262
165	Passenger	10,799	256	"	21,119
166	"	9,351	257	"	37,116
167	"	15,014	258	"	26,048
168	"	15,071	259	"	40,914
169	"	7,027	260	"	29,120
170	"	18,975	265	"	6,674
171	"	12,280	266	"	20,760
172	"	10,107	267	"	27,861
173	"	31,551	268	"	2,155
174	"	13,318	269	"	22,150
175	"	12,439	270	"	20,950
176	"	9,470	271	"	27,580
177	"	16,247	272	"	24,096
178	"	6,444	273	"	26,912
179	"	19,844	274	"	29,300
180	"	21,429	275	"	28,342
181	"	23,872	276	"	19,165
182	"	22,991	277	"	37,480
183	Goods	27,781	278	"	20,222
184	"	30,289	279	"	35,471
185	"	15,085	280	"	25,928
186	"	23,863	281	"	21,498
187	"	15,824	282	"	21,328
188	"	21,794	283	"	12,721
189	"	15,125	284	"	24,588
190	"	25,300	285	"	27,325
191	"	10,125	286	"	17,422
192	"	24,974	287	"	33,559
193	"	17,023	288	"	4,934
194	"	19,600	289	"	18,956
195	"	21,409	290	"	301
196	"	22,047	291	"	359
197	"	25,210	294	Goods	24,515
198	"	24,090	295	"	21,700
199	"	26,104	296	"	12,346
200	"	18,955	297	"	28,607
201	"	33,416	298	"	24,753
202	"	20,614	299	"	21,331
203	"	11,822	300	"	27,227
204	"	20,571	301	"	18,108
205	"	28,873	302	"	13,919
206	"	24,816	303	"	33,182
207	"	11,560	304	Passenger	17,549
208	"	12,333	305	"	21,472
209	"	25,384	306	"	34,571
210	"	11,778	307	"	14,878
211	"	22,675	308	"	31,321
212	"	19,176	309	"	27,739
213	"	22,081	310	"	33,375
214	"	26,730	311	"	27,947
215	"	19,986	312	"	26,701
216	"	12,770	313	"	18,086
217	"	33,292	314	Goods	27,077
218	"	32,171	315	"	23,816
219	"	22,729	316	"	30,642
220	"	9,858	317	"	39,734
225	"	28,590	318	"	28,992
226	"	9,394	319	"	21,042
227	"	27,614	320	"	22,984
228	"	22,975	321	"	26,944
229	"	27,917	322	"	18,678
230	"	13,265	323	"	17,144
239	"	20,116	324	"	25,062
240	"	22,040	325	"	33,120
241	"	20,825	326	"	23,316
242	"	31,836	327	"	31,146
243	"	31,089	328	"	29,605
244	"	11,226	341	Passenger	36,025
245	"	19,899			
246	"	35,188			

No. 46—continued.

No	Class of Engine.	Total Mileage of each Engine.	No.	Class of Engine.	Total Mileage of each Engine.
GREAT SOUTHERN, WESTERN, AND RICHMOND LINES—continued.					
342	Passenger	28,044	369	Goods	28,819
343	"	31,557	370	"	34,373
344	"	33,638	371	"	30,325
345	"	35,130	372	"	35,270
346	"	28,951			
347	"	16,387	373	Passenger	18,507
348	"	16,375	374	"	14,992
349	"	12,591	375	"	17,121
350	"	35,643	376	"	15,166
351	"	16,023	377	"	11,986
352	"	22,806	378	"	11,349
353	"	31,255	379	"	8,978
354	"	14,633	380	"	12,258
355	"	6,487	381	"	9,892
356	"	10,017	382	"	11,157
357	"	11,781	383	"	8,072
358	"	812	384	"	7,675
359	"	12,583			
360	"	18,674			
361	"	6,517	385	Goods	23,232
362	"	11,528	386	"	3,770
363	"	8,452			
364	"	9,488			
365	"	6,344		Contractors	317
366	"	10,843			
367	"	8,998			
368	"	6,497			
				Total mileage	*6,639,303
GREAT NORTHERN LINE.					
1	Passenger	15,786	43	Goods	28,645
2	"	20,411	44	"	25,372
3	"	24,141	45	"	30,310
4	"	29,664	46	"	24,544
6	Goods	19,424	47	Passenger	15,403
7	"	19,052	48	"	20,276
9	"	14,596	49	"	32,026
10	"	14,790	50	"	24,531
11	"	19,144	51	"	36,052
12	"	21,922			
13	"	22,762	221	Goods	22,719
14	"	38,067	222	"	21,780
15	"	9,997	223	"	22,720
16	"	23,008	224	"	22,217
18	"	23,834	231	"	19,560
19	"	23,225	232	"	20,607
20	"	15,792	233	"	25,773
21	"	20,289	234	"	22,129
22	"	15,298	235	"	21,110
23	"	16,102	236	"	25,324
24	"	19,455	237	"	23,318
25	"	13,175	238	"	21,547
26	"	16,811			
27	Passenger	19,300	261	Passenger	32,332
28	"	25,964	262	"	19,373
29	"	34,183	263	"	8,334
30	"	25,176	264	"	12,602
31	Goods	21,609	291	Goods	21,713
32	"	26,818	329	"	23,484
33	"	23,150	330	"	29,489
34	"	27,281	331	"	31,108
35	"	23,935	332	"	32,880
36	"	24,504	333	"	30,745
37	Passenger	25,143	334	Passenger	17,279
38	"	21,063	335	"	30,725
39	"	13,953	336	"	31,904
			337	"	16,307
			338	"	31,732
40	Goods	20,385	339	"	17,090
41	"	25,084	340	"	29,722
42	"	20,621			
				Total mileage	1,757,696

* This total includes 4,029 miles run by engine No. 204, ballasting for contractors, Blayney to Cowra extension.

No. 47.

TABULAR ANALYSIS showing WORKING EXPENSES, GROSS EARNINGS, and NET EARNINGS, per Mile open, and Train Mile, 1887.

Mileage.	Miles open— Average.	Train miles.	Miles run, including shunting.
South and West.....	1,434	5,239,638	6,631,620
North	501½	1,232,469	1,753,043
Total.....	1,935½	6,472,107	8,384,663
Heads of Expenditure.	Amount.	Per mile open.	Per train mile.
Locomotive Power and Repairing Engines—	£	£	d.
South and West	362,612	252'87	16'61
North	80,796	161'11	15'74
Total	443,408	229'09	16'44
Carriage and Waggon Repairs—			
South and West	70,548	49'20	3'23
North	13,090	26'10	2'55
Total	83,638	43'21	3'10
Maintenance and Renewal of Way—			
South and West	329,769	229'96	15'11
North	67,429	134'45	13'13
Total.....	397,198	205'22	14'73
Traffic Charges, Coaching, and Merchandise—			
South and West	321,998	224'54	14'75
North	112,940	225'20	21'99
Total.....	434,938	224'72	16'13
Compensation, Personal Injury, &c.—			
South and West	11,548	8'05	0'53
North	580	1'16	0'11
Total.....	12,128	6'27	0'45
Compensation, Damage to, and Loss of Goods—			
South and West	980	0'68	0'04
North	95	0'19	0'02
Total	1,075	0'55	0'04
Miscellaneous Working Expenses and General Establishment—			
South and West	66,331	46'26	3'04
North	19,044	37'97	3'71
Total.....	85,375	44'11	3'16
Gross Expenditure—			
South and West	1,163,786	811'56	53'31
North	293,974	586'18	57'25
Total	1,457,760	753'17	54'05
Gross Earnings—			
South and West	1,734,106	1,209'27	79'43
North	474,188	945'53	92'34
Total.....	2,208,294	1,140'94	81'88
Net Earnings—			
South and West	570,320	397'71	26'12
North	180,214	359'35	35'09
Total.....	750,534	387'77	27'83

No. 48.

TABULAR SYNOPSIS of the TOTAL EARNINGS under the different Heads of Traffic per Mile open and Train Mile for the Year 1887.

Mileage.	Train Miles.		Total Miles run, including shunting.	
	Passenger.	Goods.	Passenger.	Goods.
South and West	2,327,990	2,911,648	2,644,023	3,987,597
North	494,272	738,197	647,800	1,105,243
All Lines	2,822,262	3,649,845	3,291,823	5,092,840
Heads of Traffic.	Miles open for Traffic—average.	Earnings.	Per Mile open.	Per Train Mile.
COACHING.				
Passengers, 1st and 2nd Class—				
South and West	1,434	£ 546,933	£ 381'40	d. 56'38
North	501½	108,826	217'00	52'84
All Lines	1,935½	655,759	338'81	55'76
Season Tickets—				
South and West	1,434	53,066	37'00	5'47
North	501½	3,544	7'07	1'72
All Lines	1,935½	56,610	29'25	4'81
Horses, Carriages, Dogs, Parcels, &c.—				
South and West	1,434	57,582	40'16	5'94
North	501½	16,786	33'47	8'15
All Lines	1,935½	74,368	38'42	6'32
Mails—				
South and West	1,434	26,315	18'35	2'71
North	501½	18,666	37'22	9'06
All Lines	1,935½	44,981	23'24	3'83
Miscellaneous—				
South and West	1,434	13,010	9'07	1'34
North	501½	5,771	11'50	2'80
All Lines	1,935½	18,781	9'70	1'60
Total Coaching—				
South and West	1,434	696,906	485'98	71'84
North	501½	153,593	306'26	74'57
All Lines	1,935½	850,499	439'42	72'32
GOODS.				
Live Stock—				
South and West	1,434	163,179	113'79	13'45
North	501½	19,132	38'15	6'22
All Lines	1,935½	182,311	94'19	11'99
Minerals—				
South and West	1,434	60,681	42'32	5'00
North	501½	80,943	161'40	26'32
All Lines	1,935½	141,624	73'17	9'31
Wool—				
South and West	1,434	170,432	118'85	14'05
North	501½	58,345	116'34	18'97
All Lines	1,935½	228,777	118'20	15'04
General Merchandise—				
South and West	1,434	638,603	445'33	52'64
North	501½	160,788	320'61	52'27
All Lines	1,935½	799,391	413'02	52'57
Miscellaneous—				
South and West	1,434	4,305	3'00	0'35
North	501½	1,387	2'77	0'45
All Lines	1,935½	5,692	2'94	0'37
Total Goods—				
South and West	1,434	1,037,200	723'29	85'49
North	501½	320,595	639'27	104'23
All Lines	1,935½	1,357,795	701'52	89'28
Gross Earnings—				
South and West	1,434	1,734,106	1,209'27	79'43
North	501½	474,188	945'53	92'34
All Lines	1,935½	2,208,294	1,140'94	81'88

No. 49.

RETURN of the MILEAGE and WEIGHT of PASSENGERS and TONS of GOODS carried during 1887, and the AVERAGE RECEIPTS per mile.

Description.		Southern, Western, and Richmond.	Northern.	Total.
COACHING TRAFFIC.				
Number of 1st and 2nd class passengers	No.	7,996,704	854,147	8,850,851
„ Season Ticket-holders' journeys	„	3,674,280	201,208	3,875,488
„ Workmen's Ticket „	„	1,714,980	9,984	1,724,964
Total Passenger „ .....	.....	13,385,964	1,065,339	14,451,303
Total number of miles travelled	Miles.	148,747,380	22,262,913	171,010,293
Average mileage per passenger	„	11'11	20'90	11'83
Gross amount received from passengers	£	599,999	112,371	712,370
Average receipts per mile per passenger	d.	0'97	1'22	1'00
Tonnage of passengers carried	Tons.	892,398	68,781	961,179
„ horses, carriages, and dogs	„	3,167	1,208	4,375
„ mails and parcels	„	6,859	4,552	11,411
		902,424	74,541	976,965
Total mileage of tons	Miles.	11,265,238	1,913,532	13,178,770
Average mileage per ton	„	12'48	25'67	13'49
Gross amount received for above traffic and miscellaneous receipts	£	696,906	153,593	850,499
Average receipts per ton per mile	d.	14'85	19'26	15'49
GOODS TRAFFIC.				
Total tonnage of goods	Tons.	1,336,925	1,932,036	3,268,961
„ live stock	„	58,683	11,581	70,264
		1,395,608	1,943,617	3,339,225
Total mileage of tons of goods and live stock	Miles.	143,508,249	35,197,342	178,705,591
Average „ „	„	102'83	18'11	53'52
Gross amount received for above traffic and miscellaneous receipts	£	1,037,200	320,596	1,357,796
Average receipts per ton per mile	d.	1'73	2'19	1'82

No. 49a.

CAMDEN TRAMWAY.

RETURN of the MILEAGE and WEIGHT of PASSENGERS and TONS of GOODS carried during 1887, and the AVERAGE RECEIPTS per mile.

Description.		Camden Tramway.
COACHING TRAFFIC.		
Number of 1st and 2nd class passengers	No.	25,310
„ season ticket holders' journeys	„	602
Total passengers' journeys	„	25,912
Number of miles travelled	Miles.	165,775
Average mileage per passenger	„	6'40
Gross amount received from passengers	£	1,266
Average receipts per mile per passenger	d.	1'83
Tonnage of passengers carried	Tons.	1,727
„ horses, carriages, and dogs	„	49
„ mails and parcels	„	223
		1,999
Total mileage of tons	Miles.	12,760
Average mileage per ton	„	6'38
Gross amount received for above traffic and miscellaneous receipts	£	1,940
Average receipts per ton per mile	d.	36'49
GOODS TRAFFIC.		
Total tonnage of goods	Tons.	17,139
„ live stock	„	164
		17,303
Total mileage of tons of goods and live stock	Miles.	99,059
Average „ „ „	„	5'72
Gross amount received for above traffic and miscellaneous receipts	£	2,088
Average receipts per ton per mile	d.	5'06

No. 49b.

SANS SOUCI TRAMWAY.

RETURN of the MILEAGE and WEIGHT of PASSENGERS and TONS of GOODS carried during 1887, and the AVERAGE RECEIPTS per mile.

Description.		Sans Souci Tramway.
Number of 1st and 2nd class passengers	No.	23,137
„ miles travelled	Miles.	90,880
Average mileage per passenger	„	3'93
Gross amount received for passengers	£	387
Average receipts per mile per passenger	d.	1'02
Tonnage of passengers carried	Tons.	1,542
Total mileage of tons	Miles.	6,059
Average mileage per ton	„	3'93
Gross amount received for above traffic and miscellaneous receipts	£	388
Average receipts per ton per mile	d.	15'37
GOODS TRAFFIC.		
Total tonnage of goods	Tons.	125
Total mileage of tons of goods	Miles.	500
Average „ „ „	„	4
Gross amount received for above traffic and miscellaneous receipts	£	8
Average receipt per ton per mile	d.	3'84

No. 50.

WEIGHT of Locomotive Engines and Tenders, empty and loaded, on 31st December, 1887.

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No. of Engine.	No. of Engines of same weight.	Engines.								Tenders.								
		Empty.				In Steam.				Empty.				Full.				
		Leading.	Driving.	Trailing.	Total.	Leading.	Driving.	Trailing.	Total.	Leading.	Middle.	Trailing.	Total.	Leading.	Middle.	Trailing.	Total.	
GREAT SOUTHERN, WESTERN, AND RICHMOND LINES.																		
1 to 4	4	9 1 2	10 18 0	10 14 2	30 14 0	9 19 2	12 0 0	11 16 2	33 16 0	4 7 0	3 2 1	4 2 3	11 12 0	7 16 0	7 2 0	7 13 0	22 11 0	
5	1	7 5 0	5 19 2	3 6 2	16 11 0	7 13 0	6 0 0	4 0 0	17 13 0	3 15 1	.....	3 9 0	7 4 1	6 15 0	.....	6 3 2	12 18 2
10	1	7 2 0	9 6 3	12 0 0	28 8 3	7 19 0	10 18 0	14 17 0	33 14 0	4 9 3	1 11 3	6 3 2	12 5 0	7 18 0	5 0 0	9 12 0	22 10 0	
13	1	8 0 1	10 8 0	4 8 1	22 16 2	10 12 0	7 17 0	7 17 2	26 6 2	4 4 1	.....	4 8 3	8 13 0	6 18 0	.....	7 12 3	14 10 3
14 to 16	3	7 3 2	10 19 2	5 3 1	23 6 1	7 19 0	12 0 0	6 6 0	26 5 0	4 8 0	1 12 0	4 13 0	10 13 0	7 9 0	4 13 0	7 6 0	19 8 0	
17 to 22	6	7 3 0	11 7 2	8 1 0	26 11 2	8 8 2	12 6 0	9 10 2	30 5 0	4 9 0	2 9 2	4 11 3	11 10 1	6 12 0	6 3 0	7 12 2	20 7 2	
23 to 28	6	8 4 0	11 2 2	9 12 3	28 19 1	9 8 2	11 4 1	11 0 0	31 12 3	4 5 0	2 14 0	4 6 0	11 5 0	7 0 0	5 2 0	7 4 0	19 6 0	
29 to 31	3	4 17 1	4 15 3	5 5 2	14 18 2	6 1 0	6 6 0	7 5 0	19 12 0	.....	.....	.....	.....	.....	.....	.....	.....
32 to 35	4	8 1 3	10 19 2	10 4 2	29 5 3	9 10 0	12 0 1	11 6 0	32 16 1	4 5 0	2 14 0	4 6 0	11 5 0	7 19 0	5 16 0	8 1 0	21 16 0	
36 to 39	4	10 15 0	8 8 3	5 13 2	24 17 1	12 5 0	9 1 0	6 14 0	28 0 0	4 5 2	3 9 2	4 12 0	12 7 0	8 1 2	7 5 0	8 13 2	24 0 0	
40 to 43	4	7 7 2	11 12 0	8 10 0	27 9 2	8 9 0	12 12 0	10 2 0	31 3 0	3 4 0	4 6 2	3 10 2	11 1 0	5 4 0	7 11 2	7 5 2	20 1 0	
44 to 47	4	9 0 3	8 11 0	9 3 2	26 15 1	9 14 0	10 17 0	10 6 3	30 17 3	3 16 3	4 5 1	4 3 1	12 5 1	7 8 0	7 1 2	7 12 2	22 2 0	
48 to 51	4	11 0 0	10 6 2	10 16 1	32 2 3	12 5 0	11 11 3	12 1 2	35 18 1	4 4 0	4 3 3	4 13 2	13 1 1	8 12 2	7 14 0	8 5 0	24 11 2	
52	1	9 0 3	8 11 0	9 3 2	26 15 1	9 14 0	10 17 0	10 6 3	30 17 3	3 16 3	4 5 1	4 3 1	12 5 1	7 8 0	7 1 2	7 12 2	22 2 0	
53 to 59	7	11 0 0	10 6 2	10 16 1	32 2 3	12 5 0	11 11 3	12 1 2	35 18 1	4 4 0	4 3 3	4 13 2	13 1 1	8 12 2	7 14 0	8 5 0	24 11 2	
60 to 65	6	11 6 0	11 4 3	11 6 0	33 16 3	12 2 1	12 5 1	12 18 1	37 5 3	4 9 1	3 19 1	4 8 2	12 17 0	9 0 2	8 8 3	8 9 2	25 18 3	
66	1	5 2 1	4 7 0	5 10 0	14 19 1	6 8 0	5 19 2	6 18 0	19 5 2	.....	.....	.....	.....	.....	.....	.....	.....
67 to 74	8	6 3 2	8 4 2	7 8 2	21 16 2	7 5 3	9 6 0	11 8 1	28 0 0	.....	.....	.....	.....	.....	.....	.....	.....
75 to 78	4	8 7 0	12 18 0	4 9 1	25 14 1	10 15 0	13 15 0	5 3 0	29 13 0	4 5 0	2 17 0	4 5 0	11 7 0	8 6 0	5 12 0	8 8 0	22 6 0	
79 to 92	14	11 9 3	12 0 0	11 8 3	34 18 2	12 7 3	13 0 0	12 4 0	37 11 3	4 9 2	3 4 2	4 0 2	11 14 2	7 14 0	6 11 0	7 8 3	21 13 3	
93 to 102	10	9 1 2	10 18 0	10 14 2	30 14 0	9 19 2	12 0 0	11 16 2	33 16 0	4 7 0	3 2 1	4 2 3	11 12 0	7 16 0	7 2 0	7 13 0	22 11 0	
103	1	9 0 3	8 11 0	9 3 2	26 15 1	9 14 0	10 17 0	10 6 3	30 17 3	3 16 3	4 5 1	4 3 1	12 5 1	7 8 0	7 1 2	7 12 2	22 2 0	
104	1	9 1 2	10 18 0	10 14 2	30 14 0	9 19 2	12 0 0	11 16 2	33 16 0	4 7 0	3 2 1	4 2 3	11 12 0	7 16 0	7 2 0	7 13 0	22 11 0	
105	1	11 1 2	8 11 0	10 7 2	30 0 0	12 8 0	10 12 3	11 16 1	33 17 0	3 16 0	2 4 0	4 9 2	10 9 2	5 17 0	6 14 0	7 17 0	20 8 0	
106 to 117	12	9 1 2	10 18 0	10 14 2	30 14 0	9 19 2	12 0 0	11 16 2	33 16 0	4 7 0	3 2 1	4 2 3	11 12 0	7 16 0	7 2 0	7 13 0	22 11 0	
118 to 126	9	11 9 3	12 0 0	11 8 3	34 18 2	12 7 3	13 0 0	12 4 0	37 11 3	4 9 2	3 4 2	4 0 2	11 14 2	7 14 0	6 11 0	7 8 3	21 13 3	
127 to 129	3	5 19 0	6 2 0	6 2 0	18 3 0	7 9 0	7 12 2	7 14 2	22 16 0	.....	.....	.....	.....	.....	.....	.....	.....
130	1	11 0 2	10 12 0	9 19 0	31 11 2	11 12 3	11 10 0	11 1 2	34 4 1	6 10 1	.....	6 16 0	13 6 1	12 13 0	.....	12 13 0	25 6 0
131 to 141	11	Bogie Leading	7 17 1 Intermediate	8 10 3	40 14 0	Bogie Leading	6 19 2 Intermediate	9 13 0	9 7 0	46 4 2	Bogie Leading	2 8 2 Intermediate	2 12 2 Intermediate	10 3 1	Bogie Leading	6 1 2 Intermediate	6 18 1 Intermediate	25 15 3
142	1	9 1 2	10 18 0	10 14 2	30 14 0	9 19 2	12 0 0	11 16 2	33 16 0	4 7 0	3 2 1	4 2 3	11 12 0	7 16 0	7 2 0	7 13 0	22 11 0	
143 to 157	15	11 9 3	12 0 0	11 8 3	34 18 2	12 7 3	13 0 0	12 4 0	37 11 3	4 9 2	3 4 2	4 0 2	11 14 2	7 14 0	6 11 0	7 8 3	21 13 3	

APPENDIX TO REPORT ON RAILWAYS—1887.

No. 50—(continued).—Weight of Locomotive Engines and Tenders, empty and loaded, on 31st December, 1887.

No. of Engine.	No. of Engines of same weight.	Engines.								Tenders.							
		Empty.				In Steam.				Empty.				Full.			
		Leading.	Driving.	Trailing.	Total.	Leading.	Driving.	Trailing.	Total.	Leading.	Middle.	Trailing.	Total.	Leading.	Middle.	Trailing.	Total.
NORTHERN RAILWAY.																	
1 to 3	3	9 1 0	9 0 0	4 11 0	22 12 0	10 5 0	10 10 0	4 15 0	25 10 0	3 14 3	4 3 2	2 18 3	10 17 0	7 7 2	4 17 0	8 3 2	20 8 0
4	1	8 0 0	5 17 0	2 10 0	16 7 0	9 10 0	6 3 0	4 2 0	19 15 0	3 15 0	.....	3 9 0	7 4 0	6 15 0	.....	6 3 2	12 18 2
6 and 7	2	9 4 0	9 16 0	11 12 0	30 12 0	10 14 0	12 10 0	11 16 0	35 0 0	.....	.....	.....	.....	.....	.....	.....	.....
9	1	4 5 3	4 4 2	4 14 1	13 4 2	5 16 3	5 5 3	5 15 2	16 18 0	.....	.....	.....	.....	.....	.....	.....	.....
10	1	8 0 1	10 8 0	4 8 1	22 16 2	10 0 2	11 2 0	5 4 0	26 6 2	4 4 1	.....	4 8 3	8 13 0	6 18 0	.....	7 12 3	14 10 3
11 to 13 18 and 19 21 and 22 14 to 16	7	6 13 0	12 7 2	7 11 0	26 11 2	8 18 2	10 2 0	11 4 2	30 5 0	4 9 0	2 9 2	4 11 3	11 10 1	6 12 0	6 3 0	7 12 2	20 7 2
20	1	8 7 0	10 6 0	9 0 0	27 13 0	9 0 0	10 15 0	10 0 0	29 15 0	4 12 0	3 4 0	3 12 0	11 8 0	7 3 0	5 14 0	7 7 0	20 4 0
23 to 26	4	10 0 0	10 0 0	10 0 0	30 0 0	10 10 0	12 6 0	12 4 0	35 0 0	.....	.....	.....	.....	.....	.....	.....	.....
27 to 30	4	9 9 0	9 9 1	9 9 3	28 8 0	10 5 0	10 7 2	10 8 2	31 1 0	4 12 0	3 4 0	3 12 0	11 8 0	7 3 0	5 14 0	7 7 0	20 4 0
31 to 36 40 to 46 and 291	14	11 12 0	11 8 1	11 3 2	34 3 3	12 9 0	12 11 0	12 0 0	37 0 0	4 9 2	3 4 2	4 0 2	11 14 2	7 14 0	6 11 0	7 8 3	21 13 3
37 to 39 47 to 51	8	9 1 2	10 18 0	10 14 2	30 14 0	9 19 2	12 0 0	11 16 2	33 16 0	4 7 0	3 2 1	4 2 3	11 12 0	7 16 0	7 2 0	7 13 0	22 11 0
221 to 224 231 to 238 329 to 333	17	11 9 3	12 0 0	11 8 3	34 18 2	12 7 3	13 0 0	12 4 0	37 11 3	4 9 2	3 4 2	4 0 2	11 14 2	7 14 0	6 11 0	7 8 3	21 13 3
261 to 264	4	Bogie 7 5 2 Leading 9 15 2 Bogie	10 9 0	11 17 0	39 7 0	Bogie 7 14 0 Leading 10 11 3 Bogie	11 1 2	13 1 0	42 8 1	4 7 1	4 5 1	4 1 1	12 13 3	8 5 0	8 2 2	7 18 3	24 6 1
334 to 340	7	6 7 0 6 15 0 Bogie	11 16 3	11 4 2	36 3 1	6 18 1 6 15 3 Bogie	13 13 0	11 12 0	38 19 0	4 12 2	4 4 0	4 9 1	13 5 3	8 15 0	7 6 3	8 16 0	24 17 3
	7	7 5 3 7 0 3	11 12 2	11 9 3	37 8 3	7 19 0 7 11 0	12 2 1	12 9 1	40 1 2	4 3 2	4 14 1	3 19 2	12 17 1	8 4 3	9 5 0	7 13 2	25 3 1
	77																

No. 50 (continued).—ABSTRACT of Total and Average Weights of Rolling Stock, 1887.

	Southern and Western.			Northern.		
	No. of each Class	Total Weight, Empty.	Average Weight.	No. of each Class	Total Weight, Empty.	Average Weight.
PASSENGER STOCK.						
		tons cwt. qrs.	tons cwt. qrs.		tons cwt. qrs.	tons cwt. qrs.
Carriages, Dining	1	25 11 2	25 11 2	.....	.....	.....
Do State	2	27 5 2	13 12 3	.....	.....	.....
Do Sleeping.....	12	228 4 0	19 0 1 $\frac{1}{4}$	3	55 9 2	18 9 3 $\frac{1}{4}$
Do First Class.....	117	1,655 14 2	14 3 0	25	248 0 0	9 18 1 $\frac{1}{2}$
Do Composite	*95	1,197 7 1	12 12 0 $\frac{1}{2}$	34	441 9 1	12 19 2 $\frac{3}{4}$
Do 2nd Class	194	1,726 6 1	8 18 0	81	578 12 2	7 2 3 $\frac{1}{2}$
Brake Vans, Composite	101	1,211 4 0	11 19 3 $\frac{1}{2}$	24	349 14 2	14 11 1 $\frac{3}{4}$
Mail „	9	63 7 3	7 0 3 $\frac{1}{2}$	15	109 16 2	7 6 1 $\frac{3}{4}$
Prison „	4	32 19 2	8 4 3 $\frac{1}{2}$	3	20 18 2	6 19 2
Workmen's Vans.....	31	169 2 0	5 9 0 $\frac{1}{2}$	.....	.....	.....
Horse Boxes.....	95	573 12 1	6 0 3	57	350 5 0	6 2 3 $\frac{1}{4}$
Carriage Trucks	47	205 16 1	4 7 2 $\frac{1}{4}$	20	84 9 1	4 4 1 $\frac{3}{4}$
Hearses	6	30 12 1	5 2 0	6	33 16 1	5 12 3
Brake Vans	23	179 5 0	7 15 3 $\frac{1}{2}$	4	23 10 3	5 17 2 $\frac{3}{4}$
Total	737	7,326 8 0	9 18 3 $\frac{1}{4}$	272	2,296 2 0	8 8 3 $\frac{1}{4}$
GOODS STOCK.						
Brake Vans	118	1,389 15 2	11 15 2 $\frac{1}{4}$	55	594 2 0	10 16 0
A Waggon's	132	557 12 0	4 4 2	104	449 14 3	4 6 2
B „	156	738 7 0	4 14 2 $\frac{3}{4}$	78	380 4 3	4 17 2
C Vans	240	1,345 1 1	5 12 0 $\frac{1}{4}$	151	822 6 3	5 8 3 $\frac{3}{4}$
D Waggon's	4,110	19,130 15 2	4 13 0 $\frac{1}{2}$	1,147	5,205 9 1	4 10 3
E „	238	997 0 2	4 3 3	116	473 8 1	4 1 2 $\frac{1}{2}$
F „	3	22 12 1	7 10 3	8	96 8 2	12 1 0 $\frac{1}{4}$
G „	343	4,084 18 1	11 18 0 $\frac{1}{4}$	.....	.....	.....
Water Trucks	48	340 4 1	7 1 3	6	36 17 3	6 3 0
Loco. Coal Trucks	250	1,187 0 0	4 15 0	.....	.....	.....
Powder Vans	27	155 1 0	5 14 3 $\frac{1}{2}$	19	106 15 1	5 12 1 $\frac{1}{2}$
Sheep „	273	1,845 15 0	6 15 1	190	1,295 6 0	6 16 1 $\frac{1}{2}$
Cattle „	280	1,815 15 1	6 9 2 $\frac{3}{4}$	136	866 12 3	6 7 1 $\frac{3}{4}$
Meat „	30	198 8 0	6 12 1	18	109 11 3	6 1 3
Ballast Waggon's	192	874 0 0	4 11 0	106	432 18 3	4 1 2 $\frac{3}{4}$
Coal „ .....	.....	.....	.....	†3,030	14,442 7 3	4 15 1 $\frac{1}{2}$
Combination Trucks	15	109 13 0	7 6 1	.....	.....	.....
Refrigerating Car	1	12 1 3	12 1 3	.....	.....	.....
Dump Cars	201	1,908 12 2	9 9 3 $\frac{1}{2}$	.....	.....	.....
Accident Vans	7	61 5 0	8 15 0	.....	.....	.....
Total	6,664	36,773 18 0	5 10 1 $\frac{1}{2}$	5,164	25,312 4 1	4 18 0
Total Vehicles, all Lines	7,401	44,100 6 0	.....	5,436	27,608 6 1	.....

* Including two carriages in use on Camden Tramway. † Private.
 NOTE.—There are also 13 cars and 2 trucks in use on the Platt-burg Tramway, which were transferred from Tramway Department.

No. 50—continued.

WEIGHT of Locomotive Engines and Tenders, and Tonnage carried, on the Great Southern, Western, and Richmond Railways during the year 1887.

No. of Engine.	Weight of Engine and Tender for whole journey.	Mileage of each Engine and Tender.	Total Tons carried.	No. of Engine.	Weight of Engine and Tender for whole journey.	Mileage of each Engine and Tender.	Total Tons carried.
GREAT SOUTHERN, WESTERN, AND RICHMOND LINES.							
	t. c. q.				t. c. q.		
1	52 14 0	24,781	1,305,959	86	55 18 3	12,407	694,017
2	52 14 0	25,347	1,335,787	87	55 18 3	9,548	534,091
3	52 14 0	15,421	812,687	88	55 18 3	9,222	515,856
4	52 14 0	25,261	1,331,255	89	55 18 3	31,362	1,754,312
5	28 13 2	22,436	643,352	90	55 18 3	6,103	341,387
10	52 15 2	30,276	1,597,813	91	55 18 3	6,885	385,130
13	38 18 0	6,534	254,173	92	55 18 3	21,812	1,220,109
14	42 14 3	8,529	304,508	93	52 14 0	26,911	1,418,210
15	42 14 3	25,052	1,070,660	94	52 14 0	18,097	953,712
16	42 14 3	35,356	1,511,027	95	52 14 0	25,421	1,339,687
17	47 13 2	19,350	922,511	96	52 14 0	17,424	918,245
18	47 13 2	24,069	1,197,490	97	52 14 0	12,679	668,183
19	47 13 2	11,862	565,521	98	52 14 0	19,135	1,008,415
20	47 13 2	19,792	943,584	99	52 14 0	24,004	1,265,011
21	47 13 2	14,382	685,662	100	52 14 0	28,078	1,479,711
22	47 13 2	23,030	1,097,955	101	52 14 0	31,906	1,681,446
23	48 5 0	21	1,013	102	52 14 0	16,297	858,852
24	48 5 0	3,953	190,732	103	49 14 1	26,659	1,325,286
25	48 5 0	.....	.....	104	52 14 0	34,496	1,817,939
26	48 5 0	18,114	874,001	105	50 18 0	.....	.....
27	48 5 0	9,359	451,572	106	52 14 0	19,941	1,050,891
28	48 5 0	5,526	266,630	107	52 14 0	16,364	862,383
29	18 0 3	5,970	107,684	108	52 14 0	14,090	742,543
30	18 0 3	6,745	121,663	109	52 14 0	26,991	1,422,426
31	18 0 3	6,588	118,831	110	52 14 0	14,871	783,702
32	51 2 0	20,270	1,035,797	111	52 14 0	4,785	252,170
33	51 2 0	13,975	714,123	112	52 14 0	18,764	988,863
34	51 2 0	4,902	250,492	113	52 14 0	26,896	1,417,419
35	51 2 0	21,286	1,087,716	114	52 14 0	24,191	1,274,866
36	48 2 1	32,613	1,599,093	115	52 14 0	26,531	1,398,184
37	48 2 1	15,357	738,864	116	52 14 0	27,043	1,425,166
38	48 2 1	28,498	1,371,110	117	52 14 0	15,429	813,108
39	48 2 1	15,628	751,902	118	55 18 3	30,141	1,686,012
40	48 4 0	26,170	1,261,394	119	55 18 3	17,682	989,087
41	48 4 0	18,193	876,903	120	55 18 3	7,544	421,993
42	48 4 0	11,766	562,301	121	55 18 3	23,022	1,287,793
43	48 4 0	23,795	1,146,919	122	55 18 3	31,308	1,751,291
44	49 14 1	13,935	692,744	123	55 18 3	13,159	736,082
45	49 14 1	21,807	1,084,081	124	55 18 3	23,807	1,331,704
46	49 14 1	4,148	206,207	125	55 18 3	21,844	1,221,899
47	49 14 1	27,824	1,383,201	126	55 18 3	19,629	1,097,997
48	56 13 0	4,164	235,891	127	21 5 0	21,624	459,510
49	56 13 0	10,634	602,416	128	21 5 0	5,803	123,314
50	56 13 0	13,969	791,344	129	21 5 0	16,292	346,205
51	56 13 0	11,183	633,517	130	55 10 1	8,806	488,843
52	49 14 0	25,306	1,257,708	131	68 18 3	21,889	1,508,973
53	56 13 0	14,667	830,886	132	68 18 3	27,213	1,875,996
54	56 13 0	21,570	1,221,941	133	68 18 3	20,050	1,382,197
55	56 13 0	15,642	886,119	134	68 18 3	26,150	1,802,716
56	56 13 0	8,830	500,220	135	68 18 3	.....	.....
57	56 13 0	23,008	1,303,403	136	68 18 3	.....	.....
58	56 13 0	24,828	1,406,506	137	68 18 3	35,655	2,457,067
59	56 13 0	13,108	742,568	138	68 18 3	22,614	1,558,953
60	58 17 1	31,695	1,865,647	139	68 18 3	6,563	452,437
61	58 17 1	.....	.....	140	68 18 3	7,719	532,129
62	58 17 1	.....	.....	141	68 18 3	15,535	1,070,944
63	58 17 1	20,512	1,207,388	142	52 14 0	19,532	1,029,336
64	58 17 1	25,228	1,484,807	143	55 18 3	12,206	682,773
65	58 17 1	12,233	720,065	144	55 18 3	17,284	966,824
66	17 16 3	.....	.....	145	55 18 3	13,704	766,568
67	25 18 3	25,379	658,268	146	55 18 3	21,652	1,211,159
68	25 18 3	11,186	290,139	147	55 18 3	15,526	868,486
69	25 18 3	15,848	411,058	148	55 18 3	19,770	1,105,884
70	25 18 3	16,967	440,082	149	55 18 3	6,949	388,710
71	25 18 3	9,715	251,983	150	55 18 3	13,660	764,106
72	25 18 3	6,969	180,758	151	55 18 3	13,798	771,826
73	25 18 3	7,975	206,852	152	55 18 3	37,077	2,073,995
74	25 18 3	10,047	260,594	153	55 18 3	9,111	509,647
75	48 6 0	17,304	787,483	154	55 18 3	14,274	798,452
76	48 6 0	15,795	762,899	155	55 18 3	5,306	296,804
77	48 6 0	21,844	1,055,065	156	55 18 3	18,404	1,029,474
78	48 6 0	2,129	102,831	157	55 18 3	26,298	1,471,044
79	55 18 3	41,922	2,345,012	158	37 16 1	16,493	623,642
80	55 18 3	4,914	274,877	159	37 16 1	18,132	685,616
81	55 18 3	21,108	1,180,729	160	37 16 1	28,864	1,091,420
82	55 18 3	6,867	384,123	161	37 16 1	20,947	792,058
83	55 18 3	13,392	749,115	162	37 16 1	24,888	941,078
84	55 18 3	16,469	921,235	163	37 16 1	23,377	883,943
85	55 18 3	15,380	860,319	164	52 14 0	13,471	709,922

No. 50—continued.

WEIGHT OF LOCOMOTIVE ENGINES AND TENDERS, AND TONNAGE, &c.—continued.

No. of Engine.	Weight of Engine and Tender for whole journey.	Mileage of each Engine and Tender.	Total Tons carried.	No. of Engine.	Weight of Engine and Tender for whole journey.	Mileage of each Engine and Tender.	Total Tons carried.
GREAT SOUTHERN, WESTERN, AND RICHMOND LINES—continued.							
	t. c. q.				t. c. q.		
165	55 18 3	10,799	604,069	258	58 5 3	26,048	1,518,273
166	55 18 3	9,351	523,072	259	58 5 3	40,914	2,384,775
167	55 18 3	15,014	839,846	260	58 5 3	29,120	1,697,332
168	55 18 3	15,071	843,034	265	59 19 2	6,674	400,273
169	55 18 3	7,027	393,073	266	59 19 2	20,760	1,245,081
170	55 18 3	18,975	1,061,414	267	59 19 2	27,861	1,670,963
171	55 18 3	12,280	686,913	268	59 19 2	2,155	129,246
172	55 18 3	10,107	565,360	269	59 19 2	22,150	1,328,446
173	55 18 3	31,551	1,764,884	270	59 19 2	20,950	1,256,476
174	55 18 3	13,318	744,976	271	59 19 2	27,580	1,654,111
175	55 18 3	12,439	695,807	272	59 19 2	24,096	1,445,157
176	55 18 3	9,470	529,728	273	59 19 2	26,912	1,614,047
177	55 18 3	16,247	908,817	274	59 19 2	29,300	1,757,268
178	55 18 3	6,444	360,461	275	59 19 2	28,342	1,699,811
179	55 18 3	19,844	1,110,024	276	59 19 2	19,165	1,149,421
180	55 18 3	21,429	1,198,685	277	59 19 2	37,480	2,247,863
181	55 18 3	23,872	1,335,340	278	59 19 2	20,222	1,212,814
182	55 18 3	22,991	1,286,059	279	59 19 2	35,471	2,127,373
183	52 14 0	27,781	1,464,059	280	59 19 2	25,928	1,555,932
184	52 14 0	30,289	1,596,230	281	59 19 2	21,498	1,289,343
185	52 14 0	15,085	794,980	282	59 19 2	21,328	1,279,147
186	52 14 0	23,863	1,257,580	283	59 19 2	12,721	762,942
187	52 14 0	15,824	833,925	284	59 19 2	24,588	1,474,665
188	52 14 0	21,794	1,148,544	285	32 0 0	27,325	874,400
189	52 14 0	15,125	797,088	286	32 0 0	17,422	557,504
190	52 14 0	25,300	1,333,310	287	32 0 0	.....	.....
191	52 14 0	10,125	533,588	288	32 0 0	33,559	1,073,888
192	52 14 0	24,974	1,316,130	289	32 0 0	4,934	157,888
193	52 14 0	17,023	897,112	290	32 0 0	18,956	606,592
194	52 14 0	19,600	1,032,920	292	16 16 3	16,610	5,063
195	52 14 0	21,409	1,128,254	293	16 16 3	13,767	6,045
196	52 14 0	22,047	1,161,877	294	63 5 3	24,515	1,551,493
197	52 14 0	25,210	1,328,567	295	63 5 3	21,700	1,373,339
198	52 14 0	24,090	1,269,543	296	63 5 3	12,346	781,347
199	52 14 0	26,104	1,375,681	297	63 5 3	28,607	1,810,466
200	52 14 0	18,955	998,929	298	63 5 3	24,753	1,566,556
201	52 14 0	33,416	1,761,023	299	63 5 3	21,331	1,349,986
202	52 14 0	20,614	1,086,358	300	63 5 3	17,227	1,023,129
203	52 14 0	11,822	623,019	301	63 5 3	18,108	1,146,010
204	52 14 0	20,571	1,084,092	302	63 5 3	13,919	880,899
205	62 17 0	28,873	1,814,668	303	63 5 3	33,182	2,100,006
206	62 17 0	24,816	1,559,686	304	64 18 2	17,549	1,139,369
207	62 17 0	11,560	726,546	305	64 18 2	21,472	1,394,070
208	62 17 0	12,333	775,129	306	64 18 2	34,571	2,244,522
209	62 17 0	25,384	1,595,384	307	64 18 2	14,878	965,959
210	62 17 0	11,778	740,247	308	64 18 2	31,321	2,033,516
211	62 17 0	22,675	1,425,124	309	64 18 2	27,739	1,800,955
212	62 17 0	19,176	1,205,212	310	64 18 2	33,375	2,166,872
213	62 17 0	22,081	1,387,791	311	64 18 2	27,947	1,814,459
214	62 17 0	26,730	1,679,981	312	64 18 2	26,701	1,733,562
215	62 17 0	19,986	1,256,120	313	64 18 2	18,086	1,174,234
216	62 17 0	12,770	802,595	314	62 17 0	27,077	1,701,789
217	62 17 0	33,292	2,092,402	315	62 17 0	23,816	1,496,836
218	62 17 0	32,171	2,021,947	316	62 17 0	30,642	1,925,850
219	62 17 0	22,729	1,428,518	317	62 17 0	30,734	1,931,632
220	62 17 0	9,858	619,575	318	62 17 0	28,992	1,822,147
225	62 17 0	28,590	1,796,882	319	62 17 0	21,642	1,360,200
226	62 17 0	9,394	590,413	320	62 17 0	22,984	1,444,544
227	62 17 0	27,614	1,735,540	321	62 17 0	26,944	1,693,430
228	62 17 0	22,975	1,443,979	322	62 17 0	18,678	1,173,912
229	62 17 0	27,917	1,754,583	323	62 17 0	17,144	1,077,500
230	62 17 0	13,265	833,705	324	62 17 0	25,062	1,575,147
239	62 17 0	20,116	1,264,291	325	62 17 0	33,120	2,081,592
240	62 17 0	22,040	1,385,214	326	62 17 0	23,316	1,465,411
241	62 17 0	20,825	1,308,851	327	62 17 0	31,146	1,957,526
242	62 17 0	31,836	2,000,893	328	62 17 0	29,605	1,860,674
243	62 17 0	31,089	1,953,944	341	60 12 3	26,025	2,184,466
244	62 17 0	11,226	705,554	342	60 12 3	28,044	1,700,518
245	62 17 0	19,899	1,250,652	343	60 12 3	31,557	1,913,538
246	62 17 0	35,188	2,211,566	344	60 12 3	33,638	2,039,724
247	62 17 0	15,815	993,973	345	90 12 3	35,130	2,130,195
248	62 17 0	22,267	1,399,481	346	60 12 3	28,951	1,745,516
249	62 17 0	34,796	2,186,929	347	60 12 3	16,387	993,667
250	62 17 0	11,549	725,855	348	60 12 3	16,375	922,939
251	62 17 0	15,368	965,879	349	60 12 3	12,591	763,486
252	62 17 0	15,190	954,692	350	60 12 3	35,643	2,161,302
253	62 17 0	20,866	1,311,428	351	36 15 0	16,023	588,845
254	62 17 0	19,246	1,209,614	352	36 15 0	22,806	838,121
255	55 11 0	13,262	736,704	353	36 15 0	31,255	1,148,621
256	58 5 3	21,119	1,230,973	354	36 15 0	14,633	537,763
257	58 5 3	37,116	2,163,399	355	36 15 0	6,487	238,397

No. 50—continued.

WEIGHT of Locomotive Engines and Tenders, and Tonnage, &c.—continued.

No. of Engine.	Weight of Engine and Tender for whole journey.	Mileage of each Engine and Tender.	Total Tons carried.	No. of Engine.	Weight of Engine and Tender for whole journey.	Mileage of each Engine and Tender.	Total Tons carried.
GREAT SOUTHERN, WESTERN, AND RICHMOND LINES—continued.							
356	t. c. q. 36 15 0	10,017	368,125	374	t. c. q. 70 7 0	14,992	1,054,687
357	36 15 0	11,781	432,952	375	70 7 0	17,121	1,204,462
358	36 15 0	812	29,841	376	70 7 0	15,166	1,066,928
359	36 15 0	12,583	462,425	377	70 7 0	11,986	843,215
360	36 15 0	18,674	686,270	378	70 7 0	11,349	798,402
361	36 15 0	6,517	239,500	379	70 7 0	8,978	631,602
362	36 15 0	11,528	423,054	380	70 7 0	12,258	862,350
363	36 15 0	8,452	310,611	381	70 7 0	9,892	653,692
364	36 15 0	9,488	348,684	382	70 7 0	11,157	784,895
365	36 15 0	6,344	233,142	383	70 7 0	8,072	567,865
366	36 15 0	10,843	398,480	384	70 7 0	7,675	539,936
367	36 15 0	8,998	330,677	385	52 14 0	23,232	1,224,326
368	36 15 0	6,497	238,765	386	52 14 0	3,770	198,679
369	52 14 0	28,819	1,518,761				
370	52 14 0	34,373	1,811,457	Total	18,141 14 1	*6,638,986	368,097,694
371	52 14 0	30,325	1,598,128				
372	52 14 0	35,270	1,858,729	Average	51 13 3	19,356	1,073,171
373	70 7 0	18,507	1,301,967				
GREAT NORTHERN LINE.							
1	42 14 1	15,786	674,259	47	55 19 0	15,403	861,798
2	42 14 1	20,411	871,805	48	55 19 0	20,276	1,134,442
3	42 14 1	24,141	1,031,122	49	55 19 0	32,026	1,791,855
4	30 15 1	29,664	912,539	50	55 19 0	24,531	1,372,509
6	33 10 2	19,424	651,190	51	55 19 0	36,052	2,017,109
7	33 10 2	19,052	638,718	221	60 13 3	22,719	1,318,759
9	15 13 2	14,596	228,792	222	60 13 3	21,780	1,321,774
10	38 18 0	14,790	575,331	223	60 13 3	22,720	1,378,820
11	47 13 1	19,141	912,451	224	60 13 3	22,217	1,348,294
12	47 13 1	21,922	1,044,857	231	60 13 3	19,560	1,187,047
13	47 13 1	22,762	1,084,894	232	60 13 3	20,607	1,250,587
14	47 0 1	38,067	1,789,625	233	60 13 3	25,773	1,564,099
15	47 0 1	9,997	469,984	234	60 13 3	22,129	1,342,954
16	47 0 1	23,008	1,081,664	235	60 13 3	21,110	1,281,113
18	47 13 1	23,834	1,135,988	236	60 13 3	25,324	1,536,850
19	47 13 1	23,225	1,106,962	237	60 13 3	23,318	1,415,111
20	33 6 2	15,792	526,268	238	60 13 3	21,547	1,307,034
21	47 13 1	20,289	967,024	261	59 19 2	32,332	1,939,112
22	47 13 1	15,298	729,141	262	59 19 2	19,373	1,161,896
23	48 6 1	16,102	777,928	263	59 19 2	8,334	499,832
24	48 6 1	19,455	939,920	264	59 19 2	12,602	755,805
25	48 6 1	13,175	636,517	291	52 14 0	21,713	1,144,275
26	48 6 1	16,811	812,181	329	60 13 3	23,484	1,425,185
27	55 7 1	19,300	1,068,496	330	60 13 3	29,489	1,789,614
28	55 7 1	25,964	1,437,432	331	60 13 3	31,108	1,887,867
29	55 7 1	34,183	1,892,456	332	60 13 3	32,880	1,995,405
30	55 7 1	25,176	1,393,806	333	60 13 3	30,745	1,865,837
31	52 14 0	21,609	1,138,794	334	61 2 3	17,279	1,056,395
32	52 14 0	26,818	1,413,309	335	61 2 3	30,725	1,878,450
33	52 14 0	23,150	1,220,005	336	61 2 3	31,904	1,950,531
34	52 14 0	27,281	1,437,709	337	61 2 3	16,307	996,969
35	52 14 0	23,935	1,261,374	338	61 2 3	31,732	1,940,015
36	52 14 0	24,504	1,291,361	339	61 2 3	17,090	1,044,840
37	55 19 0	25,143	1,406,751	340	61 2 3	29,722	1,817,129
38	55 19 0	21,063	1,178,475				
39	55 19 0	13,953	780,670				
40	52 14 0	20,385	1,074,289				
41	52 14 0	25,084	1,321,927	Total	4,088 3 2	1,757,696	94,380,154
42	52 14 0	20,621	1,086,727				
43	52 14 0	28,645	1,509,591				
44	52 14 0	25,372	1,337,104	Average	53 1 3	22,827	1,225,716
45	52 14 0	30,310	1,597,337				
46	52 14 0	24,544	1,293,469				

Contractors' Engines not included. Mileage, 817.
 * This Total includes 4·029 miles run by engine No. 204, Ballasting for the Contractors Blayney to Cowra extension.

No. 51.

MERCHANDISE Traffic Rates, showing rates per ton.

Articles of Traffic.	1885. OCTOBER 1.			1886.			1887.		
	Class.	15 miles.	Exceeding 15 miles.	Class.	15 miles.	Exceeding 15 miles.	Class.	15 miles.	Exceeding 15 miles.
		s. d.	per mile. s. d.		s. d.	per mile. s. d.		s. d.	per mile. s. d.
Acids—Sulphuric	1	6 0	0 4						
Acids—in cases and carboys...	4	12 0	0 9						
Aerated Waters	2	7 0	0 5						
*Agricultural Machines	3	9 0	0 7						
Do. Produce — not otherwise specified.	A	.....	100 miles and over special truck rates.						
Ale and Porter—in bulk	2	7 0	0 5						
Alum and Alum Cake	B	3 0	0 2						
Ammunition	4	12 0	0 9						
Architraves—in bundles				A	2 0	0 1½	Two-thirds added.		
Artificial Manures.....	A	2 0	0 1½						
Asphalt—in bags	A	2 0	0 1½						
Axle grease				B	3 0	0 2			
Axles and Wheels—railway or tramway.	2	7 0	0 5						
Asbestos (in rude state)							B	3 0	0 2
Bacon	1	6 0	0 4						
Bags—new, empty.....	B	3 0	0 2						
Bark	A	2 0	0 1½ to 75 miles						
			0 1 over 75 "						
Battens	A	2 0	0 1½ to 75 "						
		+25% not exceeding 14 feet in length.	0 1 over 75 "						
	A	2 0	0 1½ to 75 "						
		+33% over 14 feet in length.	0 1 over 75 "						
Beet-root	A	2 0	0 1½ to 75 "						
			0 1 over 75 "						
Bicycles	4	12 0	0 9						
Boards, not exceeding 2 inches	A	2 0	0 1½ to 75 "						
		+50% not more than 14 feet in length.	0 1 over 75 "						
Do. over 2 inches	A	2 0	0 1½ to 75 "						
		+66% if more than 14 feet in length.	0 1 over 75 "						
Boats—80 cubic feet per ton..	2	7 0	0 5						
Boilers	2	7 0	0 5						
Do. Plates.....	2	7 0	0 5						
Bonanzas	3	9 0	0 7						
Bones—in quantities of 4 tons	A	2 0	0 1½ to 75 "						
			0 1 over 75 "						
	B	3 0	0 2						
		loose in quantities under 4 tons.							
Do less than 4 tons	B	3 0	0 2						
Bottles—empty, in cases or crates.	B	3 0	0 2						
Bran	A	2 0	0 1½ to 75 "						
			0 1 over 75 "						
Bricks—4 ton lots.....	Mis.	1 6	0 1½ 15 to 35 "						
			0 1 35 to 150 "						
			0 ¼ 150 to 250 "						
			0 ½ over 250 "						
Buggies, light, 4-wheeled, and carts, 2-wheeled.						0 4 per mile for 150 miles; 150 to 200, ½; over 200, ¾.			
Butter	1	6 0	0 4						
Cabbages.....	A	2 0	0 1½ to 75 miles						
			0 1 over 75 "						
Candied Fruit—to Sydney and Newcastle.	B	3 0	0 2						

* In lots of not less than 5 tons for 4-wheeled trucks, 1st class rates.

APPENDIX TO REPORT ON RAILWAYS—1887.

No. 51—continued.

MERCHANDISE Traffic Rates—continued.

Articles of Traffic.	1885: OCTOBER 1.			1886.			1887.		
	Class.	15 miles.	Exceeding 15 miles.	Class.	15 miles.	Exceeding 15 miles.	Class.	15 miles.	Exceeding 15 miles.
		s. d.	per mile. s. d.		s. d.	per mile. s. d.		s. d.	per mile. s. d.
Carpentry	3	9 0	0 7						
Carrots	A	2 0	0 1½ to 75 miles. 0 1 over 75 "						
Casks—new, empty	B	3 0	0 2						
Cases do.	B	3 0	0 2						
Castings (See Iron)	2	7 0	0 5						
Cement	B	3 0	0 2						
Chaff. (See page 140.)									
Charcoal and coke—in bags...	B	3 0	0 2						
Cheese.....	1	6 0	0 4						
Chicory Root.....	A	2 0	0 1½ to 75 " 0 1 over 75 "						
Chimney pots.....	B	3 0	0 2						
Clay—4 ton lots.....	Mis.	1 6	0 1½ 15 to 35 " 0 1 35 to 150 " 0 0¾ 150 to 250 " 0 0½ over 250 "						
Coal (See page 139.)	Mis.	1 6	0 1½ 16 to 35 " 0 1 35 to 150 " 0 0¾ 150 to 250 " 0 0½ over 250 "						
Do. Waggon — new on wheels to collieries.	...	...	0 4 per mile each; minimum, 5s.						
Coke	B	3 0	0 2						
Do (in owners' trucks)	A	2 0	0 1½ to 75 miles. 0 1 over 75 "						
Condimental Foods, in bags...	A	2 0	0 1½						
Corrugated Iron (in cases) ...	1	6 0	0 4						
Colonial Wine	B	3 0	0 2						
Copper Ingots	B	3 0	0 2						
Do Ore—4 ton lots.....	Mis.	1 6	0 1½ 15 to 35 " 0 1 35 to 150 " 0 0¾ 150 to 250 " 0 0½ over 250 "						
Crude Ores.....	M	1 6	0 1½ 15 to 35 " 0 1 35 to 100 " 0 0¾ 150 to 250 " 0 0½ over 250 "						
Dairy Produce	1	6 0	0 4						
Detonators (explosives). (See Gunpowder.)									
Dobbins (Contractors').....	1	6 0	0 4						
Drain Pipes	A	2 0	0 1½ to 75 " 0 1 over 75 "						
Dynamite (explosives), owners' risk, in casks or cases.	...	...	1 0 per ton per mile for quantities exceeding 10 cwt. 1 6 per ton per mile for quantities under 10 cwt. minimum, 5s.						
Earthenware Tiles	A	2 0	0 1½						
Eggs	1	6 0	0 4						
Engravings.....	4	12 0	0 9						
Fancy Goods	4	12 0	0 9						
Farine.....	...	...	...	A	2 0	0 1½			
Felloes	A	2 0	0 1½ to 75 miles. 0 1 over 75 "						
Felt Roofing	2	7 0	0 5						
Fireclay Blocks and Bricks ...	A	2 0	0 1½ to 75 " 0 1 over 75 "						
Fireclay Retorts	B	3 0	0 2						
Firewood (4-ton lots)	Mis.	1 6	0 1½ 15 to 35 " 0 1 35 to 150 " 0 0¾ 150 to 250 " 0 0½ over 250 "						
Firewood	M	1 6	0 1½ 15 to 35 " 0 1 35 to 100 " 0 0¾ 150 to 250 " 0 0½ over 250 "						
Fireworks	4	12 0	0 9						
Fish.....	...	...	Not less than 2cwt., 3d. per ton per mile, or 2 c. rates.						
Flour	A	2 0	0 1½ to 75 miles 0 1 over 75 "						
Flower-pots	B	3 0	0 2						
Fodder (green undried)	A	2 0	0 1½						
Frames, Picture	4	12 0	0 9						

No. 51—continued.

MERCHANDISE Traffic Rates—continued.

Articles of Traffic.	1885. OCTOBER 1.			1886.			1887.		
	Class.	15 miles.	Exceeding 15 miles.	Class.	15 miles.	Exceeding 15 miles.	Class.	15 miles.	Exceeding 15 miles.
		s. d.	per mile. s. d.		s. d.	per mile. s. d.		s. d.	per mile. s. d.
Fruit—Orchard (packed) ...	A	2 0	0 1½ to 75 miles						
Do Candied, to Sydney and Newcastle only.	B	3 0	0 1 over 75 "						
Furniture—in cases	3	9 0	0 7						
Do. loose	4	12 0	0 9						
Galvanized Iron Telegraph Poles.	2	7 0	0 5						
Do Screws and Washers	2	7 0	0 5						
Do Tanks by measurement, 160 cubic feet per ton.	2	7 0	0 5						
Garden Produce—not otherwise specified.	A	2 0	0 1½ to 75 "						
Glue Pieces—dry	B	3 0	0 2						
Do wet	A	2 0	0 1½ to 75 "						
Grain—all kinds	A	2 0	0 1½ to 75 miles						
Green Fodder.....	A	2 0	0 1½ to 75 "						
Guano and Artificial Manures	A	2 0	0 1½ to 75 "						
Gunpowder (owner's risk)—in casks.	.....	.....	1 0 per ton per mile for quantities exceeding 10 cwt. 1 6 per ton per mile if under 10 cwt.						
Hardware	3	9 0	0 7						
Hareskins	B	3 0	0 2						
Hats—in cases	4	12 0	0 9						
Hay. (See page 140.)									
Do Presses	1	6 0	0 4						
Hemp.....	B	3 0	0 2						
Hides (wet)	A	2 0	0 1½ to 75 miles.						
Do (dry)	B	3 0	0 2						
Honey.....	1	6 0	0 4						
Hoofs (not less than 4 tons)	A	2 0	0 1½ to 75 "						
			In bags or loose in lots of 4 tons. 0 1 over 75 miles						
	B	3 0	0 2 Loose in quantities less than 4 tons.						
Do (less than 4 tons)	B	3 0	0 2						
Horns (not less than 4 tons)	A	2 0	0 1½ to 75 miles						
			In bags or loose in lots of 4 tons. 0 1 over 75 miles						
	B	3 0	0 2 Loose in quantities less than 4 tons.						
Do (less than 4 tons).....	B	3 0	0 2						
Instruments—Musical and Scientific.	4	12 0	0 9						
Iron—Bar, Rod, Angle, and T	2	7 0	0 5						
Boiler Plate.....	2	7 0	0 5						
Corrugated—in cases ...	1	6 0	0 4						
Girders	2	7 0	0 5						
			0 1½ to 35 miles						
Pig and Scrap—to } smelting works. }	Mis.	1 6	0 1 to 150 " 0 ½ to 250 " 0 ½ over 250 "						
Pipes	2	7 0	0 5						
Nails	2	7 0	0 5						
Tanks (malt, square, and empty).	3	9 0	0 7						
Pig and Scrap.....	Mis.	1 6	0 1½ to 35 " 0 1 to 150 " 0 ½ to 250 " 0 ½ over 250 "						
Sheet	2	7 0	0 5						
Tanks, 160 c. ft. per ton—Galvanized iron.	2	7 0	0 5						
Rough Castings.....	2	7 0	0 5						
Wire in bundles.....	1	6 0	0 4						
Wheels and Axles—Railway.	2	7 0	0 5						

No. 51—continued.

MERCHANDISE Traffic Rates—continued.

Articles of Traffic.	1885. OCTOBER 1.			1886.			1887.		
	Class.	15 miles.	Exceeding 15 miles.	Class.	15 miles.	Exceeding 15 miles.	Class.	15 miles.	Exceeding 15 miles.
Iron—Rails and Chairs	1	s. d. 6 0	s. d. 0 4						
Castings	2	7 0	0 5						
Pig, Pipes, and rough Castings, from the manufactory.	Mis. 1	6 0	0 1 1/4 to 35 miles						
			0 1 to 150 "						
			0 0 3/4 to 250 "						
			0 0 1/2 over 250 "						
Pipes—Galvanized ...	2	7 0	0 5						
Nails	2	7 0	0 5						
Ironmongery	3	9 0	0 7						
Ironstone	Mis. 1	6 0	0 1 1/4 to 35 "						
			0 1 to 150 "						
			0 0 3/4 to 250 "						
			0 0 1/2 over 250 "						
Jams, to Sydney and Newcastle	B 3	0 0	0 2						
Joinery	3	9 0	0 7						
Kangaroo Skins	B 3	0 0	0 2						
Kerosene Oil, to Sydney and Newcastle.	1	6 0	0 4						
Lead—Bullion .....	...	...	...	...	...	...	B 3	0 0	0 2
Lead—Pig or Sheet	2	7 0	0 5						
Do.—"Old Tea" .....	...	...	...	B 3	0 0	0 2			
Leather, to Sydney and Newcastle.	1	6 0	0 4 in bundles	...	...	...	2	7 0	0 5 in cases.
Do.—Except Patent Morocco	2	7 0	0 5						
Do.—Patent or Morocco ...	3	9 0	0 7						
Lamps—Street, Door, or Hall	3	9 0	0 7						
Laths	A 2	0 0	0 1 1/8 to 75 miles						
			0 1 over 75 "						
Lick Blocks	B 3	0 0	0 2						
Lime—4-ton lots	A 2	0 0	0 1 1/8 to 75 "						
Do.—Muriate of	1	6 0	0 4						
Limestone	Mis. 1	6 0	0 1 1/4 to 35 "						
			0 1 to 150 "						
			0 0 3/4 to 250 "						
			0 0 1/2 over 250 "						
Lithofracteur or other explosives—owner's risk—in casks or cases.	...	...	1 0 per ton per mile if over 10 cwt.						
			1 6 per ton per mile if under 10 cwt.						
Lucerne—Seed	1	6 0	0 4						
Luggage .....	...	...	...	3	9 0	0 7			
*Machinery of all kinds	3	9 0	0 7						
Malt in tanks and bags	1	6 0	0 4						
Malt Tanks—Square & empty	3	9 0	0 7						
Mangold Wurzel	A 2	0 0	0 1 1/8 to 75 miles						
			0 1 over 75 "						
Manure, loose (4-ton lots) ...	Mis. 1	6 0	0 1 1/4 to 35 "						
			0 1 to 150 "						
			0 0 3/4 to 250 "						
			0 0 1/2 over 250 "						
Manure—Artificial	A 2	0 0	0 1 1/8 to 75 "						
			0 1 over 75 "						
Marble—Undressed (4-ton lots).	Mis. 1	6 0	0 1 1/4 to 35 "						
			0 1 to 150 "						
			0 0 3/4 to 250 "						
			0 0 1/2 over 250 "						
Do.—Dust .....	...	...	...	B 3	0 0	0 2			
Meal	A 2	0 0	0 1 1/8 to 75 miles						
			0 1 over 75 "						
Measurement Goods, 140 cubic feet to ton, except otherwise mentioned.	3	9 0	0 7						
Meat—Preserved, to Sydney and Newcastle.	A 2	0 0	0 1 1/8						
Metal—road	M } 1	6 0	0 1 1/4 to 35 "						
Do.—Screenings, tarred, 6 tons.	M }		0 1 35 to 150 "						
			0 0 3/4 150 to 250 "						
			0 0 1/2 over 250 "						

... not less than 5 tons per 4-wheeled truck, 1st class rates.

No. 51—continued.

MERCHANDISE Traffic Rates—continued.

Articles of Traffic.	1885. OCTOBER 1.			1886.			1887.		
	Class.	15 miles.	Exceeding 15 miles.	Class.	15 miles.	Exceeding 15 miles.	Class.	15 miles.	Exceeding 15 miles.
Melons.....	A	s. d. 2 0	per mile. s. d. 0 1½ to 75 miles.						
Millet.....	1	6 0	0 4						
Millet Seed.....	A	2 0	0 1½						
Millinery—in cases.....	4	12 0	0 9						
Mining Props.....	M	1 6	0 1¼ 15 to 35 miles 0 1 35 to 150 „ 0 0¾ 150 to 250 „ 0 0½ over 250 „						
Mirrors.....	4	12 0	0 9						
Moulding, in bundles.....	...	...	.....	A	2 0	0 1½			
Muriate of Lime.....	1	6 0	0 4						
Musical Instruments.....	4	12 0	0 9						
Naphtha.....	4	12 0	0 9						
Offal.....	Mis.	1 6	0 1¼ to 35 miles 0 1 to 150 „ 0 0¾ to 250 „ 0 0½ over 250 „						
Oil Cake.....	B	3 0	0 2						
Opium.....	4	12 0	0 9						
Opossum Skins.....	B	3 0	0 2						
Ores—Crude (4-ton lots).....	Mis.	1 6	0 1¼ to 35 miles 0 1 to 150 „ 0 0¾ to 250 „ 0 0½ over 250 „						
Ore (Tin or Sulphur).....	B	3 0	0 2						
Oysters.....	...	...	0 3 per ton per mile.						
Paintings.....	4	12 0	0 9						
Palings.....	A	2 0	0 1½ to 75 miles 0 1 over 75 „						
Paper.....	B	3 0	0 2						
Do (wall).....	under 2 1 ton	7 0	0 5						
Do materials for making (not chemicals).	A	2 0	0 1½	3	9 0	0 7			
Papier-maché Goods.....	3	9 0	0 7						
Perambulators.....	4	12 0	0 9						
Perfumery.....	3	9 0	0 7						
Picture Frames.....	4	12 0	0 9						
Pianos, in cases.....	4	12 0	0 9						
Do (owner's risk).....	3	9 0	0 7						
Pier Glasses.....	4	12 0	0 9						
Pitch.....	1	6 0	0 4						
Pipes, drain.....	A	2 0	0 1½						
Do iron.....	2	7 0	0 5						
Plants (in pots and cases).....	3	9 0	0 7						
Plasterers' hair.....	...	...	.....	...	6 0	0 4			
Plaster of Paris.....	B	3 0	0 2						
Plated Goods.....	+50% 3	9 0	0 7						
Plate Glass.....	4	12 0	0 9						
Pollard.....	A	2 0	0 1½ to 75 miles 0 1 over 75 „						
Portable Engines.....	3	9 0	0 7						
Posts and Rails.....	A	2 0	0 1½ to 75 „ 0 1 over 75 „						
Pottery.....	1	6 0	0 4						
Pots, chimney and flower.....	B	3 0	0 2						
Potatoes.....	A	2 0	0 1½ to 75 miles 0 1 over 75 „						
Poultry—Living (in crates)...	1	6 0	0 4 In flocks, 6d. per single-decked truck per mile up to 100, and 4d. for every additional mile; minimum charge, 12s.						

No. 51—continued.

MERCHANDISE Traffic Rates—continued.

Articles of Traffic.	1885. OCTOBER 1.			1886.			1887.		
	Class.	15 miles.	Exceeding 15 miles.	Class.	15 miles.	Exceeding 15 miles.	Class.	15 miles.	Exceeding 15 miles.
Preserved Meat, to Sydney and Newcastle.	A	s. d. 2 0 0	per mile. s. d. 1 ½ to 75 miles						
Pumpkins	A	2 0 0	0 1 over 75 "						
Pyrites, for testing purposes	...	...	0 1 ½ to 75 "						
Do declared under £100 value.	i	6 0 0	0 4	B	3 0 0	0 2			
Do undeclared or over £100 value.	3	9 0 0	0 7						
Quartz. { Ore (Silver declared value under £100) per ton.	i	6 0 0	0 4						
	3	9 0 0	0 7						
Ore (Silver value undeclared or over £100) per ton.	i	6 0 0	0 4						
Quicksilver.....	i	6 0 0	0 4						
Rabbit Skins	B	3 0 0	0 2						
Railway Wheels and Axles ...	2	7 0 0	0 5						
Rails and Posts.....	A	2 0 0	0 1 ½						
Railway Sleepers	A & ¼ added.	2 0 0	0 1 ½ to 75 miles.						
Do Materials.....	i	6 0 0	0 4						
Rags and Materials for making paper (not chemicals).	A	2 0 0	0 1 ½ to 75 "						
			0 1 over 75 "						
			Not more than 33 per cent. of copper.						
Regulus (4-ton lots)	Mis.	1 6 0	0 1 ¼ to 35 miles						
			0 1 to 150 "						
			0 0 ½ to 250 "						
			0 0 ½ over 250 "						
			Containing over 33 per cent. of copper.						
	A	2 0 0	0 1 ½ to 75 miles						
			0 1 over 75 "						
Resin	i	6 0 0	0 4						
Road Metal	Mis.	9 1 0	0 1 ¼ to 35 "						
			0 1 to 150 "						
			0 0 ½ to 250 "						
			0 0 ½ over 250 "						
Rope, to Sydney and Newcastle in 4-ton lots	i	6 0 0	0 4						
Do	3	9 0 0	0 7						
Salt—Rock and Calcutta	B	3 0 0	0 2						
Do Dairy and Meat-curing	B	3 0 0	0 2						
Sand	Mis.	1 6 0	0 1 ¼ to 35 miles						
			0 1 to 150 "						
			0 0 ½ to 250 "						
			0 0 ½ over 250 "						
Sawdust	A	2 0 0	0 1 ½ to 75 "						
			0 1 over 75 "						
Scientific Instruments	4	12 0 0	0 9						
Sewing-Machines (packed) ...	3	9 0 0	0 7						
Do. (unpacked), owner's risk.	3	9 0 0	0 7 owner's risk.						
Seed Grass and Lucerne	i	6 0 0	0 4						
Do. Garden	3	9 0 0	0 7						
Do. Millet.....	A	2 0 0	0 1 ½ to 75 miles						
			0 1 over 75 "						
Shale—Kerosene	Mis.	1 6 0	0 1 ¼ to 35 "						
			0 1 to 150 "						
			0 0 ½ to 250 "						
			0 0 ½ over 250 "						
Sheepskins	B	3 0 0	0 2						
Shingles	A	2 0 0	0 1 ½ to 75 "						
			0 1 over 75 "						
Silk Goods	3	9 0 0	0 7						
Slate Slabs for Billiard Tables	4	12 0 0	0 9						
Slates	A	2 0 0	0 1 ½ to 75 "						
			0 1 over 75 "						
Sleepers—Railway.....	A	2 0 0	0 1 ½ to 75 miles.						
	¼ added.								
Soap(except scented and fancy)	i	6 0 0	0 4						
Soda—Crystals and Caustic, and Silicate.	B	3 0 0	0 2						
Spokes and Shafts—Undressed	A	2 0 0	0 1 ½ to 75 miles						
			0 1 over 75 "						
Stocks undressed	A	2 0 0	0 1 ½ to 75 "						
			0 1 over 75 "						

No. 51—continued.

MERCHANDISE Traffic Rates—continued.

Articles of Traffic.	1885. OCTOBER 1.			1886.			1887.			
	Class.	15 miles.	Exceeding 15 miles.	Class.	15 miles.	Exceeding 15 miles.	Class.	15 miles.	Exceeding 15 miles.	
Stone undressed.....	Mis.	s. d.	per mile. s. d.		s. d.	per mile. s. d.		s. d.	per mile. s. d.	
		1	6							0 1¼ to 35 miles
										0 1 to 150 "
										0 0½ to 250 "
										0 0½ over 250 "
Do. carved and Gravestones	2 Mis.	7	0 5							
Do. cut for Building or Grindstones.		1	6							0 1¼ to 35 "
										0 1 to 150 "
										0 0½ to 250 "
										0 0½ over 250 "
Staves	A	2	0 1½							
Straw (See page 150).	1 added	6	0 4							
Sucking pigs in coops or cases	1	6	0 4							
Sugar	2	7	0 5							
			In truck loads (6 tons), 2s. per truck per mile, subject to discounts beyond 100 miles.							
Sulphuric Acid	1	6	0 4	B	3	0	0	2		
Sulphurate of Iron										
Sulphure Ore	B	3	0 2							
Sulphur	B	3	0 2							
Tallow.....	B	3	0 2							
Tar		1	6							0 4
Terra-cotta.....	A	2	0 1½ to 75 miles							
										0 1 over 75 "
Threshing Machines	3	9	0 7							
Tiles—Tesselated and Ornamental.	B	3	0 2							
Tiles, Earthenware	A	2	0 1½ to 75 "							
										0 1 over 75 "
Timber—Undressed in logs ...	A	2	0 1½ to 75 "							
Do. Sawn	A	2	0 1½ to 75 "							
										+25% 0 1 over 75 "
Do. Undressed (not over 14 feet in length).	A	2	0 1½ to 75 "							
Timber—Undressed (exceeding 14 feet in length).	A	2	0 1½ to 75 "							
Timber—Dressed (not over 14 feet in length).	A	2	0 1½ to 75 "							
Timber—Dressed (over 14 feet in length).	A	2	0 1½ to 75 "							
Tin Ore	B	3	0 2							
Tin-plates	2 B	7	0 5							
Tin Smelted										3	0 2
Tobacco—Colonial Leaf	A	2	0 1½							
Toys in cases	3 4	9	0 7							
Tricycles.....				12	0 9					
Turnips	A	2	0 1½ to 75 "							
				0 1 over 75 "						
Velocipedes.....	4	12	0 9							
Wool (see page 138)	1	6	0 4							
Whiting	B	3	0 2							
Wire-netting	3	9	0 7							
Woolpacks (New).....	B	3	0 2							
Wire-fencing (in boxes)	B	3	0 2							
										1	6	0 4
Zinc.....	2	7	0 5							
Do (scrap)	B	3	0 2							
NOTE—All articles not enumerated above are carried as follows.	3	9	0 7							
All goods not described or insufficiently described on consignment notes.	4	12	0 9							

No. 51—*continued.*

Live Stock Rates and Conditions—1887.

SMALL CONSIGNMENTS.

$\frac{1}{2}$ Truck, <i>i.e.</i> , 4 Cows or Oxen, or 10 Calves, 1 Deck of Sheep, or 30 Pigs.	$\frac{1}{4}$ Truck, <i>i.e.</i> , 2 Cows or Oxen, or 5 Calves, or 20 Sheep, or 15 Pigs.	Single Cow or Ox.	Sheep or Pigs, when less than $\frac{1}{4}$ Truck.	Calves, when less than $\frac{1}{4}$ Truck.
6d. per mile.....	4d. per mile.....	3d. per mile	$\frac{1}{2}$ d. each per mile.....	1d. each per mile.
Minimum, 10s.....	Minimum, 7s. 6d.	Min., 7s. 6d. each.....	Min., 1s. 6d. each.....	Minimum, 2s. each.

When the number of animals or the space occupied exceeds the limit for $\frac{1}{4}$ or $\frac{1}{2}$ truck, each one in excess will be charged at the mileage rates enumerated above for single animals until the $\frac{1}{2}$ or full truck rate, as the case may be, is reached.

In ascertaining what portion of a truck is to be charged for, *i.e.*, $\frac{1}{4}$, $\frac{1}{2}$, or full truck, regard will be had to the space actually occupied more than to the number of animals; but in no case must the number of animals stated above be exceeded. Two calves will count as one cow or ox.

Mixed stock will be carried together in the same truck, provided the whole consignment belongs to one person, and the Commissioner is relieved of all responsibility. When mixed stock cannot be loaded together, each kind will be charged for separately, with the following exception:—On Thursdays single animals conveyed to Sydney in the same trucks, although belonging to different owners, will be charged at a proportion of $\frac{1}{4}$, $\frac{1}{2}$, or full truck rate, plus 25 per cent.; for example, should there be two cows, each owner will be charged half of the $\frac{1}{4}$ truck rate, plus 25 per cent., and should there be three animals, the owners will be charged the $\frac{1}{2}$ truck rate equally between them, plus 25 per cent. It is absolutely necessary that each animal be legibly addressed.

When the charge per head for live stock exceeds that for a $\frac{1}{4}$ truck, or when the charge for a part truck on market days exceeds that for a full one, only the lesser amount will be collected.

BULLS.

The charge for one bull is 7d. per mile up to 100 miles, and 4d. for every additional mile, plus the charge for 100 miles; such charge not to exceed herd rates. Minimum, 12s. 6d. If more than one bull in a truck, herd rates will be charged.

VALUABLE RAMS AND EWES.

If less than $\frac{1}{2}$ a truck load, will be charged 2d. each per mile; for $\frac{1}{2}$ a truck and upwards, sheep rates. Minimum, 5s.

HORSES.

See full truck rates. No less charge than for a full truck load will be made for any number.

GOATS.

Same as sheep.

When live stock in waggons is conveyed by passenger train the charge will be as for a full horse box for every truck. 20 per cent. will be added to these rates, for the distance which live stock is carried on the Homebush-Waratah line beyond mileage 12 from Sydney, and beyond mileage 20 from Sydney on the Illawarra line.

Herds, Flocks, &c., when in consignments of not less than one full truck load.

GREAT SOUTHERN, WESTERN, AND RICHMOND LINES.

CATTLE

Will be conveyed from the undermentioned Stations to Homebush, at the following rates per Truck:—

Stations.	Rate.	Stations.	Rate.
	£ s. d.		£ s. d.
Hay	10 5 4	Queanbeyan	5 16 4
Carrathool	9 14 0	Bungendore.....	5 7 10
Darlington	9 2 8	Tarago.....	4 17 10
Whitton	8 19 4	Goulburn.....	4 4 0
Jerilderie	9 11 4	Marulan	3 10 8
Colombo	8 16 4	Moss Vale	2 12 0
Narrandera	8 9 8	Bowral.....	2 8 0
Coolaman.....	7 17 4	Mittagong	2 6 0
Old Junee	7 11 0	Pictou	11 10 0
Albury.....	9 2 8	Bourke.....	11 1 8
Culcairn	8 12 8	Byrock.....	0 5 8
South Wagga	7 17 0	Nyngan.....	8 19 8
Bomen.....	7 15 4	Nevertire.....	8 7 8
Junee Junction	7 9 8	Dubbo	7 6 8
Cootamundra	6 18 4	Wellington	6 16 8
Wallendbeen	6 14 4	Orange.....	5 15 4
Young	6 17 0	Blayney	5 5 4
Harden	6 10 0	Bathurst	4 11 4
Binalong.....	6 3 4	Mudgee	5 14 4
Bowning.....	5 16 4	Rylstone	4 18 4
Yass.....	5 12 10	Capertee	3 19 4
Gunning.....	5 1 10	Wallerawang	3 4 8
Breadalbane	4 13 10	Mount Victoria	2 6 0

Other distances to be charged—For the first 140 miles, 8d. per truck per mile; from 140 to 200 miles, 6d. per truck per mile; every additional mile, 4d. Minimum charge, 15s. per truck.

No. 51—*continued.*Live Stock Rates and Conditions—1887—*continued.*

SHEEP

Will be conveyed from the undermentioned Stations to Homebush, at the following rates per Truck:—

Stations.	Rate.	Stations.	Rate.
	£ s. d.		£ s. d.
Hay	8 10 6	Queanbeyan	4 14 1
Carrathool	8 0 7	Bungendore.....	4 8 5
Darlington	7 10 8	Tarago	4 1 9
Whitton	7 7 9	Goulburn.....	3 13 1
Jerilderie.....	7 18 3	Marulan	3 5 7
Colombo	7 5 2	Moss Vale	2 12 0
Narrandera.....	6 19 3	Bowral	2 8 0
Coolaman	6 8 6	Mittagong	2 6 0
Old Junee	6 3 0	Pieton	1 10 0
Albury	7 10 8	Bourke.....	9 4 10
Culcairn	7 1 11	Byrock.....	8 10 10
South Wagga	6 8 3	Nyngan	7 8 1
Bomen	6 6 9	Nevertire.....	6 17 7
Junee Junction	6 1 10	Dubbo	5 19 2
Cootamundra	5 11 11	Wellington	5 10 5
Wallendbeen	5 8 5	Orange.....	4 13 5
Young	5 10 9	Blayney	4 6 9
Harden	5 4 7	Bathurst	3 17 3
Binalong	4 18 9	Mudgee	4 12 9
Bowning	4 14 1	Rylstone	4 2 1
Yass	4 11 9	Capertee	3 10 6
Gunning	4 4 5	Wallerawang	3 1 10
Breadalbane	3 18 9	Mount Victoria	2 6 0

Other distances to be charged—For first 80 miles, 8d. per truck per mile; from 80 to 100, 6d.; from 100 to 150, 4½d.; and from 150 to 200, 4d. per mile. Every additional mile, 3½d. Minimum charge, 15s. per truck.

When open single-decked trucks are loaded with sheep two-thirds of the above rates will be charged in all cases, but it is optional for senders to wait for sheep-vans; if cattle waggons are ordered cattle rates will be charged. When, in order to complete a consignment, a half-waggon load is sent, the charge for such will be two-thirds of the above rates. For small consignments see page 44.

20 per cent. will be added to these rates for the distance which live stock is carried on the Homebush-Waratah line beyond mileage 12 from Sydney, and beyond mileage 20 from Sydney on the Illawarra line.

GREAT NORTHERN LINE.

CATTLE

Will be conveyed between the undermentioned Stations, at the following rates per Truck:—

From	Newcastle.	East Maitland.	West Maitland.	Farley.	Lochinvar.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Tenterfield.....	9 3 8	8 17 8	8 17 0	8 16 4	8 15 0
Deepwater.....	8 12 0	8 6 0	8 5 4	8 4 8	8 3 4
Glen Innes	8 4 8	7 18 8	7 18 0	7 17 4	7 16 0
Armidale	7 3 4	6 17 4	6 16 8	6 16 0	6 14 8
North-western.	Narrabri	6 14 8	6 14 0	6 13 4	6 12 0
	Boggabri	6 4 0	6 3 4	6 2 4	6 0 4
	Gunnedah	5 12 4	5 11 4	5 10 4	5 8 4
	Breeza	4 19 4	4 18 4	4 17 4	4 15 4
Tamworth.....	5 14 4	5 5 4	5 4 4	5 3 4	5 1 4
Werris Creek	5 0 10	4 11 4	4 10 0	4 8 8	4 6 0
Quirindi.....	4 15 4	4 4 0	4 2 8	4 1 4	3 18 8
Willow-tree	4 9 4	3 17 4	3 16 0	3 14 8	3 12 0
Scone	3 4 0	2 12 0	2 10 8	2 9 4	2 6 8
Musclebrook	2 13 4	2 1 4	2 0 0	1 18 8	1 16 0

Other distances to be charged—For the first 140 miles, 8d. per truck per mile; from 140 to 200 miles, 6d. per truck per mile; every additional mile, 4d. Minimum charge, 15s. per truck. Cattle consigned to Morpeth will be charged 2s. 6d. per truck added to the rates quoted to West Maitland.

SHEEP.

No. 51—continued.

Live Stock Rates and Conditions, 1887—continued.

SHEEP—will be conveyed between the undermentioned Stations, at the following rates per Truck:—

Stations from	Newcastle.	East Maitland.	West Maitland.	Farley.	Lochinvar.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Tenterfield.....	7 11 7	7 6 4	7 5 9	7 5 2	7 4 0
Deepwater.....	7 1 4	6 16 1	6 15 6	6 14 11	6 13 9
Glen Innes.....	6 14 11	6 9 8	6 9 1	6 8 6	6 7 4
Armidale.....	5 16 3	5 11 0	5 10 5	5 9 10	5 8 8
North-western {					
Narrabri.....	5 13 11	5 8 8	5 8 1	5 7 6	5 6 4
Boggabri.....	5 4 7	4 19 4	4 18 9	4 18 1	4 16 9
Gunnedah.....	4 17 5	4 11 5	4 10 9	4 10 1	4 8 9
Breeza.....	4 8 9	4 2 9	4 2 1	4 1 4	3 19 10
Tamworth.....	4 12 9	4 6 9	4 6 1	4 5 5	4 4 1
Werris Creek.....	4 3 9	3 17 3	3 16 6	3 15 9	3 14 3
Quirindi.....	3 19 10	3 13 1	3 12 4	3 11 7	3 10 1
Willow-tree.....	3 16 1	3 9 4	3 8 7	3 7 10	3 6 4
Scone.....	3 1 4	2 12 0	2 10 8	2 9 4	2 6 8
Musclebrook.....	2 13 4	2 1 4	2 0 0	1 18 8	1 16 0

Other distances to be charged—For the first 80 miles, 8d. per truck per mile; from 80 to 100 miles, 6d.; from 100 to 150 miles, 4½d.; from 150 to 200 miles, 4d. Every additional mile, 3½d. Minimum charge, 15s. per truck.

When open single-decked trucks are loaded with sheep, two-thirds of the above rates will be charged in all cases, but it is optional for senders to wait for sheep-vans; if cattle waggons are ordered cattle rates will be charged. When, in order to complete a consignment, a half-waggon load is sent, the charge for such will be two-thirds of the above rates.

GREAT SOUTHERN, WESTERN, AND RICHMOND, AND NORTHERN LINES.

HORSES.—The Commissioner will carry horses in cattle trucks if requested to do so, but only under special contract, relieving him of all responsibility. The charge for horses so carried will be the same as for cattle in full truck loads. For the rates for horse-boxes see Coaching Rate Pamphlet.

PIGS—same as cattle. When a double-decked waggon is occupied, 50 per cent. will be added. Minimum, 15s.

BEARS—same as cattle. GOATS—same as sheep.

GENERAL CONDITIONS AND REGULATIONS.

The Commissioner will not receive live stock for conveyance on Sunday, Good Friday, Christmas Day, or any proclaimed holiday.

Live stock will be conveyed only from and to such stations as have accommodation for loading and unloading (see following page), and herds and flocks only at convenient times to be previously arranged with the Traffic Manager.

The number of animals must be so limited that the gross weight in any one truck shall not exceed 6 tons.

The Commissioner does not guarantee arrival at any particular time or for any particular market.

All orders for conveyance of live stock per stock or goods trains are to be made to the Traffic Manager on the printed form provided for that purpose. Those sent by telegram, letter, or through a station-master or other railway officer, will be subject to the same conditions as if made on the printed form.

Each order must be accompanied with a deposit of 20s. per truck ordered.

An order once lodged with the Department can only be withdrawn or the number of trucks reduced at any time (not being less than four clear days before the date of conveyance) by forfeiting the deposit of 20s. for each truck so withdrawn.

An order cannot be withdrawn or reduced or altered within four days of the date of conveyance.

All trucks ordered and not used on the date and at the station specified in the order will be charged for as if used.

Trucks must be loaded and ready for despatch at a time fixed by the Traffic Manager, which will be ascertained on application to station-master at the loading station. If not loaded by the time specified, the Department reserves the right to remove the waggons, and charge full rates.

Sundays are not included in the number of days to be reckoned.

All live stock must be loaded and unloaded by the senders and consignees respectively, by whom also the truck doors must be secured and opened, fastenings attended to, &c.

All live stock must be unloaded within three hours after arrival, otherwise it will be unloaded by the Commissioner and a charge made of 2s. per truck.

All live stock must be removed from the railway premises immediately after unloaded; or if left, will remain at the owner's risk and expense, and may be sent to agistment or livery, the cost of which shall be paid by the owner, and such cost must be paid on demand as part of the authorized charges; and such stock, if not removed within seven days, may be sold by auction, by order of the Commissioner, within the railway premises, and the proceeds applied in payment of all expenses incurred, and the balance thereof handed over to the owner on demand.

When live stock is returned from Homebush to country stations in those neighbourhoods to which cattle trucks and sheep vans are being sent empty, half rates will be charged for the respective class of stock trucks required, provided the owners wait the requirements of the Department, but not otherwise. It will be necessary for senders to give satisfactory proof that the stock has previously arrived at Homebush by rail from the country.

When a truck is only partly occupied by a consignment, the Commissioner will have the right to fill it up to its full carrying capacity with other stock.

One *bona fide* drover will be allowed to accompany each consignment of not less than three trucks at full rates, travelling distances over 60 miles, to give the stock whatever attention may be necessary during transit. He will be furnished with a return free pass for himself and dog, available for three days for distances over 60 and under 200 miles, for four days for distances over 200 and under 350 miles, and for six days for distances over 350 miles, and must ride either in the guard's van or a 2nd class carriage. In cases where the stock is conveyed by more than one train, a pass will be issued for each train. The drover must travel by the same train as the stock, otherwise a pass will not be issued. In computing the time for which a pass is available, the day of issue is included; but if the pass expire on a day upon which a train does not run, it will be available till the next day upon which a train does run.

The following are the rates at which live stock can be insured:—

NEAT CATTLE (including Bulls).

1 to 50 miles,	2 per cent. on the declared value above £15.
51 to 100 "	3 " " "
101 to 150 "	4 " " "
151 and upwards,	5 " " "

The same percentage charge to be made for Pigs and Sheep (including valuable Rams and Ewes) on the declared value above £2.

Under no circumstances will the Commissioner be responsible for loss or injury to live stock, insured or uninsured, occurring during loading or unloading, whether such services be performed by either the servants of the Department or the owner. Nor will he under any circumstances be responsible for loss of or injury to any live stock during transit, arising from fear or restiveness, or through any of the animals being suffocated or trampled upon.

Wool

No. 51—continued.

Wool Rates.

GREAT SOUTHERN RAILWAY.

From Jerilderie, and all Stations and Sidings on the Jerilderie Branch	To Sydney			From Goulburn	To Sydney.	
	Undumped Scoured Wool, per ton	Undumped Scoured Wool, per ton	Greasy Wool, per ton		Undumped Scoured Wool, per ton.	Greasy Wool, per ton.
	£ s. d.	£ s. d.	£ s. d.		£ s. d.	£ s. d.
Hay	3 14 9	3 18 11	3 1 6	Marulan ...	2 15 6	2 4 6
Carrathool ..	3 11 7	3 15 6	2 19 0	Moss Vale	2 13 6	2 2 9
Darlington	3 11 7	3 15 6	2 19 0	Mittagong	2 6 0	1 16 9
Whitton	3 9 9	3 13 8	2 17 4	Picton	1 18 3	1 10 9
Narrandera	3 8 3	3 12 0	2 16 3	Menangle	1 10 9	1 4 9
Grong Grong		3 16 6	3 1 3	Campbelltown	1 3 0	0 18 6
Coolaman		3 16 6	3 1 3		0 19 3	0 15 6
Old Junee		3 10 3	2 16 3			
Albury		3 15 9	3 0 9	Yambla	0 19 3	0 15 6
Ettamogah		3 14 0	2 19 3	Gerogery	0 19 3	0 15 6
Yambla		3 14 0	2 19 3	Culcairn	1 10 9	1 4 9
Gerogery		3 12 3	2 17 9	Doodal Cooma	1 19 2	1 11 5
Culcairn		3 10 6	2 16 6	Yerong Creek	2 6 0	1 16 9
Yerong Creek		3 8 6	2 14 9	The Rock	2 13 6	2 2 9
The Rock				Sandy Creek	2 13 6	2 2 9
Sandy Creek		3 6 9	2 13 6	Wagga Wagga	2 13 6	2 2 9
Wagga Wagga		3 5 0	2 12 0	Bomen	2 14 4	2 3 7
Bomen		3 5 11	2 12 9	Harefield	2 16 0	2 5 3
Harefield		3 7 7	2 14 1	June Junction	2 17 2	2 6 5
June		3 8 9	2 15 0	Bethungra	3 0 4	2 9 7
Bethungra		3 7 0	2 13 9	Cootamundra	3 2 10	2 12 1
Gundagai		3 12 9	2 18 0	Old Junee	2 17 10	2 7 1
Cootamundra		3 5 0	2 12 0	Marrar	2 19 6	2 8 9
Cowra		4 1 9	3 5 5	Coolaman	3 1 0	2 10 3
Young		3 8 9	2 15 0	Devlin's Siding	3 3 10	2 13 1
Harden		3 3 3	2 10 9	Grong Grong	3 5 0	2 14 3
Binalong		3 1 3	2 9 0	Narrandera	3 7 2	2 16 5
Bowning		2 19 6	2 7 9	Whitton	3 12 0	3 1 3
Yass		2 19 6	2 7 9	Darlington	3 13 8	3 2 11
Gunning		2 17 6	2 7 9	Bringagee	3 16 8	3 5 11
Queanbeyan		3 5 6	2 13 3	Carrathool	3 19 4	3 8 7
Bungendore		3 1 3	2 9 0	Hay	4 5 0	3 14 3
Tarago		2 17 6	2 6 0	Colombo	3 10 6	2 19 9
				Jerilderie	3 18 0	3 7 3

From other places on the up side of Bomen, and on the South-western and Jerilderie Lines, the rates to Albury and stations north thereof, including The Rock, will be ascertained by adding 2d. per ton per mile to the rates quoted to Albury from Wagga Wagga. * Dumped bales must not exceed 20 cubic feet measurement each.

GREAT WESTERN RAILWAY.

From—	To Sydney		From—	To Sydney.		From—	To Sydney	
	Undumped Scoured Wool per ton	Greasy Wool per ton		Undumped Scoured Wool per ton	Greasy Wool per ton		Undumped Scoured Wool per ton.	Greasy Wool per ton.
Bourke	5 0 3	4 0 3	Orange	3 8 9	2 15 0	Rylstone	3 3 3	2 10 9
Byrook	5 0 3	4 0 3	Blayney	3 5 0	2 12 0	Lue	3 3 3	2 10 9
Coolabah	4 17 6	3 18 0	Perth	3 1 3	2 9 0	Ilford	2 19 6	2 7 9
Girlandbone	4 15 9	3 16 9	Bathurst	2 17 6	2 7 9	Capertee	2 15 6	2 4 6
Nyngan	4 11 9	3 13 6	Raglan	2 17 6	2 7 9	Wallerawang	2 9 9	1 19 9
Neverture	4 8 0	3 10 6	Brewongle	2 15 6	2 4 6	Bowenfels	2 7 9	1 18 3
Dubbo	4 0 3	3 4 3	Tarana	2 13 6	2 2 9	Penrith	0 19 3	0 15 6
Wellington	3 18 6	3 2 9	Mudgee	3 8 9	2 15 0	Richmond	0 19 3	0 15 6

GREAT NORTHERN RAILWAY.

From	To Newcastle.		To Morpeth.		From	To Newcastle.		To Morpeth.		
	Undumped Scoured Wool per ton	Greasy Wool per ton	Undumped Scoured Wool per ton.	Greasy Wool per ton.		Undumped Scoured Wool per ton.	Greasy Wool per ton.	Undumped Scoured Wool per ton.	Greasy Wool per ton.	
Tenterfield	5 11 3	4 9 0	5 7 0	4 5 9	Walcha Road	3 10 9	2 16 6	3 7 0	2 13 9	
Bolivia	5 5 3	4 4 3	5 1 3	4 1 0	Moonbi	3 8 9	2 15 0	3 5 0	2 12 0	
Deepwater	5 1 0	4 0 9	4 17 0	3 17 9	Tamworth	3 5 0	2 12 0	3 1 3	2 9 0	
Dundee	4 18 9	3 19 0	4 14 6	3 15 9	Werris Creek	3 1 3	2 9 0	2 17 6	2 7 9	
N.W. Line	Narrabri	3 16 6	3 1 3	3 12 9	2 18 0	Qurundi	2 17 6	2 7 9	2 13 6	2 2 9
	Boggabri	3 10 9	2 16 3	3 7 0	2 13 6	Murrurundi	2 13 6	2 2 9	2 9 9	1 19 9
	Gunnedah	3 8 9	2 15 0	3 5 0	2 12 0	Blandford	2 11 9	2 1 6	2 7 9	1 18 3
Breeza	3 5 0	2 12 0	3 1 3	2 9 0	Scone	2 7 9	1 18 3	2 4 0	1 15 3	
Glen Innes	4 11 9	3 13 6	4 8 0	3 10 6	Aberdeen	2 6 0	1 16 9	2 2 0	1 13 9	
Glencee	4 10 0	3 12 0	4 6 0	3 8 9	Musclebrook	1 18 3	1 10 9	1 14 6	1 7 6	
Ben Lomond	4 8 0	3 10 6	4 4 3	3 7 6	Ravensworth	1 14 6	1 7 6	1 10 9	1 4 9	
Guyra	4 4 3	3 7 6	4 0 3	3 4 3	Singleton	1 10 9	1 4 9	1 6 9	1 1 6	
Black Mountains	4 2 3	3 5 9	3 18 6	3 2 9	Branxton	1 6 9	1 1 6	0 19 3	0 15 6	
Eversleigh	4 0 3	3 4 3	3 16 6	3 1 3	Maitland	0 19 3	0 15 6	0 11 6	0 9 3	
Armidale	4 0 3	3 4 3	3 16 6	3 1 3	Hexham	0 13 6	0 11 0			
Uralla	3 16 6	3 1 3	3 12 9	2 18 3	Wallsend	0 13 6	0 11 0			

No. 51—continued.

Wool Rates—continued.

Minimum charge, same rate as for "Smalls."

Wool put on the rail at Bourke for Sydney from the district from Buckambie and all stations below having a frontage to the Darling River on the eastern side, and on the western side, including Marra and the whole district south and south-west thereof, and stations lying wholly to the west of the Paroo River, will be charged at the rate of £4 3s. 8d. per ton for undumped wool, and £3 7s. per ton for greasy wool.

Dumped scoured wool (except from stations between Narrandera, Jerilderie, and Hay inclusive), measuring not more than 20 cubic feet each bale, will be allowed a rebate of 10 per cent. off undumped scoured wool rate.

From stations not enumerated in the Schedule of Sydney, Newcastle, or Morpeth rates, a charge at the rate of 3d. per ton per mile will be made in addition to the rate from the nearest station, shown on the Up side, but in no case will the charge be in excess of the rate from the station immediately beyond that from which a rate is quoted.

Greasy wool from Sydney to Bowenfels tweed factory, £1 3s. 5d. per ton.

On the Camden tramway, and between stations not provided for in the rate sheet, wool, whether greasy or scoured, will be charged at first-class rates.

TO AND FROM WOOLWASHING ESTABLISHMENTS.

To and from Sydney and Newcastle :—	Greasy: To Washing Establishments.		Scoured: From Washing Establishments.	
	s.	d.	s.	d.
Not over 15 miles	4	5	8	0
Over 15 but not over 23	5	9	10	0
" 23 " 26	7	0	12	0
" 26 " 30	7	11	13	4
" 30 " 35	8	9	14	8
" 35 " 40	9	8	16	0

Re-packed greasy wool consigned from Liverpool to Sydney, 8s. 4d. per ton.

Greasy wool consigned from up-country stations to woolwashing establishments situated within 25 miles of Sydney or Newcastle will be charged the full rates to those stations respectively. When consigned to a washing establishment in the interior the *mileage proportion of the through rate* for greasy wool to Sydney or Newcastle, plus 2s. 6d. per ton will be charged; and when the wool is re-consigned to Sydney or Newcastle, after having been scoured, the *mileage proportion of the scoured wool rate from starting point to Sydney or Newcastle* will be charged.

The wool delivery will commence at 6 a.m., and close at 4:30 p.m., at Darling Harbour wool shed; and all wool not accepted within 15 minutes after same has been tendered at consignee's stores or offices by the Commissioner, will be stored at owner's risk and expense, and will be liable to charges for re-cartage in addition. The place for delivery must be stated on delivery order.

Rates for Carriage of Coal.

SOUTH AND WEST LINES.	NORTHERN LINE.
3 February, 1881.	4 October, 1882.
<i>Owners' Trucks.</i>	No alteration except in Commissioner's Trucks, as on South and West.
Under 50 miles, 1d. per ton per mile. Minimum charge, 2/-	1886.
Over 50 " ½d. " " with a terminal charge of 3d. per ton. Minimum charge, 4/3.	Minimum, 5 tons per truck; lots under 5 tons to be charged as 5 tons on first-class rates actual weight.
Lots under 5 tons to be charged as 5 tons, or first-class rates.	<i>In Commissioner's Trucks</i> —See "Mileage Rates" in Rates Book.
<i>Commissioner's Trucks.</i>	<i>In Owner's Trucks</i> — <i>Great Southern and Western Railway.</i>
First 50 miles, 1½d. per ton per mile.	For distances not exceeding 50 miles, 1d. per ton per mile. Minimum charge, 2s. per ton.
50 to 150 " 1d. " "	For distances over 50 miles, ½d. per ton per mile, with a terminal charge of 3d. per ton. Minimum charge, 4s. 3d. per ton.
150 " 250 " ¾d. " "	<i>In Owner's Trucks</i> — <i>Great Northern Railway.</i>
Over 250 " ½d. " "	per ton.
4 October, 1882.	For distances not exceeding 1 mile s. d.
No alteration except the following :—	Over 1 mile and not exceeding 7 miles 0 6
<i>Commissioner's Trucks.</i>	" 7 " " 10 " " 1 0
First 15 miles, 1s. 6d. per ton.	" 10 " " 12 " " 1 1
15 to 35 " 1½d. " per mile.	" 12 " " 14 " " 1 2
35 " 150 " 1d. " "	" 14 " " 16 " " 1 3
150 " 250 " ¾d. " "	" 16 " " 18 " " 1 4
Over 250 " ½d. " "	" 18 " " 20 " " 1 5
3 February, 1881.	" 20 " " 22 " " 1 6
<i>Owner's Trucks.</i>	" 22 " " 24 " " 1 7
Under 7 miles..... -/10	" 24 " " 26 " " 1 8
Over 7 to 10 miles 1/-	" 26 " " 28 " " 1 9
10 " 15 " 1/3	" 28 " " 30 " " 1 10
15 " 25 " 1/10	" 30 " " 32 " " 2 0
25 " 35 " 2/4	" 32 " " 34 " " 2 2
35 " 50 " ½d. per ton	" 34 " " " " " " 2 4
per mile.	For distances exceeding 36 miles, and not exceeding 50 miles, 1d. per ton per mile.
For distances of 50 miles, ½d. per ton per mile, with a terminal charge of 3d. a ton. Minimum charge, 4/3.	For distances over 50 miles, ¾d. per ton per mile, with a terminal charge of 3d. a ton. Minimum charge, 4s. 3d. per ton.
After the first three days a charge of 3d. per waggon per day will be made for standing accommodation on the Coal Sidings at Newcastle.	NOTE. —The above rates include the use of cranes and staiths for shipment at Newcastle; and the coal is carried subject to the observance by Consignees of the Commissioner's Regulations for the use of such cranes and staiths.
The above rates include the use of cranes and staith for shipment at Newcastle.	After the first three days a charge of 3d. per waggon per day will be made for standing accommodation on the coal sidings at Newcastle, Hamilton, and Bullock Island. All coal must be loaded and unloaded by owner.
<i>Commissioner's Trucks.</i>	
Same as South and West.	

No. 51—continued.

Hay, Straw, and Chaff—per 4-wheeled Truck.

Hay			Straw and Chaff			Hay			Straw and Chaff			Hay			Straw and Chaff						
Not exceeding—	£	s. d.	Not exceeding—	£	s. d.	Not exceeding—	£	s. d.	Not exceeding—	£	s. d.	Not exceeding—	£	s. d.	Not exceeding—	£	s. d.				
16 miles	0	10 0	16 miles	2	17 2	365 miles	4	1 7	215 miles	2	17 2	370 miles	4	2 4	225 miles	2	18 0	375 miles	4	3 2	
26 "	0	14 0	220 "	2	18 0	380 "	4	4 0	235 "	3	0 5	385 "	4	4 10	240 "	3	1 3	390 "	4	4 0	
35 "	0	17 0	245 "	2	19 7	395 "	4	5 7	250 "	3	2 10	400 "	4	7 3	255 "	3	0 5	405 "	4	8 1	
41 "	0	19 6	260 "	3	3 8	410 "	4	8 10	265 "	3	4 6	415 "	4	8 10	270 "	3	3 8	420 "	4	10 6	
46 "	1	1 6	275 "	3	6 11	425 "	4	11 4	280 "	3	7 9	430 "	4	12 1	285 "	3	8 7	435 "	4	12 11	
54 "	1	4 0	290 "	3	9 4	440 "	4	13 9	295 "	3	10 2	445 "	4	14 7	300 "	3	11 0	450 "	4	15 4	
60 "	1	5 6	305 "	3	14 10	455 "	4	16 2	310 "	3	12 7	460 "	4	17 0	315 "	3	13 5	465 "	4	17 10	
70 "	1	7 0	320 "	3	15 1	470 "	4	18 7	325 "	3	15 1	475 "	4	19 5	330 "	3	15 10	480 "	5	0 3	
80 "	1	8 6	335 "	3	16 8	485 "	5	1 1	340 "	3	17 6	490 "	5	1 10	345 "	3	18 4	495 "	5	2 8	
90 "	1	10 0	350 "	3	19 11	500 "	5	3 6	355 "	3	19 11	505 "	5	4 4	360 "	4	0 9	510 "	5	5 2	
100 "	1	11 9	360 "	4	0 9				365 "	4	0 9										

Smaller quantities charged actual weight at first-class rates.

A *pro rata* charge will be made for distances not shown above, and six or eight-wheeled trucks will be charged for as two ordinary trucks.

If consigned at Commissioner's risk the charge for Insurance will be 5 per cent. upon the trainage rate. Minimum, 9d. per truck.

E trucks loaded with hay and straw to be charged at 1¹/₂ truck rates.

Special A Class Traffic.

In Truck Loads (not exceeding 6 Tons).

Rate per Truck			Rate per Truck			Rate per Truck			Rate per Truck		
£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
100 miles	2	18 6	205 miles	4	8 10	310 miles	5	15 0	415 miles	6	17 0
105 "	2	0 0	210 "	4	10 3	315 "	5	16 2	420 "	6	18 0
110 "	3	1 5	215 "	4	11 8	320 "	5	17 3	425 "	6	19 0
115 "	3	2 10	220 "	4	13 1	325 "	5	18 5	430 "	7	0 0
120 "	3	4 3	225 "	4	14 5	330 "	5	19 6	435 "	7	1 0
125 "	3	5 8	230 "	4	15 11	335 "	6	0 8	440 "	7	2 0
130 "	3	7 2	235 "	4	17 4	340 "	6	1 9	445 "	7	3 0
135 "	3	8 7	240 "	4	18 9	345 "	6	2 11	450 "	7	4 0
140 "	3	10 0	245 "	5	0 2	350 "	6	4 0	455 "	7	5 0
145 "	3	11 5	250 "	5	1 6	355 "	6	5 0	460 "	7	6 0
150 "	3	13 0	255 "	5	2 8	360 "	6	6 0	465 "	7	7 0
155 "	3	14 6	260 "	5	3 9	365 "	6	7 0	470 "	7	8 0
160 "	3	15 11	265 "	5	4 11	370 "	6	8 0	475 "	7	9 0
165 "	3	17 4	270 "	5	6 0	375 "	6	9 0	480 "	7	10 0
170 "	3	18 9	275 "	5	7 2	380 "	6	10 0	485 "	7	11 0
175 "	4	0 2	280 "	5	8 3	385 "	6	11 0	490 "	7	12 0
180 "	4	1 8	285 "	5	9 5	390 "	6	12 0	495 "	7	13 0
185 "	4	3 1	290 "	5	10 6	395 "	6	13 0	500 "	7	14 0
190 "	4	4 6	295 "	5	11 8	400 "	6	14 0	505 "	7	15 0
195 "	4	5 11	300 "	5	12 9	405 "	6	15 0			
200 "	4	7 4	305 "	5	13 11	410 "	6	16 0			

Any quantity over 6 tons in one four-wheeled truck will be charged *pro rata*. Six or eight-wheeled trucks will be charged a minimum of 12 tons, unless it be cheaper to charge the first 6 tons at the four-wheeled truck rate, and the balance at Special A mileage rate. Loads may be made up with hay, straw, or chaff.

One-fourth will be added to above rates for sawn timber over 2 inches in thickness, and not exceeding 14 feet in length (including Railway sleepers), and one-third when over that length. One-half will be added for boards and battens not exceeding 2 inches in thickness, and not exceeding 14 feet in length, and two-thirds when over that length.

The charge per truck per mile for distances not shown in this table will be one-fifth of the difference in rate between every 5 miles.

No. 51—continued.
Miscellaneous Class in Truck Loads.
 (Not exceeding 6 Tons)

Rate per Truck		Rate per Truck		Rate per Truck		Rate per Truck	
£	s d	£	s d	£	s d	£	s d
120 miles	2 17 10	220 miles	4 3 10	320 miles	5 5 7	420 miles	6 4 3
125 "	2 19 2	225 "	4 5 0	325 "	5 6 7	425 "	6 5 2
130 "	3 0 6	230 "	4 6 4	330 "	5 7 7	430 "	6 6 0
135 "	3 1 9	235 "	4 7 8	335 "	5 8 7	435 "	6 6 11
140 "	3 3 0	240 "	4 8 11	340 "	5 9 7	440 "	6 7 10
145 "	3 4 4	245 "	4 10 2	345 "	5 10 8	445 "	6 8 9
150 "	3 5 9	250 "	4 11 5	350 "	5 11 8	450 "	6 9 8
155 "	3 7 1	255 "	4 12 5	355 "	5 12 7	455 "	6 10 7
160 "	3 8 4	260 "	4 13 5	360 "	5 13 5	460 "	6 11 5
165 "	3 9 8	265 "	4 14 5	365 "	5 14 4	465 "	6 12 4
170 "	3 10 11	270 "	4 15 5	370 "	5 15 3	470 "	6 13 3
175 "	3 12 2	275 "	4 16 6	375 "	5 16 2	475 "	6 14 2
180 "	3 13 6	280 "	4 17 6	380 "	5 17 0	480 "	6 15 0
185 "	3 14 10	285 "	4 18 6	385 "	5 17 11	485 "	6 15 11
190 "	3 16 1	290 "	4 19 6	390 "	5 18 10	490 "	6 16 10
195 "	3 17 4	295 "	5 0 6	395 "	5 19 9	495 "	6 17 9
200 "	3 18 8	300 "	5 1 6	400 "	6 0 8	500 "	6 18 8
205 "	4 0 0	305 "	5 2 6	405 "	6 1 7	505 "	6 19 8
210 "	4 1 3	310 "	5 3 6	410 "	6 2 5		
215 "	4 2 6	315 "	5 4 6	415 "	6 3 4		

Any quantity over 6 tons in one truck will be charged *pro rata*. Six or eight-wheeled trucks will be charged a minimum of 12 tons, unless it be cheaper to charge the first 6 tons at the four-wheeled truck rate, and the balance at Special A mileage rate.

The charge per truck per mile for distances not shown in this table will be one fifth of the difference in rate between every 5 miles.

Parcels Rates.

Miles.	3 lb and under	Over 3 lb to 7 lb	Over 7 lb to 14 lb	Over 14 lb to 28 lb	Over 28 lb to 56 lb	Over 56 lb to 84 lb	Over 84 lb to 112 lb	Every additional 28 lb or part thereof
Distance not over—	s d.	s d.	s d.	s d.	s d.	s d.	s d.	s d.
15	0 3	0 4	0 6	0 8	0 10	1 0	1 2	0 3
30	0 3	0 5	0 7	0 9	0 11	1 2	1 4	0 3
45	0 3	0 6	0 9	1 0	1 3	1 6	1 9	0 4
60	0 4	0 8	0 11	1 3	1 7	1 11	2 2	0 6
75	0 5	0 9	1 2	1 6	1 11	2 3	2 8	0 7
90	0 6	0 11	1 4	1 9	2 2	2 8	3 5	0 8
105	0 6	1 0	1 6	2 0	2 6	3 0	4 0	0 10
120	0 7	1 2	1 8	2 3	2 10	3 5	4 6	1 0
135	0 8	1 3	1 11	2 6	3 2	3 9	5 0	1 3
150	0 9	1 5	2 1	2 9	3 5	4 2	5 6	1 5
165	0 9	1 6	2 3	3 0	3 9	4 6	6 0	1 6
180	0 10	1 8	2 5	3 3	4 1	4 11	6 5	1 7
195	0 11	1 9	2 8	3 6	4 5	5 3	6 10	1 8
210	1 0	1 11	2 10	3 9	4 8	5 8	7 3	1 9
225	1 0	2 0	3 0	4 0	5 0	6 0	7 6	1 10
240	1 1	2 2	3 2	4 3	5 4	6 5	8 0	2 0
255	1 2	2 4	3 4	4 6	5 8	6 10	8 5	2 1
270	1 3	2 6	3 6	4 9	6 0	7 3	8 10	2 2
285	1 4	2 8	3 8	5 0	6 4	7 8	9 3	2 3
300	1 5	2 10	3 10	5 3	6 8	8 1	9 8	2 4
315	1 6	3 0	4 0	5 6	7 0	8 6	10 1	2 5
And respectively for every additional, or part of additional, 50 miles	0 1	0 2	0 2	0 3	0 4	0 5	0 5	0 1

PARCELS RATES BETWEEN SYDNEY AND NEWCASTLE.

Not exceeding 14 lbs.	s. d.
Over 14 lbs. but " " 28 "	1 0
" 28 " " " " 56 "	1 6
" 56 " " " " 84 "	2 0
" 84 " " " " 112 "	3 0
And for every additional 28 lbs or part thereof	4 0
	1 0

Fresh meat, fish, poultry (dead), dairy produce, eggs, fruit, vegetables, and game, 1 cwt and under, 25 per cent reduction on parcel rates, minimum charge, 3d.

Yeast will only be accepted when the kegs are securely packed in bags.

Bread, half parcels rates, minimum charges, 3d

Dress stands, quadruple rates.

Musical instruments, packed in cases, 25 per cent added to above rates, unpacked, double rates.

Pictures in frames, packed or unpacked, double rate

Mirrors, furniture, and sewing-machines, unpacked, double rates

Bath chairs, perambulators, and velocipedes, requiring a carriage truck for their conveyance, will be charged as for a two-wheeled carriage—see page 38. Bath-chairs and perambulators (adults) carried in Brake Vans will be charged double the rate for children's perambulators. Tricycles, double parcel rates.

Returned

No. 51—continued.

Parcels Rates—continued.

Returned empty kegs, freight same as for baskets and coops.
 Corpses, 1s. per mile ; minimum charge, 5s.
 Newspaper parcels, one-quarter parcels rates ; minimum charge, 3d. Returned newspaper parcels ; freight must be prepaid.
 Packed parcels, quadruple rate, and the onus of proving that parcels are not packed rests with the consignors or consignees.
 Passengers' excess luggage, parcels rates.
 Bicycles and tricycles accompanying owners ; freight to be prepaid.
 Commercial travellers' excess luggage, parcels rates on down journey, and free on up journey, on either line, on production of Railway receipts certifying that full trainage has been paid on down journey.
 Gunpowder and other explosives will not be conveyed by Passenger Trains.
 The maximum rates for the conveyance of parcels from Sydney and suburban stations to any station on the Southern and South-western Lines are as follows—

3 lb. and under.	Over 3 lb. to 7 lb.	Over 7 lb. to 14 lb.	Over 14 lb to 28 lb.	Over 28 lb. to 56 lb.	Over 56 lb. to 84 lb.	Over 84 lb. to 112 lb.	Every additional 28 lb. or part thereof.
s. d. 1 6	s. d. 3 0	s. d. 4 0	s. d. 5 6	s. d. 7 0	s. d. 8 6	s. d. 10 1	s. d. 2 5

Perambulators (children's) and velocipedes (except trycicles) will be conveyed in Guard's Vans, at the following rates :—

When conveyed as passengers' luggage—

	s. d.		s. d.
Not exceeding 15 miles	0 9	Not exceeding 125 miles	3 0
30 "	1 0	150 "	3 6
50 "	1 6	200 "	4 0
75 "	2 0	250 "	4 6
100 "	2 6	300 "	5 0

and 6d. for each additional 50 miles or part thereof.

When conveyed as parcels, 50 per cent. additional will be charged.

Rates for Ice.

Ice will be conveyed by Passenger Trains as under :—

Miles.	10 lb. and under	For each additional 10 lb.	Miles.	10 lb. and under	For each additional 10 lb.
Distance not over—	s. d.	s. d.	Distance not over—	s. d.	s. d.
100.....	0 2	0 1	350.....	0 7	0 3½
150.....	0 3	0 1½	400.....	0 8	0 4
200.....	0 4	0 2	450.....	0 9	0 4½
250.....	0 5	0 2½	504.....	0 10	0 5
300.....	0 6	0 3			

Fruit by Passenger Trains.

Fruit by passenger trains, in quantities of less than 2 cwt., will be charged parcels rates, less 25 per cent. ; minimum charge, 3d. Quantities of 2 cwt. and upwards will be charged half parcels rate, provided such charge is not less than as for 1 cwt. 3 qrs. at the former rate.

Exchange of Parcels, &c., Traffic between New South Wales and Victorian Lines.

Parcels, excess luggage, and commercial travellers' samples are booked through between New South Wales and Victorian Stations at the undermentioned rates :—

For those parcels booked through between Sydney and Melbourne the rates are—

	s. d.
Not exceeding 3 lb.	2 0
Over 3 but " " 7 "	3 0
" 7 " " " 14 "	4 6
" 14 " " " 28 "	6 0
" 28 " " " 56 "	10 0
" 56 " " " 84 "	12 0
" 84 " " " 112 "	14 6

and 2s. 6d. for every additional 28 lb. or part thereof.

All other parcels, &c., from New South Wales Stations to Victorian Stations, and those from Victorian to New South Wales Stations, are booked to Albury.

Between Albury and Victorian Stations the ordinary Victorian rates are charged (189 miles from Melbourne), and, in addition, the following charges for the New South Wales Department are added :—

	s. d.
Not exceeding 3 lb.	0 3
Over 3 " " " 7 "	0 4
" 7 " " " 14 "	0 6
" 14 " " " 28 "	0 8
" 28 " " " 56 "	0 10
" 56 " " " 84 "	1 0
" 84 " " " 112 "	1 2

and 3d. for every additional 28 lb. or part thereof. No junction charges are made for Press parcels.

Parcels between Albury and Wodonga are charged at the above rates.

No. 51—*continued.***Parcels Rates—*continued.***

Press parcels are charged one-fourth the above rates—minimum, New South Wales Line, 3d.

Packed parcels in hampers, crates, bags, cases, or other packages are charged quadruple the above rates, and the onus of proving that parcels are not packed rests with the consignors or consignees.

When two or more parcels are consigned to one person the above rates are charged on each parcel separately.

Bicycles, feathers, furniture, glass, hats, bonnet or hat boxes, cases of millinery, straw bonnets, mirrors (loose), musical instruments, perambulators, sulkeys in pieces, pictures, sewing-machines, wicker-work, wire cages (loose), or other articles light or fragile, are considered admeasurement goods, and are charged 50 per cent. additional on the above rates. Parcels containing articles and property of a description not mentioned or specified in the following clause, such articles and property being over £10 in value, are, in addition to the amount chargeable by the foregoing scale of rates, charged a further sum equal to 1 per centum upon the declared value thereof.

Parcels containing any of the following articles are charged the following increased rates, viz. :—Over £10 and under £50 in value, double, and over £50 in value, quadruple, parcel rates, viz. :—Gold or silver coin of this realm, or of any part of Her Majesty's dominions, or of any foreign state, or any gold or silver in a manufactured or unmanufactured state, or any precious stones, jewellery, watches, clocks, or time-pieces of any description, trinkets, bills, notes of any banks in Her Majesty's dominions, or of any foreign bank, order, notes, or securities for payment of money, whether foreign or otherwise, stamps, maps, writings, title-deeds, paintings, engravings, pictures, gold or silver plate, or plated articles, glass, China, silk in a manufactured or unmanufactured state, and whether wrought up or not wrought up with other materials, furs or lace, or any of them contained in any parcel or package.

The trainage on all parcels conveyed under bond must be prepaid.

Specie is carried between Sydney and Melbourne at the rate of 3s. per £100.

Horses may be booked from Sydney to Melbourne at the following rates :—	£	s.	d.
One horse	9	9	5
Two horses	15	19	2
Three horses (or one stallion)	20	14	10

Horses from New South Wales to stations other than Melbourne, and *vice versa*, are booked to Albury, and re-booked there to destination, plus the following junction charges :—

	s.	d.
One horse	2	0
Two horses	3	0
Three horses belonging to same owner.....	4	0

Carriages and dogs from New South Wales to Victorian stations are booked in the same manner as horses for Victorian stations other than Melbourne, plus the following junction charges :—

	s.	d.
Carriages, gigs, dog-carts, and vehicles of a similar description	4	0
Dogs	0	6

Corpses are booked in a similar manner, with 4s. added for conveyance between Albury and Wodonga.

Rates for conveyance of Library Exchanges.

Books forwarded for exchange to and from subscribers to recognized Circulating Libraries only will be carried at one-fourth parcels rates, under the following conditions, viz. :—

1. The sender's name must be legibly inscribed on each parcel.
2. Each parcel must be open at both ends.
3. Each parcel must be declared on the consignment-note to contain books only.

Gold-dust and Bullion, and Gold and Silver Coin.

The Commissioner for Railways will not be responsible for the safe conveyance of Gold-dust and Bullion, Bank-notes and Bills, Orders, Notes, and Securities for the payment of Money, and Gold and Silver Coin, or any of the other article mentioned above, as the following charges are made, and the Gold-dust and Bullion and Coin carried, on condition of its being in charge of owners and at their risk.

	Distance not over 55 miles.	Distance not over 100 miles.	Distance not over 150 miles.	Distance not over 200 miles.	Distance not over 250 miles.	Distance not over 350 miles.	Distances over 350 miles.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Gold-dust and Bullion, per 100 oz.	2 0	3 6	4 3	5 0	5 6	6 0	6 6
Gold Coin and Bank-notes, per £100 ...	0 6	0 10	1 3	1 8	2 0	2 3	2 6
Silver Coin, per £100.....	1 0	1 9	2 6	3 3	3 6	3 9	4 0

Fractions over 100 and under 50 will not be charged, but fractions of 50 and over will be charged as 100.

If conveyed at Commissioner's risk the following Insurance Rates will be charged in addition :—

1 to 100 miles.....	1s. 6d. per cent. on declared value.
101 to 200 "	1s. 9d. " " "
201 to 300 "	2s. 0d. " " "
301 to 400 "	2s. 3d. " " "
401 to 500 "	2s. 6d. " " "

Rates for Milk.

15 miles and under.....	½d. per gallon.
40 " "	1d. " "
90 " "	1½d. " "
Beyond 90 miles ..	2d. " "

Minimum charge, 6d.

The full capacity of the cans will always be charged for.

RETURNED EMPTIES.

Returned empty milk cans will be conveyed free; but they must be legibly branded with sender and consignee's name and Stations from and to which carried. All other returned empties will be charged double the rates shown in merchandise rate book, except otherwise arranged. Only small empties will be accepted for conveyance by Passenger Train.

COMPARATIVE STATEMENT of the RATES charged for Goods in New South Wales, Victoria, Queensland, and South Australia, 31st December, 1887.

Articles of Traffic.	New South Wales.			Victoria.			Queensland.			South Australia.			
	Class.	50 miles.	150 miles.	Class.	50 miles.	150 miles.	Class.	50 miles.	150 miles.	Class.	50 miles.	150 miles.	
Acids (in cases and carboys)	4	s. d. 38 3	s. d. 109 6	Double rate 4	s. d. 58 0	s. d. 175 0	Gunpowder rate Cases Carboys dbl. rate 1	s. d. 45 10	s. d. 125 0	4	s. d. 39 6	s. d. 112 8	
Aerated Waters	2	21 7	61 2	A	7 6	17 8		29 2	75 0	A	8 4	17 9	
Agricultural Machines.....	3	29 5	84 10	{ 2 Owner's risk 3	21 0	62 6	1	29 2	75 0	1	14 6	38 11	
Ale and Porter (in bulk).....	2	21 7	61 2	{ Miscellaneous In cases 3 Owner's risk	13 6	38 6							
Ammunition	4	38 3	109 6	4	29 0	87 6	Gunpowder Rate	45 10	125 0	4	39 6	112 8	
Bags (new, empty)	B	8 10	24 8	1	16 6	50 0	1	29 2	75 0	{ Bales A Bundles 1 Bales A Loose 2 5-ton lots in bundles A	8 4	17 9	
Bark (in sheets, bundles, or bags).....	A	5 4	13 6	{ In truck loads, A 3 in less than truck loads, Miscellaneous.	7 6	17 8	Agricultural	10 10	27 6		8 4	17 9	
Battens (not exceeding 14 feet in length)	A plus 50 %	8 0	20 3	Softwood 1 60 c. ft. to ton.	16 6	50 0	Timber Rates	8 4	25 0	8 4	17 9	20 9	57 4
Do. (exceeding do.)	A ,, 66 2/3 %	8 11	22 6							8 4	17 9	20 9	57 4
Beet-root	A	5 4	13 6	Agricultural	5 6	15 0	Agricultural	10 10	27 6	Not named			
Bicycles	4	38 3	109 6	{ Complete, packed in cases, rate and a half Complete, loose, double rate In pieces packed in cases	43 6	131 3	2	41 8	112 6	1	14 6	38 11	
Boards (not exceeding 14 feet in length)	A plus 50 %	8 0	20 3	1	29 0	87 6							
Do. (exceeding do.)	A ,, 66 2/3 %	8 11	22 6	60 ft. to ton	16 6	50 0	Timber rates	8 4	25 0				
Boats (by measurement, 80 cubic feet to ton)	2	21 7	61 2	3	25 0	75 0	2	41 8	112 6	1 60 cub. ft.	14 6	38 11	
Boilers	2	21 7	61 2	3	25 0	75 0	1 Three cwt. or over.	29 2	75 0	{ Not ex. 2 tons 1 ex. 2 tons 2	14 6	38 11	
Bones (in bags or loose, not less than 4 tons)	A	5 4	13 6	Agricultural	5 6	15 0	Excep.	8 4	23 4	A	8 4	17 9	
Do (loose, in quantities under 4 tons)	B	8 10	24 8										
Bottles or Jars (empty, in cases and crates).....	B	8 10	24 8	{ Druggists 3 Loose M Minimum, 5 tons	25 0	75 0	1	29 2	75 0	B	10 5	30 9	
Bran	A	5 4	13 6	Agricultural	5 6	15 0							
Bricks	B	4 10	12 6	Excep. A Truck loads, 5 tons	3 6	9 0	Excep.	8 4	23 4	In bags A 5-ton loads, 1 1/2 d. per ton per mile special, less than 5-ton loads 1 class.	8 4	17 9	
Cabbages	A	5 4	13 6	Agricultural	5 6	15 0	Agricultural	10 10	27 6	6 3	18 9		
Candied Fruits.....	(To Sydney and Newcastle) B	8 10	24 8	Not mentioned	.....	.....	2	41 8	112 6	A	8 4	17 9
Carpentry	3	29 5	84 10	3	25 0	75 0	2	41 8	112 6	2	20 9	57 4	
Carrots	A	5 4	13 6	Agricultural	5 6	15 0	Agricultural	10 10	27 6	A	8 4	17 9	
Cases (new, empty)	B	8 10	24 8	2	21	62 6	2	41 8	112 6				
Casks do.	B	8 10	24 8	Not mentioned	.....	.....	2	41 8	112 6			
Cement	B	8 10	24 8	B minimum, 4 tons	9 6	23 9	Special	20 10	50 0	1	14 6	38 11	

Commodity	Classification	Rate 1	Rate 2	Rate 3	Rate 4	Rate 5	Rate 6	Rate 7	Rate 8	Rate 9	Rate 10	Rate 11	Rate 12	Rate 13	Rate 14	Rate 15	Rate 16	Rate 17	Rate 18	Rate 19	Rate 20
Chaff (pressed)	See page 140	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Charcoal (in bags)	B	8 10	24 8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Chicory Root	A	5 4	13 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Clay	Miscellaneous	4 10	12 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Coal	do Sec also page	4 10	12 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Coko (loose)	B	8 10	24 8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Do. (in owner's trucks)	A	5 4	13 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Colonial Wine (New South Wales)	B	8 10	24 8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Copper ore	Miscellaneous	4 10	12 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Do. (smelted)	B	8 10	24 8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dairy Produce	1	17 8	49 4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Drain-pipes	A	5 4	13 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dynamite	See Gurpowder, page	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Felloes—undressed	A	5 4	13 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fireclay Blocks	A	5 4	13 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Firewood	Miscellaneous	4 10	12 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fireworks	4	38 3	109 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fish—fresh or shell	See page 129	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Flour	A	5 4	13 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Flower-pots	B	8 10	24 8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fruit	A	5 4	13 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Furniture (loose)	4 Owner's risk	38 3	109 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Do. (in cases)	3	29 5	84 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Garden Produce	A	5 4	13 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Glue-pieces (dry)	B	8 10	24 8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Do. (wet)	A	5 4	13 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Grain	A	5 4	13 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Green Fodder	A	5 4	13 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Guano	A	5 4	13 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gunpowder (in casks)	See page 130	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hardware	3	29 5	84 10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hats	4	38 3	109 6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Articles of Traffic.	New South Wales.			Victoria.			Queensland.			South Australia.		
	Class.	50 miles.	150 miles.	Class.	50 miles.	150 miles.	Class.	50 miles.	150 miles.	Class.	50 miles.	150 miles.
Hay		s. d.	s. d.	{ Loose Agricult.	5 6	15 0	{ Pressed agricultural	s. d.	s. d.	{ Pressed B	10 5	30 9
Hides—(green and wet salted)	A	5 4	13 6	{ Hyd. pres. Bls. A	7 6	17 8	{ Not pressed to 15 c. ft.	10 10	27 6	{ Trussed, per truck	50 0	150 0
Do. Dry	B	8 10	24 8	{ B	9 6	23 9	{ per cwt., 50% added.	29 2	75 0	{ Bales A	8 4	17 9
Hoofs (in bags, or loose, not less than 4 tons)	A	5 4	13 6	{ Miscellaneous	13 6	38 6	{ Loose 1	20 10	50 0	{ Loose 1	14 6	38 11
Do. (loose, in quantities under 4 tons)	B	8 10	24 8	{ Miscellaneous	13 6	38 6	{ Tied Special	8 4	23 4	{ In bags A	8 4	17 9
Horns (in bags, or loose, not less than 4 tons) ...	A	5 4	13 6	{ Miscellaneous	13 6	38 6	{ Excep.	8 4	23 4	{ Loose 1	14 6	38 11
Do. (loose, in quantities under 4 tons)	B	8 10	24 8	{ Miscellaneous	13 6	38 6	{ Excep.	8 4	23 4	{ In bags A	8 4	17 9
Iron—Bar, Rod, Angle, and T				{ Miscellaneous	13 6	38 6	{ 1	29 2	75 0	{ Loose 1	14 6	38 11
Do. Boiler-plate or Sheet	2	21 7	61 2	{ Sheet 2	21 0	62 6	{ 1	29 2	75 0	{ 1	14 6	38 11
Do. Castings (if over 3 tons, owner's risk only) ..				{ Plate Miscell.	13 6	38 6	{ Heavy, 3 cwt. & over	29 2	75 0	{ In cases 1	14 6	38 11
Do. Corrugated (in cases)	1	17 8	49 4	{ 3	25 0	75 0	{ 1	29 2	75 0	{ Loose 2	20 9	57 4
Do. Girders	2	21 7	61 2	{ Rough, including	13 6	38 6	{ Over 12 feet, rate and	43 9	112 6	{ Loose 3	27 0	75 9
Do. Tanks—Galvanized (160 cubic feet to ton) ..	3	29 5	84 10	{ stampheads, shoes,			{ half.	29 2	75 0	{ In cases 1	14 6	38 11
Do. Tanks (malt, square, and empty)	3	29 5	84 10	{ or light-finished M			{ 1	29 2	75 0	{ Not over 20 ft. 1	14 6	38 11
Do. Wire (in bundles)	1	17 8	49 4	{ 2	21 0	62 6	{ Galv. iron, double rate.	41 8	112 6	{ Not over 30 ft. 2	20 9	57 4
Do. Wheels and Axles (Railway or Tramway) ...	2	21 7	61 2	{ Corrugated	29 0	87 6	{ 2	41 8	112 6	{ 1	14 6	38 11
Do. Nails	2	21 7	61 2	{ Not mentioned	29 0	87 6	{ 2	41 8	112 6	{ 120 ft. to ton. }	14 6	38 11
Do. Pig and Scrap	M	4 10	12 6	{ 1	16 6	50 0	{ Special	20 10	50 0	{ 3	27 0	75 9
Ironmongery	3	29 5	84 10	{ Wheels loose 2	21 0	62 6	{ 2	41 8	112 6	{ Wheels loose 2	20 9	57 4
Ironstone	Miscellaneous	4 10	12 6	{ 1	16 6	50 0	{ 1	29 2	175 0	{ Wheels & Axles 1	14 6	38 11
Jams	(To Sydney and Newcastle only) B	8 10	24 8	{ A	7 6	17 8	{ Excep.	8 4	23 4	{ 1	14 6	38 11
Joinery	3	29 5	84 10	{ Not mentioned	.....	.....	{ 2	41 8	112 6	{ Pig B	10 5	30 9
Kerosene Oil	(To Sydney and Newcastle only) 1	17 8	49 4	{ Canned and direct	9 6	23 9	{ 2	41 8	112 6	{ Scrap ex., 1½d. per	6 3	18 9
Laths	A	5 4	13 6	{ from factory B	25 0	75 0	{ 2	41 8	112 6	{ ton per mile 5-ton		
Lead (Pig)	B	8 10	24 8	{ 3	25 0	75 0	{ 2	41 8	112 6	{ truck loads.		
Do. (Sheet)	2	21 7	61 2	{ In bundles 2	21 0	62 6	{ 2	41 8	112 6	{ Cases 1	14 6	38 11
Leather (in bales or secured bundles)	(To Sydney and Newcastle only) 1	17 8	49 4	{ Minimum 4 ins. 1	13 6	38 6	{ Timber	8 4	25 0	{ Loose 3	27 0	75 9
Do. (except patent and morocco)	2	21 7	61 2	{ Fancy 4	16 6	50 0	{ Special	20 10	50 0	{ Excep. 5-ton lots	9 0	18 4
				{ in bales	29 0	87 6	{ 1	29 2	75 0	{ B	10 5	30 9
				{ Miscellaneous	13 6	38 6	{ 2	41 8	112 6	{ 2	20 9	57 4
				{ .....	.....	.....	{ 2	41 8	112 6	{ 2	20 9	57 4
				{ .....	.....	.....	{ 2	41 8	112 6	{ 1	14 6	38 11
				{ .....	.....	.....	{ 2	41 8	112 6	{ Fig or sheet 1	14 6	38 11
				{ .....	.....	.....	{ 2	41 8	112 6	{ Piping 3	27 0	75 9
				{ .....	.....	.....	{ 2	41 8	112 6	{ In bales 1	14 6	38 11
				{ .....	.....	.....	{ 2	41 8	112 6	{ Not mentioned.		

Lime (4 tons and over)	A	5 4	13 6	{ A For manure, ag.	7 6 5 6	17 8 15 0	} Excep.	8 4	23 4	A	8 4	17 9
Limestone	Mis.	4 10	12 6	Not	named.		Excep.	8 4	23 4	Special B	10 5	30 9
Lithofracteur	See Gunpowder, page	130		4		29 0	Gunpowder	45 10	125 0	4	39 6	112 8
Lucerne Seeds	1	17 8	49 4	2		21 0	Agric. 1	10 10	27 6	Not mentioned		
Machinery (in lots of 5 tons, per four-wheeled truck)	1	17 8	49 4	Heavy 2		21 0	3 cwt. and over 1	29 2	75 0	{ 1, not Agric. 2, light or fragile	14 6 20 9	38 11 57 4
Malt (in bags and tanks)	1	17 8	49 4	B		9 6	1	29 2	75 0	B	10 5	30 9
Mangold Wurzel	A	5 4	13 6	Agric.		5 6	Agric.	10 10	27 6	A	8 4	17 9
Manure (loose)	Mis.	4 10	12 6	F		4 2	Excep.	8 4	23 4	Excep.	6 3	18 9
Do. (artificial)	A	5 4	13 6	{ Agric. Col. manufactd.	5 6	15 0	Excep.	8 4	23 4	2		
Marble (undressed)	Mis.	4 10	12 6	2		21 0	Special	20 10	50 0	{ Polished, in cases.	20 9	57 4
Meal	A	5 4	13 6	{ Not otherwise specified.	2	21 0	Agric.	10 10	27 6	A	8 4	17 9
Measurement Goods, except otherwise mentioned, 140 cub. feet to ton	3	29 5	84 10	Not	named.		Not	named.		Not	named.	
Millinery	4	38 3	109 6	In cases 4		29 0	2	41 8	112 6	4	39 6	112 8
Muriate of Lime	1	17 8	49 4	Not	named.		2	41 8	112 6	1	14 6	38 11
Musical Instruments	4	38 3	109 6	4		29 0	2	41 8	112 6	4	39 6	112 8
Naphtha	4	38 3	109 6	4		29 0	Gunpowder dbl. rate	91 8	250 0	Not	named.	
Offal	Mis.	4 10	12 6	Not	named.		Excep.	8 4	23 4	Excep.	6 3	18 9
Oil-cake	B	8 10	24 8	M		13 6	Excep.	8 4	23 4	1	14 6	38 11
Opium	4	38 3	109 6	Double rate 4		58 0	2	41 8	112 6	4	39 6	112 8
Ores (crude)	Mis.	4 10	12 6	{ B partially smelted	9 6	23 9	Excep.	8 4	23 4	Excep.	9 0	18 4
Paintings and Engravings	4	38 3	109 6	{ Loose dble. rate In cases 4	58 0	175 0	2	41 8	112 6	4	39 6	112 8
Palings (undressed)	A	5 4	13 6	Firewood.	29 0	87 6	Timber	8 4	25 0	{ Bales 2 Bags 3	14 6 20 9	38 11 57 4
Paper and paper bags (in large quantities)	B	8 10	24 8	2		21 0	2	41 8	112 6	4	39 6	112 8
Do. (under 1 ton)	2	21 7	61 2							4	39 6	112 8
Papier Mâché Goods	3	29 5	84 10	4		29 0	2	41 8	112 6	4	39 6	112 8
Perambulators	4	38 3	109 6	4	{	29 0	2	41 8	112 6	4	39 6	112 8
Perfumery	3	29 5	84 10	4		29 0	2	41 8	112 6	4	39 6	112 8
Picture-frames	4	38 3	109 6	Double rate 4		58 0	2	41 8	112 6	Double rate 4	79 0	225 4
Pier-glasses and Mirrors	4	38 3	109 6	{ 4 double rate 4	29 0	87 6	2	41 8	112 6	4	39 6	112 8
Pipes (Iron and Lead)	2	21 7	61 2	{ Iron 1 Lead 3	16 6	50 0	1	29 2	75 0	1	14 6	38 11
Pitch	1	17 8	49 4	M		13 6	1	29 2	75 0	1	14 6	38 11
Plants (in pots and cases)	3	29 5	84 10	{ M Not less than 5 tons. Truck loads 5 tons.	13 6	38 6	1	29 2	75 0	4	39 6	112 8
Plate-glass (in cases)	4	38 3	109 6	4		29 0	2	41 8	112 6	{ Window 3 Plate 4	27 0 39 6	75 9 112 8
Plated Goods	3	29 5	84 10	4		29 0	2	41 8	112 6	4	39 6	112 8
Pollard	A	5 4	13 6	Agric.		5 6	Agric.	10 10	27 6	A	8 4	17 9
Portable Engines	3	29 5	84 10	M		13 6	1	29 2	75 0	2	20 9	57 4
Posts and Rails (undressed)	A	5 4	13 6	Firewood		4 2	Timber	8 4	25 0	B	10 5	30 9
Potatoes	A	5 4	13 6	{ Agric. New, in cases A	5 6	15 0	Agric.	10 10	27 6	A	8 4	17 9
					7 6	17 8						

Articles of Traffic.	New South Wales.			Victoria.			Queensland.			South Australia.		
	Class.	50 miles.	150 miles.	Class.	50 miles.	150 miles.	Class.	50 miles.	150 miles.	Class.	50 miles.	150 miles.
Poultry (living) in crates	1	s. d. 17 8	s. d. 49 4	4	s. d. 29 0	s. d. 87 6	1	s. d. 29 2	s. d. 75 0	4	s. d. 39 6	s. d. 112 8
Do (in flocks) per truck	Excep.	25 0	66 8	Not named.				Not named.				
Preserved Meat	(To Sydney and Newcastle) A	5 4	13 6	Miscellaneous	13 6	38 6	2	41 8	112 6	1	14 6	38 11
Quicksilver	1	17 8	49 4	3	25 0	75 0	2	41 8	112 6			
Rags and Materials for making Paper (not chemical)	A	5 4	13 6	A	7 6	17 8	Excep.	8 4	23 4	1	14 6	38 11
Railway Materials	1	17 8	49 4	Miscellaneous	13 6	38 6	Excep.	8 4	23 4	1	14 6	38 11
Regulus	A	5 4	13 6	Not named.			Excep.	8 4	23 4	Excep.	9 0	18 4
Resin	1	17 8	49 4	1	16 6	50 0	2	41 8	112 6	1	14 6	38 11
Road Metal	Miscellaneous	4 10	12 6	F	4 2	11 3	Excep.	8 4	23 4	Excep.	6 3	18 9
Salt—Rock and Calcutta—Lick Blocks	B	8 10	24 8	B	9 6	23 9	Special	20 10	50 0	A	8 4	17 9
Do. Dairy and Meat-curing	B	8 10	24 8	B	9 6	23 9	Special	20 10	50 0	A	8 4	17 9
Sand	Miscellaneous	4 10	12 6	F	4 2	11 3	Excep.	8 4	23 4	Excep.	6 3	18 9
Sawdust	A	5 4	13 6	{ Miscellaneous In trucks	13 6 4 2	38 6 11 3	Excep.	8 4	23 4			Not mentioned
Scientific Instruments	4	38 3	109 6	4	29 0	87 6	2	41 8	112 6	4	39 6	112 8
Seed—Grass	1	17 8	49 4	M	13 6	38 6	Agric.	10 10	27 6	{ Flower 4	20 9	57 4
Sewing-machines (unpacked at owner's risk)	3	} 29 5	84 10	{ 4	29 0	87 6	1	29 2	75 0	Packed 3	27 0	75 9
Do. (packed)	3			{ 3									25 0	75 0	boxed }
Shale—Kerosene	Miscellaneous	4 10	12 6	A	7 6	17 8	Excep.	8 4	23 4			Not named.
Sheepskins	B	8 10	24 8	Miscellaneous	13 6	38 6	{ (Tied) Special (Loose) 1	20 10 29 2	50 0 75 0	{ See hiles		
Shingles	A	5 4	13 6	Firewood	4 2	11 3	Timber	8 4	25 0	1	14 6	38 11
Silk Goods	3	29 5	84 10	2	21 0	62 6	2	41 8	112 6	4	39 6	112 8
Slate Slabs for Billiard Tables	4	38 3	109 6	2	21 0	62 6	2	41 8	112 6	Not mentioned		
Slates	A	5 4	13 6	B Minimum 4 tons	9 6	23 9	Excep.	8 4	23 4	B	10 5	30 9
Scap (except scented and fancy)	1	17 8	49 4	{ M Minimum 5 tons }	13 6	38 6	1	29 2	75 0	{ Fancy 1	14 6	38 11
Soda (Crystals)	B	8 10	24 8	Not named.			1	29 2	75 0	{ Fancy 4	39 6	112 8
Do. (Caustic)	B	8 10	24 8	1	16 6	50 0	2	41 8	112 6	1	14 6	38 11
Spokes and Shafts (undressed)	A	5 4	13 6	Firewood	4 2	11 3	Timber	8 4	25 0	2	20 9	57 4
										1	14 6	38 11

Stone (cut for building or grindstones)	Mis.	4 10	12 6	Building 2	21 0	62 6	Excep.	8 4	23 4	B	10 5	30 9
Do. (carved, and gravostones)	2	21 7	61 2	2	21 0	62 6	2	41 8	112 6			
Do. (undressed)	Mis.	4 10	12 6	Agr. P	5 6	15 0	Excep.	8 4	23 4	Except. 1½d. per ton per mile not less than 5-ton truck loads.	6 3	18 9
Stocks (undressed)	A	5 4	13 6	Firewood	4 2	11 3	Timber	8 4	25 0	1	14 6	38 11
Straw	See page 140			{ Loose Agr. Pressed A	5 6 7 6	15 0 17 8	Agricultural Not pressed to 15 c. feet to cwt. 50 per cent. added.	10 10	27 6	B	10 5	30 9
Sugar	2	21 7	61 2	2	21 0	62 6	Imported 1	29 2	75 0	{ 1 Loaf, loose 4	14 6 39 6	38 11 112 8
Sulphuric Acid	1	17 8	49 4	5 tons and more 4	29 0	87 6	2	41 8	112 6	2	20 9	57 4
Tallow	B	8 10	24 8	Miscellaneous	13 6	38 6	Special	20 10	50 0	1	14 6	38 11
Tar	1	17 8	49 4	{ 1 Mis. (minim. 5 tons)	16 0 13 6	50 0 38 6	1	29 2	75 0	1	14 6	38 11
Terra-cotta	A	5 4	13 6	Not mentioned	.....	.....	2	41 8	112 6	Not mentioned.		
Tiles—Earthenware	A	5 4	13 6	{ Paving Mis. Drain A	13 6 7 6	38 6 17 8	Excep.	8 4	23 4	B	10 5	30 9
Do. Tessellated and Ornamental	B	8 10	24 8	2	21 0	62 6	Excep.	8 4	23 4	{ In case 2 Loose 3	20 9 27 0	57 4 75 9
Board, not exceeding 2 inches in thickness and 14 feet in length.	A + 50 %	8 0	20 3	Softwood, 60 c. ft. to ton.	16 6	50 0	.....	.....	.....	1	14 6	38 11
Board exceeding 2 inches in thickness and 14 feet in length.	A + 66½ %	8 11	22 6	1	.....	.....	.....	.....	.....	.....	.....	.....
Hardwood in logs, 30 c. ft. to ton .....	.....	.....	.....	minimum 4 tons B	9 6	23 9	.....	.....	.....	.....	.....	.....
Timber { Other than Hardwood, 40 do.	A	5 4	13 6	Timber (sawn)	.....	.....	Timber	8 4	25 0	1	14 6	38 11
Undressed .....	.....	.....	.....	Fencing, not over 9 x 6 x 6.	4 2	11 3	Timber	8 4	25 0	1	14 6	38 11
Sawn, over 2 inches in thickness and not exceeding 14 feet in length.	A + 25 %	6 8	16 11	F	.....	.....	.....	.....	.....	.....	.....	.....
Sawn, over 2 inches in thickness and exceeding 14 feet in length.	A + 33½ %	7 2	18 0	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tin (smelted)	B	8 10	24 8	2	21 0	62 6	Special	20 10	50 0	1	14 6	38 11
Tin Plates	2	21 7	61 2	2	21 0	62 6	Special	20 10	50 0	1	14 6	38 11
Tin Ore	B	8 10	24 8	Not named.	.....	.....	Exceptional	8 4	25 0	Excep.	9 0	18 4
Tobacco—Colonial leaf	A	5 4	13 6	A	7 6	17 8	Agricultural	10 10	27 6	Leaf, in bales 1	14 6	38 11
Toys	4	38 3	109 6	4	29 0	87 6	2	41 8	112 6	3	27 0	75 9
Tricycles	4	38 3	109 6	Double rate 4	58 0	175 0	2	41 8	112 6	Not named		
Turnips	A	5 4	13 6	Agr.	5 6	15 0	Agricultural	10 10	27 6	A	8 4	17 9
Velocipedes	4	38 3	109 6	Double rate 4	58 0	175 0	2	41 8	112 6	4	39 6	112 8
Whiting	B	8 10	24 8	1	16 6	50 0	Special	20 10	50 0	1	14 6	38 11
Wire Netting	3	29 5	84 10	Minimum 5 tons 2	21 0	62 6	Special	20 10	50 0	1 (2-ton lots)	14 6	38 11
Woolpacks	B	8 10	24 8	1	16 6	50 0	1	29 2	75 0	{ New A empty, in bales	8 4	17 9
Wool	See page 150			See page 150			See page 150			See page 150		
Zinc	2	21 7	61 2	2	21 0	62 6	1	29 2	75 0	1	14 6	38 11

NEW SOUTH WALES.	VICTORIA.	QUEENSLAND.	SOUTH AUSTRALIA.																																								
<p align="center">Wool.</p> <p align="center">Undumped Scoured, Greasy, per ton. £ s. d. £ s. d.</p> <p><i>Southern Line</i> :—</p> <p>From Campbelltown to Sydney, 34 miles 0 19 3 0 15 6</p> <p> " Albury " 386 " 3 15 9 3 0 9</p> <p> " Hay " 454 " 3 18 11 3 1 6</p> <p><i>Western Line</i> :—</p> <p>From Richmond to Sydney, 38 miles 0 19 3 0 15 6</p> <p> " Bourke to " 503 " 5 0 3 4 0 3</p> <p><i>Northern Line</i> :—</p> <p>From Tenterfield to Newcastle 5 11 3 4 9 0</p> <p>From Maitland to Newcastle, 20 miles 0 19 3 0 15 6</p> <p> " Narrabri to Morpeth, 238 miles 3 12 9 2 18 0</p> <p>To Newcastle, 252 miles 3 16 6 3 1 3</p>	<p align="center">Wool.</p> <p align="center">Rates per bale, not over 4 cwt.</p> <p>20 miles and under..... 1s.</p> <p>26 " " 1s. 3d.</p> <p>35 " " 1s. 8d.</p> <p>45 " " 2s.</p> <p>* Over 45 and up to 60 miles 4d.</p> <p> " 60 " 100 " 3d.</p> <p> " 100 " 160 " 2d.</p> <p> " 160 " 1d.</p> <p>* Per bale for every 5 miles or part of miles cumulative in each instance on preceding rate. An allowance of 15% is made on above rates for all wool properly dumped.</p>	<p align="center">Wool.</p> <p align="center">RATES FOR CLEAN WOOL IN BALES.</p> <p>£ s. d. per ton.</p> <p>100 miles 2 10 0 "</p> <p>150 " 3 10 10 "</p> <p>200 " 4 7 6 "</p> <p>300 " 5 12 6 "</p> <p>400 " 6 9 2 "</p> <p>450 " 6 17 6 "</p>	<p align="center">Wool.</p> <p align="center">(Including loading, unloading, and shearing.)</p> <p>Rates per bale not over 4 cwt. :— s. d.</p> <p>Any distance not exceeding 15 miles..... 1 0</p> <p>* Over 15 miles, and not exceeding 65, every 10 miles, or part of 10 miles 0 6</p> <p>* Over 65 miles, for every 10 miles, or part of 10 miles..... 0 4</p> <p>Each bale over 4 cwt. will be charged 25 per cent. per bale additional upon the rate for a 4-cwt. bale upon every cwt. or portion of a cwt. in excess</p> <p>An allowance will be made upon wool dumped or otherwise reduced to 18 cubic feet of 6d. per bale if carried more than 50 miles by rail, and 9d. per bale if carried more than 100 miles.</p> <p>An allowance of 6d. per bale will be made on bales weighing not more than 300lb. if carried more than 50 miles by rail; but this allowance will in no case be made at the same time as that mentioned above.</p> <p>* In each case cumulative on the preceding rate.</p>																																								
<p align="center">TO AND FROM WOOLWASHING ESTABLISHMENTS.</p> <p align="center">Greasy : To Washing Establishments. Scoured : From Washing Establishments.</p> <p>To and from Sydney and Newcastle :— s. d. s. d.</p> <p>Not over 15 miles ... 4 5 per ton. 8 0 per ton.</p> <p>Over 15 but not over 23 " 5 9 " 10 0</p> <p> " 23 " 26 " 7 0 " 12 0</p>																																											
<p align="center">Live Stock.</p> <p align="center"><i>Herds, Flocks, &c., when in consignments of not less than one full Truck load.</i></p> <p align="center">For rates to Homebush see Merchandise Rate Book, page 45.</p> <p align="center">CATTLE.</p> <p align="center">Other distances.</p> <p>1 to 140 miles -/8 per truck per mile.</p> <p>140 " 200 " -/6 " "</p> <p>Over 200 " -/4 " "</p> <p>Minimum " 15/- per truck. "</p> <p align="center">HORSES.</p> <p>The Commissioner will carry horses in cattle trucks if requested to do so, but only under special contract, relieving him of all responsibility. The charge for horses so carried will be the same as for cattle in full-truck loads.</p> <p align="center">For rates to Homebush see Merchandise Rate Book, page 45.</p>	<p align="center">Live Stock.</p> <p align="center">CATTLE.</p> <p align="center">Pigs or Cattle (in Goods Truck) :— Per Truck.</p> <p>101 miles £3 15 9</p> <p>150 " 4 8 0</p> <p>Over 150 miles, 7d. per truck per mile for the whole journey.</p> <p>Single cattle the same as horses, and one or more bulls same rate as a truck-load of cattle, or as entire horses, if sent in horse-boxes, but no terminal for single animals.</p> <p>Over three goats or pigs and up to ten, not exceeding 100lb. each, half-truck, and over ten, or over 100lb. each, full-truck rates; goats and calves at cattle rates.</p> <p>Single pigs, sheep, calves, or goats in crates or cases, by goods trains, fourth class goods' rates; minimum as for 2½ cwt. per package.</p> <p align="center">SHEEP.</p> <p align="center">Sheep trucks, per Truck</p> <p>101 miles ... £3 15 9</p> <p>150 " 4 8 0</p> <p>Over 150 miles, 7d. per truck per mile for the whole journey.</p>	<p align="center">Live Stock.</p> <p align="center">CATTLE.</p> <p align="center"><i>Six-wheeled Waggon.</i></p> <p>100 miles £4 9 0</p> <p>150 " 6 11 0</p> <p>200 " 8 4 6</p> <p align="center"><i>Eight-wheeled Waggon.</i></p> <p>100 miles £5 14 6</p> <p>150 " 8 8 0</p> <p>200 " 10 11 6</p> <p align="center">HORSES.</p> <p align="center"><i>Six-wheeled Waggon.</i></p> <p>100 miles £5 13 0</p> <p>150 " 8 1 0</p> <p>200 " 10 8 0</p> <p align="center"><i>Eight-wheeled Waggon.</i></p> <p>100 miles £7 5 0</p> <p>150 " 10 7 0</p> <p>200 " 13 8 0</p> <p align="center">SHEEP.</p> <p align="center">Any number loaded :—</p> <p align="center">Six-wheeled sheep-van.</p> <p>100 miles 84/-</p> <p>200 " 132/-</p> <p>300 " 170/6</p>	<p align="center">Live Stock.</p> <p align="center">HORNED CATTLE AND PIGS, ALSO UNSHOD HORSES.</p> <p>For the hire of a truck for horned cattle, calves, pigs, and unshod horses :— Charge.</p> <p>For any distance not exceeding 75 miles, per truck per mile 9d.</p> <p>Exceeding 75, but not exceeding 100 miles, per truck per mile 8½d.</p> <p>Exceeding 100, but not exceeding 137 miles, per truck per mile 7½d.</p> <p>Exceeding 137, but not exceeding 200 miles, per truck per mile 6½d.</p> <p>Exceeding 200 miles 5d.</p> <p>Trucks for the conveyance of unshod horses may be hired at the same rate as charged for cattle, and for shod horses at 1s. per mile with a minimum of 20s.</p> <p align="center">* On narrow-gauge lines, 10d.</p> <p align="center">SHEEP.</p> <p align="center">Full-truck Loads, per Van per Mile.</p> <table border="1"> <thead> <tr> <th></th> <th>Class A. Con-taining about 90 Sheep.</th> <th>Class B. Con-taining about 100 Sheep.</th> <th>Class C. Con-taining about 120 Sheep.</th> </tr> </thead> <tbody> <tr> <td>Any distance not exceeding 25 miles</td> <td>9d.</td> <td>10d.</td> <td>1s.</td> </tr> <tr> <td>Exceeding 25 but not exceeding 75 miles</td> <td>8d.</td> <td>9d.</td> <td>11d.</td> </tr> <tr> <td>Exceeding 75 but not exceeding 105 miles</td> <td>7d.</td> <td>8d.</td> <td>10d.</td> </tr> <tr> <td>Exceeding 105 but not exceeding 137 miles</td> <td>6½d.</td> <td>7d.</td> <td>9d.</td> </tr> <tr> <td>Exceeding 137 but not exceeding 200 miles</td> <td>6d.</td> <td>6½d.</td> <td>8d.</td> </tr> <tr> <td>Exceeding 200 but not exceeding 250 miles</td> <td>5½d.</td> <td>6d.</td> <td>7½d.</td> </tr> <tr> <td>Exceeding 250 but not exceeding 350 miles</td> <td>5d.</td> <td>5½d.</td> <td>6½d.</td> </tr> <tr> <td>Exceeding 350 miles</td> <td>4½d.</td> <td>5d.</td> <td>6d.</td> </tr> <tr> <td>Minimum charge</td> <td>2s.</td> <td>20s.</td> <td>20s.</td> </tr> </tbody> </table>		Class A. Con-taining about 90 Sheep.	Class B. Con-taining about 100 Sheep.	Class C. Con-taining about 120 Sheep.	Any distance not exceeding 25 miles	9d.	10d.	1s.	Exceeding 25 but not exceeding 75 miles	8d.	9d.	11d.	Exceeding 75 but not exceeding 105 miles	7d.	8d.	10d.	Exceeding 105 but not exceeding 137 miles	6½d.	7d.	9d.	Exceeding 137 but not exceeding 200 miles	6d.	6½d.	8d.	Exceeding 200 but not exceeding 250 miles	5½d.	6d.	7½d.	Exceeding 250 but not exceeding 350 miles	5d.	5½d.	6½d.	Exceeding 350 miles	4½d.	5d.	6d.	Minimum charge	2s.	20s.	20s.
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PIGS.

Same rates per truck as cattle. When double-decked waggon is occupied 50 per cent. will be added. Minimum, 15s.

Under the foregoing rates for cattle, sheep, horses, and pigs, no less charge than for one full truck will be made for each and every truck used.

SMALL CONSIGNMENTS.

$\frac{1}{2}$ Truck, i.e., 4 Cows or Oxen, or 10 Calves, or 1 deck of Sheep, or 30 Pigs.	$\frac{1}{4}$ Truck, i.e., 2 Cows or Oxen, or 5 Calves, or 20 Sheep, or 15 Pigs.	Single Cow or Ox.	Sheep or Pigs, when less than $\frac{1}{4}$ Truck.	Calves when less than $\frac{1}{4}$ Truck.
6d. per mile	4d. per mile	3d. per mile.	$\frac{1}{2}$ d. each per mile.	1d. each per mile.
Minimum, 10s.....	Minimum, 7s. 6d.....	Min., 7s. 6d. each.	Min., 1s. 6d. each.	Min., 2s. each.

Bulls.

The charge for bulls is 7d. per mile up to 100 miles, and 4d. for every additional mile, plus the charge for 100 miles. Minimum, 12s. 6d.; if more than one bull in truck herd rates.

Valuable Rams and Ewes.

If less than half a truck-load, will be charged 2d. each per mile; for half a truck and upwards, sheep rates. Minimum, 5s.

When live stock is returned from Sydney or Homebush to Country Stations in those neighbourhoods to which cattle trucks and sheep vans are being sent empty, half the foregoing rates will be charged, provided the owners wait the requirements of the Department, but not otherwise.

Rates for Fresh Meat in Van loads.

To be loaded and unloaded by Owners.

In the case of beef, the van-load will be limited to 12 carcasses, but this number may be increased provided that a van-load shall not be held to consist of a greater total weight than 4 tons. Where a consignment of beef does not amount to 4 tons, senders will be allowed to make up the van-load with carcasses of mutton, pork, or veal. Any weight above 4 tons, whether the number of carcasses be more or less than 12, will be charged for at the rate of $\frac{1}{2}$ d. per cwt. per mile.

Distance.	Beef, Pork, and Veal.	Mutton.	Distance.	Beef, Pork, and Veal.	Mutton.
15 miles and under...	s. d. 10 0	s. d. 10 0	85 miles and under...	s. d. 56 8	s. d. 42 6
25 " " " ...	16 8	12 6	95 " " " ...	63 4	47 6
30 " " " ...	20 0	15 0	105 " " " ...	66 2	49 7
35. " " " ...	23 4	17 6	115 " " " ...	69 0	51 9
45 " " " ...	30 0	22 6	125 " " " ...	75 0	56 3
55 " " " ...	36 8	27 6	135 " " " ...	81 0	60 9
65 " " " ...	43 4	32 6	150 " " " ...	90 0	67 6
75 " " " ...	50 0	37 6	Every mile over 150...	0 6	0 5

Smaller quantities properly packed charged actual weight at 3rd-class rates. Minimum charge for use of meat-van, 10s.; to be loaded and unloaded by owners.

Goods Trucks.

101 miles £2 10 6
150 " 3 2 9

Over 150 miles, 5d. per truck per mile for the whole journey.

In the event of the Commissioner not being able to supply sheep trucks they do not undertake to provide goods trucks for carriage of sheep.

Over 3 and up to 10 sheep or lambs, half sheep truck rate; over 10 animals, full sheep or truck rate, according to order.

Minimum Charge :—Sheep truck, 40/-; goods truck, or half-truck, 20/-; exclusive of a terminal charge of 2/- per truck for sheep trucks, and 1/- per truck for goods trucks.

Store sheep in lots of not less than two truck loads, to be carried from Newmarket to country stations at $\frac{2}{3}$ published rates, and store cattle in lots of not less than two truck loads at $\frac{1}{2}$ published rates, full terminal, provided the trucks are required to load again from the Line to which such store cattle and sheep are consigned.

Fresh Meat.

Fresh meat, in truck load, -/9 per truck per mile up to 101 miles; over 101 and up to 150 miles, -/3 per truck per mile added to the 101-mile rate; over 150 miles, -/7 per truck per mile for the whole journey, with 2/- per truck terminal added in all cases; minimum, 22/- per truck, including terminal. To be carried strictly at owners' risk, and consigned on Form 86A, otherwise second-class rates to be charged. Less than truck loads to be charged as truck loads, or else second-class rates.

Loading and unloading to be done by owners.

RATES FOR ONE PIG, OR CALF, OR SHEEP.

50 miles and under...	1/6
51 " to 100	2/-
101 " to 150	3/-
151 " to 200	3/6
201 " to 250	4/-
251 " to 276	4/6
277 " to 300	5/-
301 " to 350	5/6
351 " to 400	6/-
401 " to 450	6/6

Pigs and calves in 4-wheeled trucks, -/6 per waggon per mile; minimum, 5/-

Pigs in 6-wheeled sheep-vans, -/10 per truck per mile; minimum, 5/-

Mixed consignments, -/7 per truck per mile; minimum, 5/-

Fresh Meat.

Class 1.....	50 miles. 29/2	150 miles. 75/-
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Fresh Meat.

Class 2.....	50 miles per ton.	150 miles per ton.
	20/9.....	57/4.

Calves, not exceeding 10. } Half the rate charged for full truck, with minimum of 10/-
Pigs, not exceeding 30. }
Calves, not exceeding 5. } -/3 per truck per mile; minimum charge, 10/-
Pigs, not exceeding 15. }

Less than above in number :—

	Per mile.	Min. charge.
Cow or bull	-/6	7/6
Calf or pig, not exceeding 100lb.....	-/2	2/-
Calf or pig, exceeding 100lb., but not exceeding 200lb.....	-/1	3/-
Calf or pig, exceeding 200lb.	-/2	4/-
Pigs, small, in cases :—		
For each consignment weighing not exceeding 100lb.	-/2	2/-
For each consignment weighing exceeding 100lb., but not exceeding 200lb.....	-/1	3/-
For each consignment weighing exceeding 200lb.	-/2	4/-

NEW SOUTH WALES.	VICTORIA.	QUEENSLAND.	SOUTH AUSTRALIA.																																																																																																																																																																																																																																								
<p align="center">Live Stock for Agricultural Shows.</p> <p>To the Show, ordinary rates; and the same from the Show, if sold. Unsold exhibits will be returned to the Stations whence they came, free of charge, on production of a certificate from the Secretary of the Agricultural Society to the effect that they are unsold.</p> <p>To be loaded and unloaded by owners, and when carried free the Commissioner to be relieved from all responsibility in regard to either loss or injury.</p> <p>Live stock conveyed to and from Agricultural Shows will be subject in all respects to the General Conditions and Regulations of the Department, except that, when carried free, it will be entirely at the owner's risk.</p> <p align="center">Railway Contractors' Plant.</p> <p>Railway Contractors' Plant will be charged as under:—When conveyed in contractors' waggons, machinery will be charged at first class rates, plus 4d. each per mile for the waggons. Machinery carried in Commissioner's trucks will be charged at ordinary rates. Other material belonging to contractors, when conveyed in their waggons, will be charged at special A rates, minimum 4 tons per waggon, in addition to the charge of 4d. each per mile for the waggons. When conveyed in Commissioner's trucks, B rates will be charged, minimum 4 tons per truck.</p> <p align="center">Hay, Straw, and Chaff—per Truck.</p> <table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="2">Hay.</th> <th colspan="2">Straw & Chaff.</th> <th rowspan="2">Not exceeding 200 miles</th> <th colspan="2">Hay.</th> <th colspan="2">Straw & Chaff.</th> </tr> <tr> <th>£ s. d.</th> <th>£ s. d.</th> <th>£ s. d.</th> <th>£ s. d.</th> <th>£ s. d.</th> <th>£ s. d.</th> <th>£ s. d.</th> <th>£ s. d.</th> </tr> </thead> <tbody> <tr> <td>Not exceeding 16 miles.....</td> <td>0 10 0</td> <td>0 10 0</td> <td>0 10 0</td> <td>0 10 0</td> <td>2 14 9</td> <td>2 8 5</td> <td></td> <td></td> <td></td> </tr> <tr> <td>" " 35 "</td> <td>0 17 0</td> <td>0 17 0</td> <td></td> <td></td> <td>3 2 10</td> <td>2 15 7</td> <td></td> <td></td> <td></td> </tr> <tr> <td>" " 54 "</td> <td>1 4 0</td> <td>1 4 0</td> <td></td> <td></td> <td>3 11 0</td> <td>3 2 11</td> <td></td> <td></td> <td></td> </tr> <tr> <td>" " 100 "</td> <td>1 11 9</td> <td>1 8 1</td> <td></td> <td></td> <td>4 7 3</td> <td>3 17 2</td> <td></td> <td></td> <td></td> </tr> <tr> <td>" " 150 "</td> <td>2 3 11</td> <td>1 18 10</td> <td></td> <td></td> <td>4 15 4</td> <td>4 4 4</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p align="center">Smaller quantities charged actual weight at first-class rates.</p> <p align="center">Returned Empties. Freight must be prepaid.</p> <table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="7">Not exceeding—</th> </tr> <tr> <th>50 Miles.</th> <th>100 Miles.</th> <th>200 Miles.</th> <th>300 Miles.</th> <th>400 Miles.</th> <th>500 Miles.</th> <th>600 Miles.</th> </tr> </thead> <tbody> <tr> <td>* Bags, in bundles, or bales (minimum charge 1 cwt. per package) ... per cwt.</td> <td>0 3</td> <td>0 6</td> <td>0 9</td> <td>0 11</td> <td>1 0</td> <td>1 2</td> <td>1 4</td> </tr> <tr> <td>Baskets, Crates, and Coops, and Bottles, Jars, or Tins, packed in returned cases, measuring not more than 8 cubic feet</td> <td>0 2</td> <td>0 3</td> <td>0 4</td> <td>0 5</td> <td>0 6</td> <td>0 7</td> <td>0 8</td> </tr> <tr> <td>Do and cases over 8 and under 15 cubic feet</td> <td>0 3</td> <td>0 6</td> <td>0 9</td> <td>0 11</td> <td>1 0</td> <td>1 2</td> <td>1 4</td> </tr> <tr> <td>Do over 15 and under 25 cubic feet ..</td> <td>0 6</td> <td>1 0</td> <td>1 6</td> <td>1 10</td> <td>2 0</td> <td>2 4</td> <td>2 8</td> </tr> <tr> <td>Do over 25 cubic feet</td> <td>1 6</td> <td>3 0</td> <td>4 6</td> <td>5 6</td> <td>6 0</td> <td>7 0</td> <td>8 0</td> </tr> <tr> <td>Butter Kegs, Firkins, Jars (loose), and Casks, not exceeding 10 gallons ..</td> <td>0 2</td> <td>0 3</td> <td>0 4</td> <td>0 5</td> <td>0 6</td> <td>0 7</td> <td>0 8</td> </tr> <tr> <td>Hogsheads</td> <td>0 6</td> <td>1 0</td> <td>1 9</td> <td>2 3</td> <td>2 6</td> <td>3 0</td> <td>3 6</td> </tr> <tr> <td>Pipes</td> <td>1 0</td> <td>2 0</td> <td>3 0</td> <td>3 6</td> <td>3 9</td> <td>4 0</td> <td>4 6</td> </tr> <tr> <td>Quarter-casks and half-hogsheads ..</td> <td>0 3</td> <td>0 6</td> <td>0 9</td> <td>0 11</td> <td>1 0</td> <td>1 2</td> <td>1 4</td> </tr> <tr> <td>Tierces</td> <td>1 0</td> <td>2 0</td> <td>3 0</td> <td>3 6</td> <td>3 9</td> <td>4 0</td> <td>4 6</td> </tr> </tbody> </table> <p>Empty cases measuring not more than 8 cubic feet will be carried free. Single empty returned bags will also be carried free.</p> <p>* Bundles or bales of empty bags must be so made up as to leave all ends exposed. A greater charge will not be made for empty returns than for new articles of the same description. All other returned empties as may be agreed upon.</p>		Hay.		Straw & Chaff.		Not exceeding 200 miles	Hay.		Straw & Chaff.		£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	Not exceeding 16 miles.....	0 10 0	0 10 0	0 10 0	0 10 0	2 14 9	2 8 5				" " 35 "	0 17 0	0 17 0			3 2 10	2 15 7				" " 54 "	1 4 0	1 4 0			3 11 0	3 2 11				" " 100 "	1 11 9	1 8 1			4 7 3	3 17 2				" " 150 "	2 3 11	1 18 10			4 15 4	4 4 4					Not exceeding—							50 Miles.	100 Miles.	200 Miles.	300 Miles.	400 Miles.	500 Miles.	600 Miles.	* Bags, in bundles, or bales (minimum charge 1 cwt. per package) ... per cwt.	0 3	0 6	0 9	0 11	1 0	1 2	1 4	Baskets, Crates, and Coops, and Bottles, Jars, or Tins, packed in returned cases, measuring not more than 8 cubic feet	0 2	0 3	0 4	0 5	0 6	0 7	0 8	Do and cases over 8 and under 15 cubic feet	0 3	0 6	0 9	0 11	1 0	1 2	1 4	Do over 15 and under 25 cubic feet ..	0 6	1 0	1 6	1 10	2 0	2 4	2 8	Do over 25 cubic feet	1 6	3 0	4 6	5 6	6 0	7 0	8 0	Butter Kegs, Firkins, Jars (loose), and Casks, not exceeding 10 gallons ..	0 2	0 3	0 4	0 5	0 6	0 7	0 8	Hogsheads	0 6	1 0	1 9	2 3	2 6	3 0	3 6	Pipes	1 0	2 0	3 0	3 6	3 9	4 0	4 6	Quarter-casks and half-hogsheads ..	0 3	0 6	0 9	0 11	1 0	1 2	1 4	Tierces	1 0	2 0	3 0	3 6	3 9	4 0	4 6	<p align="center">Live Stock, &c., for Agricultural Shows.</p> <p>Implements to the Show, ordinary rates; and the same from the Show, if sold. Unsold exhibits will be returned free, and half of amount of the freight paid for conveyance of same to the Show refunded on production of certificate from the Secretary of the Society to the effect that they are unsold.</p> <p>Live stock and produce will be returned free and a refund made of one-half the freight paid to the Show if exhibits are not sold.</p> <p>The above regulations are only to apply if the exhibits are conveyed in cattle waggons and by goods trains, and no reduction in the ordinary rates will be made if conveyed in horse-boxes or by passenger trains.</p> <p>Poultry and dogs will be charged full rates both ways.</p> <p align="center">Contractor's Plant.—A.P.</p> <p>Contractor's plant and material <i>not otherwise specified</i>, -/10 per truck per mile; minimum load, 20/-. Waggons on wheels -/6 per mile each.</p> <p align="center">Hay and Straw—Loose—per Truck.</p> <table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="2">Hay.</th> <th colspan="2">Straw.</th> </tr> <tr> <th>£ s. d.</th> <th>£ s. d.</th> <th>£ s. d.</th> <th>£ s. d.</th> </tr> </thead> <tbody> <tr> <td>Not exceeding 20 miles</td> <td>0 17 6</td> <td>0 15 0</td> <td></td> <td></td> </tr> <tr> <td>" " 50 "</td> <td>1 12 6</td> <td>1 10 0</td> <td></td> <td></td> </tr> <tr> <td>" " 75 "</td> <td>2 2 11</td> <td>2 2 11</td> <td></td> <td></td> </tr> </tbody> </table> <p>Over 75 miles, -/4 per truck per mile additional.</p> <p>Part of a truck to be charged as a full truck.</p> <p align="center">Returned Empties.*</p> <p><i>Not to be received unless prepaid. All carried at Owner's risk.</i></p> <p>Returned empty bags at Agricultural Produce rate, minimum -/6.</p> <p>Returned empty cases, drums, cans, carboys, crates, in pieces tied together, butter boxes, fowl coops, and cases and casks, empty bottles, at miscellaneous rate, minimum -/6, to be prepaid; returned empty fruit cases, Special Class A rate, minimum -/6, to be prepaid.</p> <p>Crates (to be prepaid). Pipes, under 50 miles, 2/- each; over 50 and under 100 miles, 3/- each; over 100 miles and under 150 miles, 4/- each; over 150 miles, 5/- each.</p> <p>Tallow puncheons, each, under 50 miles, 1/-; over 50 and under 100 miles, 1/6; over 100 and under 150 miles, 2/-; over 150 miles, 3/-.</p> <p>Hogsheads, under 10 miles, -/6 each; over 10 and under 50 miles, -/9 each; over 50 and under 100 miles, 1/- each; over 100 miles and under 150 miles, 1/6 each; over 150 miles, 2/- each.</p> <p>Quarter casks and barrels, under 50 miles, -/6 each; over 50 and under 100 miles, -/9 each; over 100 miles and under 150 miles, 1/- each; over 150 miles, 1/6 each.</p> <p>Kegs, tubs, and demijohns, under 100 miles, -/6 each; over 100 miles and under 150 miles, -/9 each; over 150 miles, 1s. each.</p> <p>Returned empty butter and egg boxes, which have previously been carried full at the Package Rates will be carried at the following rates, viz. One returned empty box, -/6; two or more returned empty boxes, -/3 each—any distance.</p>		Hay.		Straw.		£ s. d.	£ s. d.	£ s. d.	£ s. d.	Not exceeding 20 miles	0 17 6	0 15 0			" " 50 "	1 12 6	1 10 0			" " 75 "	2 2 11	2 2 11			<p align="center">Live Stock, &c., for Agricultural Shows.</p> <p>Not named.</p> <p align="center">Contractor's Plant.</p> <p>Not named.</p> <p align="center">Hay and Straw.</p> <p>In bales pressed to 15 cubic feet per cwt. Agricultural Rates:—</p> <table border="1"> <thead> <tr> <th></th> <th>10/10 per ton.</th> <th>27/6 "</th> </tr> </thead> <tbody> <tr> <td>50 miles</td> <td>10/5</td> <td>30/9</td> </tr> <tr> <td>150 "</td> <td></td> <td></td> </tr> </tbody> </table> <p>If not pressed to above dimensions 50 per cent. added.</p> <p>Hay and straw loose not carried.</p> <p align="center">Returned Empties.</p> <table border="1"> <thead> <tr> <th></th> <th>50 miles.</th> <th>175 miles.</th> <th>300 miles.</th> </tr> </thead> <tbody> <tr> <td>Pipes and tierces and large cases</td> <td>1/-</td> <td>2/-</td> <td>4/-</td> </tr> <tr> <td>Hogsheads, half hogsheads, barrels, quarter-casks, ale and porter cases (4 doz.), and ice cases</td> <td>-/6</td> <td>1/-</td> <td>2/6</td> </tr> <tr> <td>Kilderkins, ferkins, kegs, and small cases</td> <td>-/3</td> <td>-/6</td> <td>1/3</td> </tr> <tr> <td>Bundles of grain bags and coal sacks (not more than 2 cwt. each)</td> <td>1/-</td> <td>2/-</td> <td>3/6</td> </tr> </tbody> </table>		10/10 per ton.	27/6 "	50 miles	10/5	30/9	150 "				50 miles.	175 miles.	300 miles.	Pipes and tierces and large cases	1/-	2/-	4/-	Hogsheads, half hogsheads, barrels, quarter-casks, ale and porter cases (4 doz.), and ice cases	-/6	1/-	2/6	Kilderkins, ferkins, kegs, and small cases	-/3	-/6	1/3	Bundles of grain bags and coal sacks (not more than 2 cwt. each)	1/-	2/-	3/6	<p align="center">Live Stock, &c., for Agricultural Shows.</p> <p>Not named.</p> <p align="center">Contractor's Plant.</p> <p>Materials used by Contractors in construction of new Railway lines, or of new buildings, will be conveyed at owner's risk at 10d. per truck per mile; maximum, 6 tons to 3 cwt. each truck.</p> <p align="center">Hay and Straw.</p> <p>Pressed in bales in not less than 3 tons and not exceeding 4-ton truck loads:—</p> <table border="1"> <thead> <tr> <th></th> <th>50 miles</th> <th>100 miles</th> <th>150 miles</th> </tr> </thead> <tbody> <tr> <td>50 miles</td> <td>10/5</td> <td></td> <td></td> </tr> <tr> <td>150 "</td> <td></td> <td>30/9</td> <td></td> </tr> </tbody> </table> <p align="center">Returned Empties.</p> <p>Actual weight (any quantity), B rate:</p> <table border="1"> <tbody> <tr> <td>Per ton 50 miles ...</td> <td>10/5</td> </tr> <tr> <td>" 150 "</td> <td>30/9</td> </tr> </tbody> </table> <p>Empties, not returns, double rates.</p>		50 miles	100 miles	150 miles	50 miles	10/5			150 "		30/9		Per ton 50 miles ...	10/5	" 150 "	30/9
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Horses.

IN BOXES:—Full horse-box (3 horses, one owner), 1s. per mile; minimum charge, 15s.; one horse, 6d. per mile; two horses, 9d. per mile; minimum charge, 7s. 6d. each; stud horses, 1s. per mile each; but owner has privilege of loading another horse belonging to himself in same box, at his own risk, without extra charge; minimum charge, 15s. each. Mares, with foal at foot, rate and a half.

A reduction of 20 per cent. on the above charges will be made on every mile beyond 150 and up to 200, and over 200 miles, 33½ per cent. per mile will be allowed.

FOR AGRICULTURAL SHOWS.

To the Show, ordinary rates, and the same from the Show if sold. Unsold exhibits returned free.

FOR RACE MEETINGS.

To the Races, ordinary rates, and the same from the Races if sold. If unsold they will be returned free of charge.

HUNTING HORSES AND DOGS.

Horses going to the Chase, single fare for the double journey. Dogs, ½d. per mile each to 50 miles, and 4d. additional for every 30 miles or part of 30 miles thereafter; minimum charge, 6d.

Carriages.

Carriages, gigs, and dog-carts, 6d. per mile, each; two vehicles, one owner, if on one truck, 9d. per mile; 4-wheeled waggons and bullock drays (empty), 8d. per mile; minimum charge, 7s. 6d.

A reduction of 20 per cent. on the above charges will be made for every mile beyond 150 and up to 200; and over 200 miles, 33½ per cent. per mile will be allowed.

Dogs.

50 miles, 2/1; 150 miles, 3/5.

Gold-dust and Bullion, and Gold and Silver Coin.

The Commissioner for Railways will not be responsible for the safe conveyance of gold-dust and bullion, or gold and silver coin, &c., as the following charges are made, and the gold-dust and bullion and coin carried, on condition of its being in charge of owners and at their risk.

	Distance not over 55 miles.	Distance not over 100 miles.	Distance not over 150 miles.	Distance not over 200 miles.	Distance not over 250 miles.	Distance not over 350 miles.	Distance over 350 miles.
Gold-dust and bullion, per 100 ozs.	2/-	3/6	4/3	5/-	5/6	6/-	6/6
Gold coin, per £100	-/6	-/10	1/3	1/8	2/-	2/3	2/6
Silver coin, per £100	1/-	1/9	2/6	3/3	3/6	3/9	4/-

Fractions over 100 and under 50 will not be charged, but fractions of 50 and over will be charged as 100.

Horses.

Each mare, gelding, or filly, or entire under 2 years, 6d. per mile; min. 20/- each. Each entire horse, 2 years or over, 1/- per mile; minimum 20/- " Horse-box (three horses), 1/3 per mile; minimum 40/-

In goods trucks and by goods trains on either up or down journey, cattle rates. By passenger trains, 1/6 per truck per mile.

Mares, with 6 months' foal at foot, rate and a half.

Carriages.

Carriages, gigs, dog-carts, and vehicles, of a similar description will be charged for at the rate of -/6 per mile, subject however that the sum of 20/- shall be the minimum charge in any case. Two vehicles belonging to the same owner, and loaded on one truck, -/9 per truck per mile, if owner accepts all risks; three vehicles on same terms, 1/- per truck per mile; minimum, 20/-. For vehicles sent for repair, return tickets available for four weeks will be issued at 50 per cent. additional on rates.

Dogs.

50 miles, 2/2; 150 miles, 6/3; minimum charge, -/6. In truck loads, 1/- per truck per mile; minimum, 20/-.

Gold-dust, Gold and Silver Coin.

GOLD-DUST.

Distance.	Per 100 oz.	Every 25 oz. or part thereof.
Miles.	s. d.	s. d.
10 to 60	3 0	0 9
61 ,, 100	5 0	1 3
101 ,, 150	8 0	2 0
151 ,, 200	10 0	2 6

Horses—in Boxes.

	One horse.	Two or more horses each.
100 miles	33/6	25/-
200 miles	58/6	42/-
300 miles	75/-	50/-

Minimum charges, 5s.

Entire Horses.

	One horse.	Two or more each.
100 miles	50/-	42/-
200 miles	92/-	75/-
300 miles	125/-	100/-

Carriages.

100 miles	41/6 each.
200 miles	75/- "
300 miles	100/- "

Minimum charge, 10s. each.

Dogs.

Dogs, 50 miles, 2/-; 81 miles, 2/6; 120 miles, 3/-; 161 miles, 3/6; minimum, -/6 each.

Gold and Gold-dust, and Gold and Silver Coin.

The following charges are made, and the coin and gold carried, only on the condition of the Commissioner not being held responsible for loss arising from any cause whatever; and senders will be required to sign a risk note accordingly.

GOLD AND GOLD-DUST.

Miles.	50 oz.	100 oz.	150 oz.	200 oz.
Under 10..	s. d. 2 6	s. d. 3 6	s. d. 4 0	s. d. 4 6
10 to 25...	5 0	6 0	6 6	7 0
26 ,, 50...	7 0	8 0	8 6	9 0
51 ,, 80...	8 0	9 0	9 6	10 0
81 ,, 100...	9 0	10 0	10 6	11 0
101 ,, 150...	10 0	11 0	11 6	12 0
151 ,, 175...	11 0	12 0	12 6	13 0
176 ,, 200...	12 0	13 0	13 6	14 0
201 ,, 250...	13 0	14 0	14 6	15 0
251 ,, 300...	14 0	15 0	15 6	16 0
301 ,, 350...	15 0	16 0	16 6	17 0
351 ,, 400...	16 0	17 0	17 6	18 0
401 ,, 500...	17 0	18 0	18 6	19 0

Horses—in Boxes.

	Per mile.	Min. charge.
For one entire horse ...	9d.	15s.
For one mare, gelding, or filly, or entire, under 2 years of age	6d.	
For two do do (broad gauge only) ...	10d.	

For hire of a horse-box 1s.* 20s. Mares with foal not exceeding 6 months old at foot, rate and a half. Trucks for the conveyance of unshod horses may be hired at the same rate as charged for cattle, and for shod horses at 1s. per mile with a minimum of 20s.

* On narrow-gauge lines, 10d.

Carriages.

Gigs, dog-carts, and light drays (empty) weighing not more than 10 cwt., -/3, per mile; minimum charge, 3/-.

Carriages, and waggons, and drays weighing not more than 25 cwt. (empty), -/4 per mile; minimum charge, 4/-.

Ditto, ditto, over 25 cwt. (empty), -/6 per mile; minimum charge, 6/-.

Dogs.

For each, not exceeding 10 miles, -/6; not exceeding 25 miles, 1/-; not exceeding 55 miles, 2/-; and -/3 for each 25 miles, or portion thereof, beyond 55 miles.

Rates for Carriage of Gold-dust and Bullion and Gold and Silver Coin by Passenger or Mixed Trains.

The Commissioner of Railways will not be responsible for the safe conveyance of gold-dust and bullion, or gold or silver coin, as the following charges are made, and the above articles carried, on condition of their being entirely at owner's risk, and a consignment note accordingly must be signed by sender or his agent.

Gold-dust and bullion, or gold and silver coin, will not be carried by goods train.

NEW SOUTH WALES.	VICTORIA.			QUEENSLAND.					SOUTH AUSTRALIA.						
	GOLD COIN.			GOLD COIN.					Charges as follows:—						
	Distance.	Per £100.	Every £25 or part thereof.	Miles.	£50.	£100.	£150.	£200.	Any distance not exceeding	Gold dust and Bullion.	Coin.				
											Gold.	Silver.			
	Miles.	s. d.	s. d.	Under 10..	s. d.	s. d.	s. d.	s. d.	Miles.	100 oz.	100.	100.			
	10 to 60	1 0	0 3	10 to 25...	2 6	2 6	2 6	2 6	10	s. d.	s. d.	s. d.			
	61 „ 100	1 8	0 5	26 „ 50...	2 6	2 6	3 0	3 6	50	0 6	0 2	0 3			
	101 „ 150	2 8	0 8	51 „ 80...	3 0	3 0	3 6	4 0	100	2 0	0 6	1 0			
	151 „ 200	3 4	0 10	81 „ 100...	3 6	3 6	4 0	4 6	150	3 0	0 9	1 5			
				101 „ 150...	5 0	5 6	6 0	6 6	200	3 9	1 0	1 10			
	SILVER COIN.			151 „ 175...	6 0	6 6	7 0	7 6	250	4 6	1 3	2 3			
	Distance.	Per £100.	Every £25 or part thereof.	176 „ 200...	7 0	7 6	8 0	8 6	300	5 0	1 6	2 8			
				201 „ 250...	8 0	8 6	9 0	9 6	350	5 6	1 9	3 1			
	Miles.	s. d.	s. d.	251 „ 300...	9 0	9 6	10 0	10 6	Exceeding 350	6 0	2 0	3 6			
	10 to 60	3 0	0 9	301 „ 350...	10 0	10 6	11 0	11 6		6 6	2 3	3 11			
	61 „ 100	5 0	1 3	351 „ 400...	11 0	11 6	12 0	12 6							
	101 „ 150	8 0	2 0	401 „ 500...	12 0	12 6	13 0	13 6							
	151 „ 200	10 0	2 6												
				SILVER COIN.											
				Miles.	£50.	£100.	£150.	£200.							
				Under 10..	s. d.	s. d.	s. d.	s. d.							
				10 to 25...	2 6	3 0	3 6	4 0							
				26 „ 50...	3 0	3 6	4 0	4 6							
				51 „ 80...	4 0	4 6	5 0	5 6							
				81 „ 100...	5 6	6 0	6 6	7 0							
				101 „ 150...	6 6	7 0	7 6	8 0							
				151 „ 175...	7 6	8 0	8 6	9 0							
				176 „ 200...	8 6	9 0	9 6	10 0							
				201 „ 250...	9 6	10 0	10 6	11 0							
				251 „ 300...	10 6	11 0	11 6	12 0							
				301 „ 350...	11 6	12 0	12 6	13 0							
				351 „ 400...	12 6	13 0	13 6	14 0							
				401 „ 500...	13 6	14 0	14 6	15 0							
					14 6	15 0	15 6	16 0							
				<p>The minimum charge shall be for 100 oz. or £100 in each case.</p> <p>The above charges are made and the Gold-dust or Coin will be carried on condition of its being in charge of owners or persons bringing the same, and at their risk, and that the V. R. Department will not be responsible for any loss or damage thereto, unless arising by reason of any defect or insufficiency in the carriage or truck provided by the V. R. Department.</p>											
				<p>Milk.</p> <p>15 miles and under..... ½d. per gallon. 40 „ „ 1d. „ 90 „ „ 1½d. „ Beyond 90 miles 2d. „ Empty cases returned free. Minimum, 6d. The full capacity of the cans is always charged for.</p>				<p>Milk in Cans.</p> <p>1 to 30 miles -/6 31 „ 50 „ -/9 51 „ 70 „ 1/- 71 „ 130 „ 1/6 Cans not to exceed 84 lb. each. Half rate for every 42 lb., or part thereof, additional.</p>				<p>Milk.</p> <p><i>In Cans of not less than 6 gallons.</i></p> <p>25 miles and under -/1 per gallon. 25 miles to 100 miles -/1½ „ Milk cans returned free.</p>			
				<p>Milk Rates.</p> <p>Milk will be carried, at owners' risk only, in the brake-vans of passenger trains at the rates and subject to the conditions following:—</p> <p>Not exceeding 10 miles ½d. Gallon. Exceeding 10 but not exceeding 25 miles 1d. Exceeding 25 but not exceeding 50 miles 1½d. Minimum charge, 6d. Empty returns, free.</p>											

Parcels under £10 value.

Any dis- tance exceed- ing miles—	Weight not exceeding.					For each addi- tional 14 lb. or part thereof.
	7 lb.	14 lb.	28 lb.	56 lb.	112 lb.	
10..	s. d. 0 6	s. d. 0 6	s. d. 0 6	s. d. 0 6	s. d. 0 6	s. d. 0 3
20..	0 6	0 6	0 6	0 6	0 6	0 3
40..	0 6	0 6	0 6	0 6	0 6	0 3
60..	0 6	0 6	0 6	0 6	0 6	0 3
80..	0 6	0 6	0 6	0 6	0 6	0 3
100..	0 6	0 6	0 6	0 6	0 6	0 3
140..	0 6	0 6	0 6	0 6	0 6	0 3
180..	0 6	0 6	0 6	0 6	0 6	0 3
220..	0 6	0 6	0 6	0 6	0 6	0 3
260..	0 6	0 6	0 6	0 6	0 6	0 3
300..	0 6	0 6	0 6	0 6	0 6	0 3
For each addi- tional 14 miles or part thereof.	0 1	0 2	0 4	0 6	0 8	0 1

Double rates charged on furniture, musical instruments, and fragile articles and larger packages weighing less than 10 lb. to each cubic foot. Packed parcels in hampers, crates, bags, cases, or other packages are charged quadruple parcel rates.

Stamped Parcels Rates.

Miles.	3 lb. and under.				7 lb. and under.				14 lb. and under.				28 lb. and under.				Parcels over 28 lb. in weight to be charged for each extra lb. as under.	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
1 to 25	0	3	0	3	0	6	0	6	0	9	0	9	1	0	1	0	0	0
26 to 50	0	6	0	6	0	9	0	9	1	0	1	0	1	3	1	3	0	0
51 to 100	0	9	0	9	1	0	1	0	1	3	1	3	1	6	1	6	0	0
101 to 150	1	0	1	0	1	3	1	3	1	6	1	6	1	9	1	9	0	0
151 to 200	1	3	1	3	1	6	1	6	1	9	1	9	2	0	2	0	0	0
201 to 250	1	6	1	6	1	9	1	9	2	0	2	0	2	3	2	3	0	0
251 to 300	1	9	1	9	2	0	2	0	2	3	2	3	2	6	2	6	0	0
301 to 350	2	0	2	0	2	3	2	3	2	6	2	6	2	9	2	9	0	0
351 to 400	2	3	2	3	2	6	2	6	2	9	2	9	3	0	3	0	0	0
401 to 500	2	6	2	6	2	9	2	9	3	0	3	0	3	3	3	3	0	0

25 per cent. extra to be charged if parcels are to be booked. Fractions of a penny in all cases to be charged as one penny.

Opium, hats, bonnet boxes, and cases of millinery, double rates. Parcels over £10 value and under £50, double rate, and over £50, quadruple rate. Although these rates are charged, and the value of parcels declared, the Commissioner will not hold himself responsible for contents. Newspaper parcels and despatches, half rates; minimum charge, 6d. Packed parcels, quadruple rates. Corpses, 1s. per mile; minimum, 10s.

Ordinary Parcels Rates.

Miles.	At the risk of the Owner, Stamped.						At the risk of the Carrier, not Stamped, and under £10 in value.					
	Not over.					For every 28 lbs. or portion thereof, addl.	Not over.					For every 28 lb. or portion thereof, addl.
	14 lb.	28 lb.	56 lb.	84 lb.	112 lb.		14 lb.	28 lb.	56 lb.	84 lb.	112 lb.	
Not over 25 miles	s. d. 0 3	s. d. 0 3	s. d. 0 6	s. d. 0 6	s. d. 0 6	s. d. 0 6	s. d. 0 4	s. d. 0 4	s. d. 0 8	s. d. 0 8	s. d. 0 8	s. d. 0 8
Not over 50 miles	0 5	0 9	1 0	1 0	1 0	0 6	1 0	1 0	1 0	1 0	1 0	1 0
Not over 75 miles	0 6	1 0	1 0	1 0	1 0	0 6	1 0	1 0	1 0	1 0	1 0	1 0
Not over 101 miles	0 8	1 3	1 3	1 3	1 3	0 10	1 8	1 8	1 8	1 8	1 8	1 8
For every additional 25 miles or part thereof.	0 2	0 3	0 6	0 9	1 0	0 3	0 4	0 8	0 8	1 0	1 4	0 4

Packed parcels in hampers, cases, &c., to be charged quadruple the above rates. Perishables, including fish, fruit, butter, eggs, poultry, &c., to be charged the above rates or 4th-class goods rates (except fish, carried 100 miles, 4d. per ton per mile; 100 to 200, 3d.; over 200 miles, 2d. per ton per mile, and 1d. per ton terminal added). Bicycles, feathers, furniture, glass, hat boxes, millinery, mirrors (loose), musical instruments, or other articles light and fragile will be charged 50 per cent. additional on the above rates. Corpses, under 40 miles, 20s. each; above 40 miles, 6d. per mile. Books (Library) returned free. Commercial travellers' samples over 1½ cwt. carried at half excess luggage rates.

Parcel Rates.

Miles.	3 lb. and under		Over 7 lb. to 14 lb.		Over 14 lb. to 28 lb.		Over 28 lb. to 56 lb.		Over 56 lb. to 112 lb.		Every 14 lb. to 28 lb. or part thereof.	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Distance not over—	0	3	0	4	0	6	0	8	1	0	1	0
15	0	3	0	5	0	7	0	9	1	1	1	1
30	0	6	0	9	1	0	1	1	1	2	1	2
105	0	9	1	1	1	2	1	2	1	3	1	3
150	0	9	1	1	1	2	1	2	1	3	1	3
210	1	0	1	1	1	2	1	2	1	3	1	3
255	1	2	1	2	1	3	1	3	1	4	1	4
315	1	6	1	6	1	7	1	7	1	8	1	8
And respectively for every additional or part of additional 15 miles	0	1	0	2	0	2	0	3	0	4	0	5

Fresh meat, fish, poultry (dead), dairy produce, eggs, fruit, vegetables, ice, and game, under 1 cwt., 25 per cent. reduction on parcel rates; minimum charge, 3d. Musical instruments packed in cases, 25 per cent. added to above rates; unpacked, double rates. Bath chairs, perambulators, velocipedes, and bicycles, requiring a carriage truck for the conveyance, will be charged as for a two-wheeled carriage. Corpses, 1s. per mile; minimum charge, 3d. Newspaper parcels, one-quarter parcel rates; minimum charge, 3d. Passenger excess luggage, parcel rates. Commercial travellers' excess luggage, parcel rates. Parcels of Railway receipts, certifying that full freight has been paid on down journey, at the following rates: Parcels (children's) and velocipedes (except tricycles) will be conveyed in Guard's Vans when conveyed as Passenger's luggage—

Not exceeding	10 lb. and under.	Every 10 lb. additional.
15 miles	0 9	1
30 "	1 0	1
50 "	1 6	2
75 "	2 0	2
100 "	2 6	2
Not exceeding 125 miles	3 0	3
150 "	3 6	3
200 "	4 0	4
250 "	4 6	4
300 "	5 0	5

and 6d. for each additional 50 miles or part thereof. When conveyed as Parcels 50 per cent. additional will be charged. Ice conveyed by Passenger trains—

100 miles	200 "	300 "	400 "	504 "
2	4	6	8	10

Books from and to recognised Circulating Libraries, one-fourth parcel rates.

No. 53.

RETURN showing the number and nature of the ACCIDENTS, and the INJURIES to LIFE and LIMB, which have occurred on the Great Southern and Western Lines and Branches from 1st January to 31st December, 1887.

Date.	Line.	Passengers killed or injured.				Servants of the Department or of Contractors killed or injured.				Trespassers, &c.		Nature or Causes of Accidents.
		Causes beyond their own control.		Their own misconduct or want of caution.		Causes beyond their own control.		Their own misconduct or want of caution.		Their own want of caution.		
		Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	
11 Jan. ...	Richmond ...	...	...	...	...	...	...	...	...	1	...	Arm broken while shunting at Richards' Siding.
12 " ...	Western ...	...	...	...	...	...	...	...	...	1	...	Man—run over and killed near Blacktown.
18 " ...	Suburban ...	...	...	...	...	...	...	...	...	1	...	Jammed between trucks at Sydney.
19 " ...	Southern ...	...	...	...	...	...	...	...	...	1	...	Run over while repairing interlocking at Goulburn.
4 Feb. ...	Suburban ...	...	...	...	1	...	...	...	...	...	...	Fell between platform and train at Newtown.
24 " ...	Northern ...	...	...	...	1	...	...	...	...	...	...	Jumping out of train in motor at Lochinvar.
13 Mar. ...	Western ...	...	...	...	1	...	...	...	...	...	...	Fell off platform of sleeping-car near Springwood.
25 " ...	Suburban ...	...	...	...	1	...	...	...	...	...	...	Fell between platform and carriages at Stanmore.
28 " ...	" ...	...	2	...	...	...	...	...	...	...	...	Two men—each an arm broken, by open door of passing train, near Redfern.
31 " ...	Western ...	...	...	...	...	...	...	...	...	1	...	Crushed between platform and engine at Katoomba.
10 April ...	North Coast ...	...	...	...	...	...	...	...	...	1	...	Driver—fell off engine at Hawkesbury River.
11 " ...	Suburban ...	...	...	...	...	...	...	...	...	1	...	Driver—fell off train at Rookwood.
11 " ...	Southern ...	...	1	...	...	...	...	...	...	...	...	Arm injured by door of passing train.
15 " ...	Suburban ...	...	...	...	...	...	...	...	...	1	...	Run over by train at Auburn.
30 " ...	Southern ...	...	...	1	...	...	...	...	...	...	...	Fell off car platform near Granville.
4 May ...	Suburban ...	...	...	1	...	...	...	...	...	...	...	Fell off car platform.
7 " ...	Western ...	...	...	...	...	...	...	...	...	1	...	Run over near Zig-Zag—hand amputated.
19 " ...	Southern ...	...	...	...	...	...	...	...	...	1	...	Killed while shunting.
23 " ...	Western ...	...	...	...	...	...	...	...	...	3	...	Trolleys collided near Blacktown.
23 " ...	Southern ...	...	...	...	...	...	...	...	...	1	...	Permanent-way man—fell over bridge at 79m. 33ch. south.
24 " ...	" ...	...	...	...	...	...	...	...	...	1	...	Guard—supposed to have fallen out of brakevan near Rocky Ponds.
24 " ...	Suburban ...	...	...	1	...	...	...	...	...	...	...	Jumped from train in motion at Ashfield.
25 " ...	Northern ...	...	...	...	...	...	...	...	...	1	...	Run over by coal train—both arms cut off.
27 " ...	" ...	...	...	...	...	...	...	...	...	1	...	Run over by train at Murrurundi.
28 " ...	Western ...	...	...	...	...	...	...	...	...	1	...	Ganger—run over at Ponto.
28 " ...	Northern ...	...	...	...	...	...	...	...	...	1	...	Fettler—run over by mail train at Guyra.
30 " ...	Southern ...	...	...	...	...	...	...	...	...	1	...	Knocked down by engine.
17 June ...	Illawarra ...	...	...	...	1	...	...	...	...	...	...	Leg broken while unloading trucks at Hurstville.
17 " ...	Western ...	...	...	...	...	...	...	...	...	1	...	Locomotive Inspector—run over at Bathurst.
20 " ...	Suburban ...	...	...	...	1	...	...	...	...	...	...	Fell between carriages at Burwood.
21 " ...	Illawarra ...	...	...	...	...	...	...	...	...	1	...	Knocked down by engine.
21 " ...	Northern ...	5	73	...	...	1	...	...	...	...	...	Peat's Ferry accident.
29 " ...	" ...	...	...	...	...	...	...	...	...	1	...	Ganger—killed by fall of earth.
4 July ...	.....	...	...	...	...	...	...	...	...	1	...	Knocked down by engine on Darling Harbour branch line.
13 " ...	Western ...	...	...	...	...	...	...	...	...	1	...	Slipped from truck at Wallerawang—knee crushed.
19 " ...	Suburban ...	...	...	...	...	...	...	...	...	1	...	Run over near Ashfield.
21 " ...	Northern ...	...	...	...	...	...	...	...	...	1	...	Run over by goods train at Rix's Creek platform.
22 " ...	Western ...	...	...	...	1	...	...	...	...	...	...	Fell against end of carriage at Wallerawang.
22 " ...	Suburban ...	...	...	...	1	...	...	...	...	...	...	Fell out of carriage near Burwood.
27 " ...	Western ...	...	...	...	...	...	...	...	...	1	...	Shunter—arm broken while shunting at Eskbank.
8 Aug. ...	" ...	...	...	...	...	...	...	...	...	1	...	Driver—fell off engine at Lawson.
15 " ...	" ...	...	...	...	1	...	...	...	...	...	...	Lady—fell over platform at Blacktown.
16 " ...	" ...	...	...	...	...	...	...	...	...	1	...	Run over near Perth.
6 Sept. ...	Mudgee ...	...	...	...	...	...	...	...	...	1	...	Permanent-way man on tricycle—run over and killed.
18 " ...	Northern ...	...	...	...	...	...	...	...	...	1	...	Gatekeeper—run over by train at Broadmeadow.
28 " ...	South-Western ...	...	...	...	...	...	...	...	...	1	...	Permanent-way man—fell out of train near Darlington.
10 Oct. ...	Suburban ...	...	...	...	...	...	...	...	...	1	...	Man—run over at Ashfield and killed.
16 " ...	Western ...	...	2	...	...	...	...	...	...	...	...	Collision near Kelso.
20 " ...	Suburban ...	...	...	...	...	...	...	...	...	1	...	Knocked down by engine at Duck River.
20 " ...	" ...	...	...	...	...	...	...	...	...	1	...	Guard—fell between platform and carriages.
24 " ...	Southern ...	...	...	...	...	...	...	...	...	1	...	Man—threw himself in front of train near Bong Bong.
1 Nov. ...	" ...	...	...	...	1	...	...	...	...	...	...	Fell out of train near Bowning.
13 " ...	Northern ...	...	...	...	1	...	...	...	...	...	...	Knocked down by engine of train at High-street.
15 " ...	Suburban ...	...	...	...	...	...	...	...	...	1	...	Fettler—run over at Ashfield and killed.
19 " ...	Cowra ...	...	...	...	...	...	...	...	...	1	...	Guard of contractors' train—head struck against overhead bridge.
21 " ...	Suburban ...	...	...	...	...	...	...	...	...	1	...	Found at Dick River.
24 " ...	" ...	...	...	...	...	...	...	...	...	1	...	Fettler—run over at Darling Harbour.
25 " ...	" ...	...	...	...	1	...	...	...	...	...	...	Fell off platform of car at Macdonaldtown.
26 " ...	Mudgee ...	...	...	...	...	...	...	...	...	1	...	Watchman on tricycle—run over.
29 " ...	Southern ...	...	...	...	...	...	...	...	...	1	...	Run over by Express.

No. 53—continued.

Date.	Line.	Passengers killed or injured				Servants of the Department or of Contractors killed or injured.				Trespass &c		Nature or Causes of Accidents
		Causes beyond their own control		Their own misconduct or want of caution		Causes beyond their own control		Their own misconduct or want of caution.		Their own want of caution		
		Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured	
2 Dec.	Southern									1	..	Run over by tram near Doodle Cooma Lady—fell between platform and carriage at Burwood. Porter at Strathfield—run over. Jumped from train while in motion at Ashfield. Run over near Sutherland. Arm cut off by train near Bulli. Knocked down by engine at Redfern. Locomotive watchman, Eveleigh—broken leg.
8 "	Suburban				1					..	...
12 "	"		...	..	..			1	..		
21 "	"		..	1								
23 "	Illawarra ...									..	1
24 "	South Coast									1	..	
24 "	Suburban ...											
30 "	"		...	...	...		1			..	..
	Total	5	79	5	11	1	1	15	16	12	5	

No. 54.

RETURN of the number and nature of ACCIDENTS, and the INJURIES to LIFE and LIMB, which occurred on the TRAMWAYS, during the year 1887.

Date.	Servants of the Department		Passengers.		Other persons		Nature or Cause of Accident
	Killed.	Injured.	Killed	Injured	Killed	Injured.	
1 January .			.....	1	..	.....	Man jumped off tram in motion—broken arm.
31 " ..		..				1	Man knocked down, attempting to cross line in front of motor.
2 February..	...				..	2	Newsboy, jumped off tram—foot injured.
1 March ..	.....				..	1	Boy run over; leg crushed.
16 " .	.....	..					Motor collided with cart which attempted to cross in front, driver thrown out of cart and severely bruised.
17 " .	..	..	.....	1		1	Man fell off car in motion; injury to head.
29 " ..	..			1			Woman bruised in slight collision between two trams
6 April		.....	.....		..	1	Woman struck by portion of fence run into by motor which left the line in Belmore Park.
11 " .....	.....	.....	..	.....		1	Man knocked down by motor in Bridge-street—bruised
22 " .....	.....	..		.....	..	1	Buggy backed into car in motor—driver thrown out of buggy; shoulder dislocated.
26 " ..	..	..	1	.....	..	..	Girl fell off tram in motion and was run over.
13 May	.....	..	..	.....	1	.....	Man run over by tram in Moore Park.
15 " ....	.....	..				1	Boy jumped from platform on to line, and was run over by car—leg injured.
17 " ...	.....	.....		..	1		Chinaman run over by tram in Belmore Park.
17 " ..	..	.....		1	..		Man fell off car in motion—bruised, not seriously.
18 " ...	.....	..		.....	1		Woman struck by motor.
25 " ....	..	.....	.....	..	..	1	Motor left rails and ran into stationary engine—driver of which was scalded.
22 July	..		.....	..	1	.....	Girl run over by tram in Belmore Park.
3 August	..					1	Boy run over—arm cut off.
6 " ..				1	..	..	Man jumped on tram in motion—foot crushed.
17 September	.....	..	..	.....	1	..	Child run over in Belmore Park.
23 " .	1	1	1	.....		..	Motor left the line and turned over—driver killed and fireman injured.
8 October ..	.....	..			.....	6	Cart collided with motor and men thrown out—one seriously injured; others more or less bruised.
10 " ..			.....	.....	..	..	Chinaman jumped off car in motion.
25 " .	..	.....		.....	..	1	Van backed into car in motion—driver was thrown out of van and severely bruised.
29 November.	.....	..	.....	.....	.....	2	Motor collided with cab, which turned over—two lady passengers slightly shaken and bruised.
2 December..	.....	.....	..	1		.....	Man left tram on wrong side, struck by passing motor—three toes cut off.
<i>Newcastle Plattsburg Tramway.</i>							
13 November.	.....	.....	.....	.....	1	..	Man run over by tram in Hunter-street, Newcastle.
Total ...	1	1	2	6	6	20	

RETURN of the Number of Passengers, Tonnage of Goods, Earnings and Working Expenses Total and per Train Mile, percentage of Working Expenses to Gross Earnings, net Earnings, Capital Invested on Lines Open, and Interest on Capital each Year, from 1855 to 1887, inclusive.

Year.	Length of Line. 31 December.	Number of Passengers.	Tonnage of Goods.	Earnings from Coaching Traffic.	Earnings from Goods traffic.	Total Earnings.	Working Expenses.	Earnings per Train Mile.	Working Expenses per Train Mile.	Percentage of Working Expenses to Gross Earnings.	Net Earnings.	Capital expended on Lines open.	Interest on Capital.
	Miles.	No.	Tons.	£	£	£	£	d.	d.	per cent.	£	£	per cent.
1855	14	98,846	140	9,093	156	9,249	5,959	157'34	101'37	64'43	3,290	515,347	638
1856	23	350,724	2,469	29,526	2,757	32,283	21,788	113'32	76'48	67'49	10,495	683,217	1'536
1857	40	329,019	20,847	34,970	8,417	43,387	31,338	96'58	69'75	72'23	12,050	1,023,838	1'176
1858	55	376,492	33,385	45,858	16,451	62,309	43,928	105'69	74'51	70'50	18,381	1,231,867	1'492
1859	55	425,877	43,020	46,502	15,258	61,760	47,598	100'41	77'38	77'07	14,162	1,278,416	1'107
1860	70	551,044	55,394	45,428	16,841	62,269	50,427	83'37	67'52	80'98	11,841	1,422,672	832
1861	73	595,591	101,130	49,637	25,367	75,004	61,187	83'77	68'34	81'58	13,817	1,536,032	899
1862	97	642,431	205,139	62,096	41,775	103,871	68,725	90'79	60'07	66'16	35,146	1,907,807	1'842
1863	124	627,164	218,535	71,297	52,644	123,941	96,867	94'38	73'76	78'16	27,073	2,466,950	1'097
1864	143	693,174	379,661	81,487	66,167	147,653	103,715	85'30	59'92	70'24	43,938	2,631,790	1'669
1865	143	751,587	416,707	92,984	73,048	166,032	108,926	82'42	54'07	65'60	57,106	2,746,373	2'079
1866	143	668,330	500,937	85,636	82,899	168,535	106,230	82'49	51'99	63'64	62,305	2,786,094	2'236
1867	204	616,375	517,022	87,564	101,508	189,072	117,324	82'02	46'87	62'08	71,748	3,282,320	2'185
1868	247	714,563	596,514	99,408	124,951	224,359	144,201	70'06	45'03	64'29	80,158	4,060,950	1'973
1869	318	759,635	714,113	109,427	155,548	264,975	176,362	71'17	47'37	66'57	88,613	4,681,329	1'892
1870	339	776,707	766,523	117,854	189,288	307,142	206,003	81'81	54'86	67'08	101,139	5,566,092	1'817
1871	358	759,062	741,986	129,496	225,826	355,322	197,065	91'57	50'79	55'46	158,257	5,887,258	2'688
1872	398	753,910	825,360	164,862	260,127	424,989	207,918	98'43	48'15	48'92	217,071	6,388,727	3'397
1873	403	875,602	923,788	178,216	306,020	484,236	238,035	104'71	51'47	49'16	246,201	6,739,918	3'653
1874	403	1,085,501	1,070,938	188,595	347,980	536,575	257,703	103'09	49'51	48'03	278,872	6,844,546	4'074
1875	473	1,288,225	1,171,354	205,941	408,707	614,648	296,174	100'20	48'28	48'18	318,474	7,245,379	4'396
1876	509	1,727,730	1,244,131	233,870	459,355	693,225	339,406	98'50	48'22	48'96	353,819	7,990,601	4'428
1877	598	2,957,144	1,430,041	271,588	544,332	815,920	418,985	92'95	47'73	51'35	396,935	8,883,177	4'468
1878	688	3,705,733	1,625,886	306,308	596,681	902,989	536,988	81'62	48'54	59'47	366,001	9,784,645	3'741
1879	734	4,317,864	1,720,815	319,950	632,416	952,366	604,721	77'94	49'49	63'49	347,645	10,406,495	3'341
1880	849	5,440,138	1,712,971	390,149	770,868	1,161,017	647,719	86'02	47'99	55'79	513,298	11,778,819	4'358
1881	995	6,907,312	2,033,850	488,675	955,551	1,444,226	738,334	88'33	45'16	51'12	705,892	13,301,597	5'307
1882	1268	8,984,313	2,619,427	587,825	1,111,038	1,698,863	934,635	84'05	46'24	55'02	764,228	15,843,616	5'135
1883	1320	10,272,037	2,864,566	661,751	1,269,713	1,931,464	1,177,788	78'07	47'61	60'97	753,676	16,905,014	4'484
1884	1618	11,253,109	3,124,425	745,665	1,340,572	2,086,237	1,301,259	78'19	48'77	62'37	784,978	20,080,138	4'201
1885	1732	13,506,346	3,273,004	830,994	1,343,464	2,174,368	1,458,153	78'61	52'72	67'06	716,215	21,831,276	3'370
1886	1889	14,881,604	3,218,582	849,253	1,310,817	2,160,070	1,492,992	80'01	55'30	69'12	667,078	24,071,454	2'901
1887	2036	14,451,303	3,339,253	850,499	1,357,796	2,208,294	1,457,760	81'88	54'05	66'01	750,534	26,532,122	2'965

No. 56.

STATEMENT of the Number and Classification of Persons employed on the Railways and Tramways of New South Wales during 1887.

No.	Position.	Rates of Pay—lowest and highest.
HEAD OFFICE.		
1	Commissioner	£1,250 per annum
1	Secretary	£750 „
1	Assistant Secretary	£650 „
1	Chief Clerk	£500
1	Land Valuer	£650 „
1	Accountant	£600
1	Assistant Accountant	£520
1	Paymaster	£490 „
1	Cashier	£440 „
1	Examiner of Accounts	£415 „
1	Assistant Examiner of Accounts	£315 „
1	Principal Book-keeper	£390 „
1	Assistant „	£340 „
1	Surveyor and Draftsman	£440 „
2	Draftsmen	£340 and £240 per annum.
73	Clerks	£52 to £400 „
4	Conveyancing Clerks (Crown Solicitor's Office)	£150 to £325 „
7	Messengers	20s. per week to £135 per annum.
3	Housekeepers	£30 to £70 per annum.
103	Total.	
TRAFFIC AUDIT OFFICE.		
1	Traffic Auditor	£520 per annum.
1	Assistant Traffic Auditor	£415 „
1	Chief Clerk	£390 „
6	Inspectors of Station Accounts (Travelling)	£275 to £320 per annum.
44	Clerks (29 Audit, 14 Statistical, and 1 Tramway)	£50 to £320 „
1	Office Cleaner	3s. per diem and £25 per annum in lieu of quarters.
54	Total.	
STORES.		
1	Superintendent	£525 per annum.
5	Storekeepers	£215 to £340 per annum.
32	Clerks	£52 to £290 „
2	Foremen	£220 and £250 „
1	Assistant Foreman	£205 per annum.
4	Watchmen	6s. 6d. to 7s. 6d. per diem.
56	Issuers, Assistants, Gangers, Talley-men, Storemen, Labourers, &c.	7s. to 10s. per diem.
1	Inspector of Weighing Machines	14s. per diem.
1	Tent Maker	7s. „
103	Total.	

No. 56—*continued.*STATEMENT of the Number and Classification of Persons employed on the Railways and Tramways, &c.—*continued.*

No.	Position.	Rates of Pay—lowest and highest
ENGINEER FOR EXISTING LINES OF RAILWAYS AND TRAMWAYS.		
OFFICE STAFF.		
1	Engineer for Existing Lines	£1,060 per annum.
1	Deputy Engineer	£600 „
1	Chief Clerk	£440 „
1	Architect	£425 „
1	Assistant Architect	£320 „
1	Signal Engineer	£400 „
1	Resident Engineer	£350 „
1	Assistant Engineer	£240 „
1	Surveyor	£250 „
8	Draftsmen	£120 to £260 per annum.
10	Cadets	£50 to £130 „
5	Clerks	£120 to £320 „
1	Clerk to Signal Engineer	£135 per annum.
1	Custodian of Plans	£60 „
1	Messenger	£100 „
1	Housekeeper	£52 „
1	Officer-in-charge of works connected with the Meat Trade, Darling Harbour.	£350 „
2	Draftsmen assisting do.	£5 weekly.
39	Total.	
LOCOMOTIVE ENGINEER'S BRANCH.		
OFFICE STAFF.		
1	Locomotive Engineer	£800 per annum.
1	Assistant Locomotive Engineer	£650 „
1	Chief Clerk	£450 „
1	Chief Draftsman	£500 „
5	Draftsmen	£196 to £350 per annum.
1	Draftsman	£3 10s. per week.
7	Cadets	£80 to £130 per annum.
16	Clerks	£90 to £260 „
1	Clerk	£3 10s. per week.
1	Messenger	6s. 6d. per diem.
35	Total.	
ENGINEER-IN-CHIEF'S BRANCH.		
OFFICE STAFF.		
1	Engineer-in-Chief	£1,800 per annum.
1	Assistant Engineer	£750 „
1	Inspecting Engineer	£625 „
29	Draftsmen and Assistants	£100 to £465 per annum.
1	Chief Clerk	£550 „
7	Clerks	£92 to £290 „
9	Cadets	£52 per annum to 7s. per diem.
2	Messengers	£75 to £110 per annum.
51	Total.	
FIELD STAFF.		
9	District Engineers	£350 to £600 per annum.
8	Assistants to District Engineers	£150 to £300 „
17	Surveyors	£150 to £400 „
36	Inspectors, &c.	8s. 6d. to 18s. per diem.
72	Chainmen, &c.	6s. „
142	Total.	

No. 56—continued.

STATEMENT of the Number and Classification of Persons employed in the Traffic Branch, Tramways, for the year ending 31st December, 1887.

Rate.	Superintendent.	Clerks.	Receiving Clerks.	Traffic Foremen.	Traffic Foremen's Clerk.	Timekeeper.	Timekeeper's Clerk.	Inspector.	Ticket Clerks.	Messenger.	Waiting-room Attendant.	Conductors.	Special Conductors.	Staffmen.	Pointsmen.	Shunters.	Point-cleaners.	Car-cleaners.	Flagmen.	Brakemen.	Destination Board-washer.	Waiting-room Cleaner.	Office Messenger.	Housekeeper.	Total.
£550 p ^a annum	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
£290 "	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
£235 "	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
£220 "	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3
£170 "	1	2	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4
£150 "	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
£135 "	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
£120 "	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
£117 "	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
£105 "	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
£90 "	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
£52 "	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
£50 "	1
£4 per week	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1
15/- "	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
12/- per diem.	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
11/- "	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
10/- "	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
9/6 "	2	...	...	...	...	...	...	...	...	2
9/- "	72	3	...	...	2	...	...	...	...	...	...	...	...	78
8/6 "	16	...	...	6	...	1	...	...	...	...	...	...	...	17
8/- "	13	...	9	6	...	...	...	...	...	...	...	...	...	28
7/6 "	1	...	...	...	2	...	...	...	...	...	...	...	...	10
7/- "	1	...	4	...	...	...	7	...	16	...	...	...	...	...	...	51
6/- "	1	19	...	...	...	...	...	2
Total	1	6	5	4	1	1	1	1	4	1	1	106	3	9	12	4	10	19	19	2	1	1	1	1	124

No. 56—continued.

STATEMENT of the Number and Classification of Persons employed in the Permanent-way Branch of the Tramway Department, at 31st December, 1887.

Rates.	Sub-Inspectors.	Clerks.	Weigh Clerk.	Gangers.	Gangers— Flying Gangs.	Fettlers.	Labourers.	Blacksmith.	Staker.	Boys.	Carters.	Total.
£260 per annum	1	..	..	..	..	..	..	..	..	..	..	1
£230 "	1	..	..	..	..	..	..	..	..	..	..	1
£165 " .....	..	2	..	..	..	..	..	..	..	..	..	2
15/- per diem	1	..	..	..	..	..	..	..	..	..	..	1
12/- " .....	..	..	..	..	..	..	..	..	..	..	27	27
10/- " .....	..	..	..	..	1	..	..	1	..	..	..	2
9/- " .....	..	..	..	19	2	..	..	..	..	..	..	21
8/6 " .....	..	..	1	..	..	..	..	..	..	..	..	1
7/6 " .....	..	..	..	..	..	43	74	..	1	..	..	118
5/- " .....	..	..	..	..	..	..	..	..	..	2	..	2
4/6 " .....	..	..	..	..	..	..	..	..	..	2	..	2
Total	3	2	1	19	3	43	74	1	1	4	27	178

STATEMENT showing Number and Classification of Persons employed on the North Shore Cable Tramway, 31st December, 1887.

Rates.	Stationery Engine-drivers.	Gripmen.	Conductors	Oilers.	Watchman.	Car Examiner and Repairer.	Messenger.	Total.
11/- per day	1	..	..	..	..	..	..	1
10/- "	1	..	..	..	..	..	..	1
9/- " .....	..	..	..	..	..	1	..	1
8/- " .....	..	6	4	..	..	..	..	10
7/6 " .....	..	1	3	..	..	..	..	4
7/- " .....	..	..	..	2	1	..	..	3
2/6 " .....	..	..	..	..	..	..	1	1
Total	2	7	7	2	1	1	1	21

STATEMENT of the Number and Classification of Persons employed in the Traffic Branch of the Newcastle-Plattsburg Tramway at 31st December, 1887.

Rates.	Foreman.	Temporary Conductors.	Temporary Pointsman.	Temporary Shunter	Temporary Car-cleaner.	Temporary Signalman.	Total.
80/- per week	1	..	..	..	..	..	1
7/6 per day .....	..	2	1	..	..	..	3
7/- " .....	..	2	5	1	1	4	13
Total	1	4	6	1	1	4	17

SUMMARY.

Head Office	No.	No.
Engineer-in-Chief's Branch—		260
Office Staff	51	
Field Staff	142	
Engineer for Existing Lines Branch—		193
Office Staff	39	
Permanent-way	3,238	
Locomotive Engineer's Branch—		3,277
Office Staff	35	
Locomotive Staff	2,935	
Traffic Branch		2,970
		2,863
Total, Railways		9,563
Tramway Branch—		
Rolling Stock Staff		630
Permanent-way Staff		178
Traffic Staff		249
Total, Tramways		1,057

No. 57.

RETURN of the Total Amount paid for Wages on the different Branches of the Railway and Tramway, 1886–87.

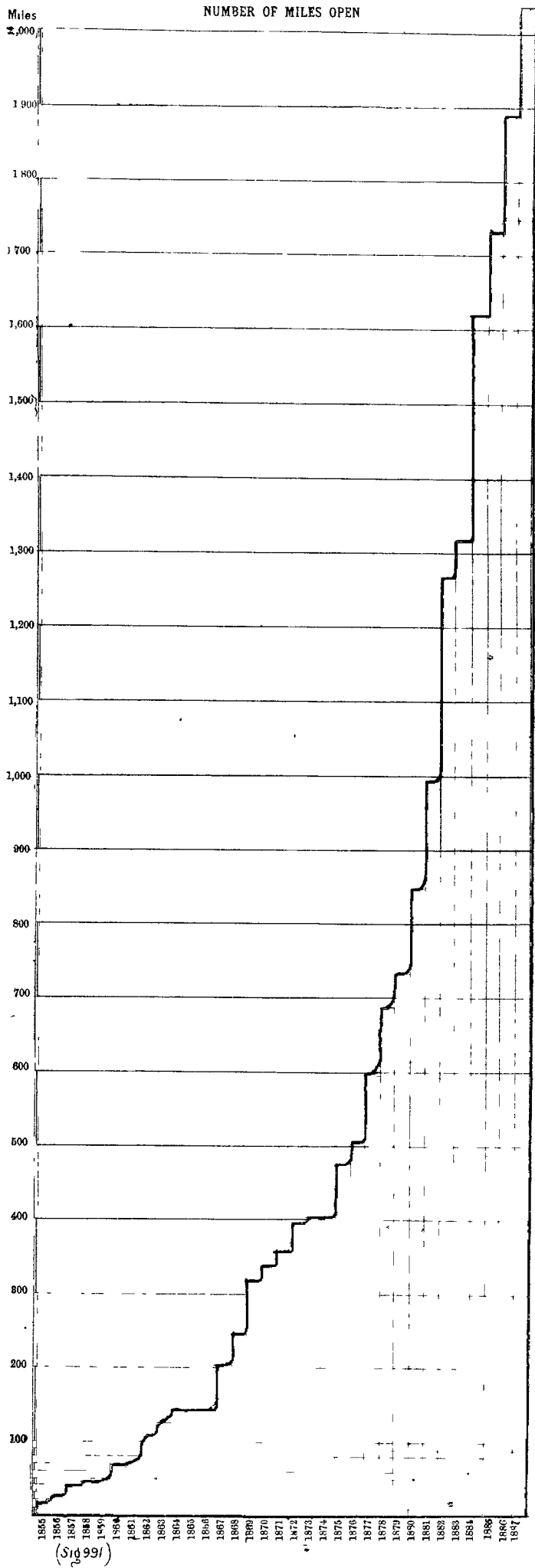
Branch.	South and West.		North.		Total.	
	£	s. d.	£	s. d.	£	s. d.
Locomotive—						
1886	335,084	8 9	66,819	0 5	401,903	9 2
1887	340,643	17 3	69,343	8 4	409,987	5 7
Permanent-way—						
1886	362,606	8 8	64,717	8 11	427,323	17 7
1887	322,878	6 0	68,174	13 9	391,052	19 9
Traffic—						
1886	170,938	2 10	51,703	13 2	222,641	16 0
1887	171,257	18 8	54,867	1 11	226,125	0 7
Total all Branches—						
1886	868,629	0 3	183,240	2 6	1,051,869	2 9
1887	834,780	1 11	192,385	4 0	1,027,165	5 11
Tramway—						
1886	145,474	16 4	.....		145,474	16 4
1887	155,963	2 4	.....		155,963	2 4

No. 58.

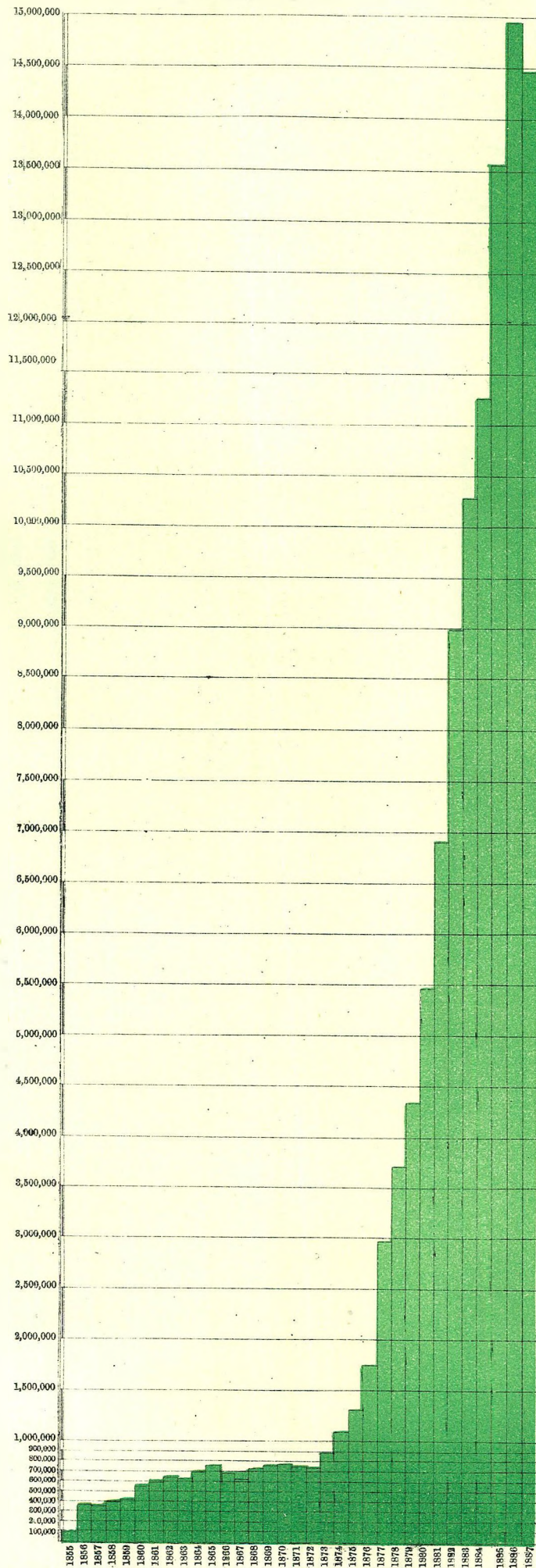
RETURN of Free Passes issued in 1887, and specifying the different services.

Why granted.	No. issued.
Visitors of distinction	270
Press purposes	28
Judges on Circuit	27
Volunteers on duty	7,234
Immigrants	255
Unemployed, and to obtain employment	110
Officers and Seamen, H.M. War Ships...	157
Charitable purposes	7
Fire Brigade' Demonstrations	2
Brookside Convalescent Home	23
Military officers, Defence Force	3
Aborigines Protection Association	5
New Guinea Expedition	4
" Special Commissioner	7
Explorers	2
Consuls' passes	14
Parliamentary officers, Sydney	21
" Victoria... ..	3
Instructor of Blind and Boy	2
Benevolence	69
Literary and Scientific	17
Temperance Conference... ..	11
Cavalry and Jubilee Club Band... ..	12
Miscellaneous	118
Total	8,371

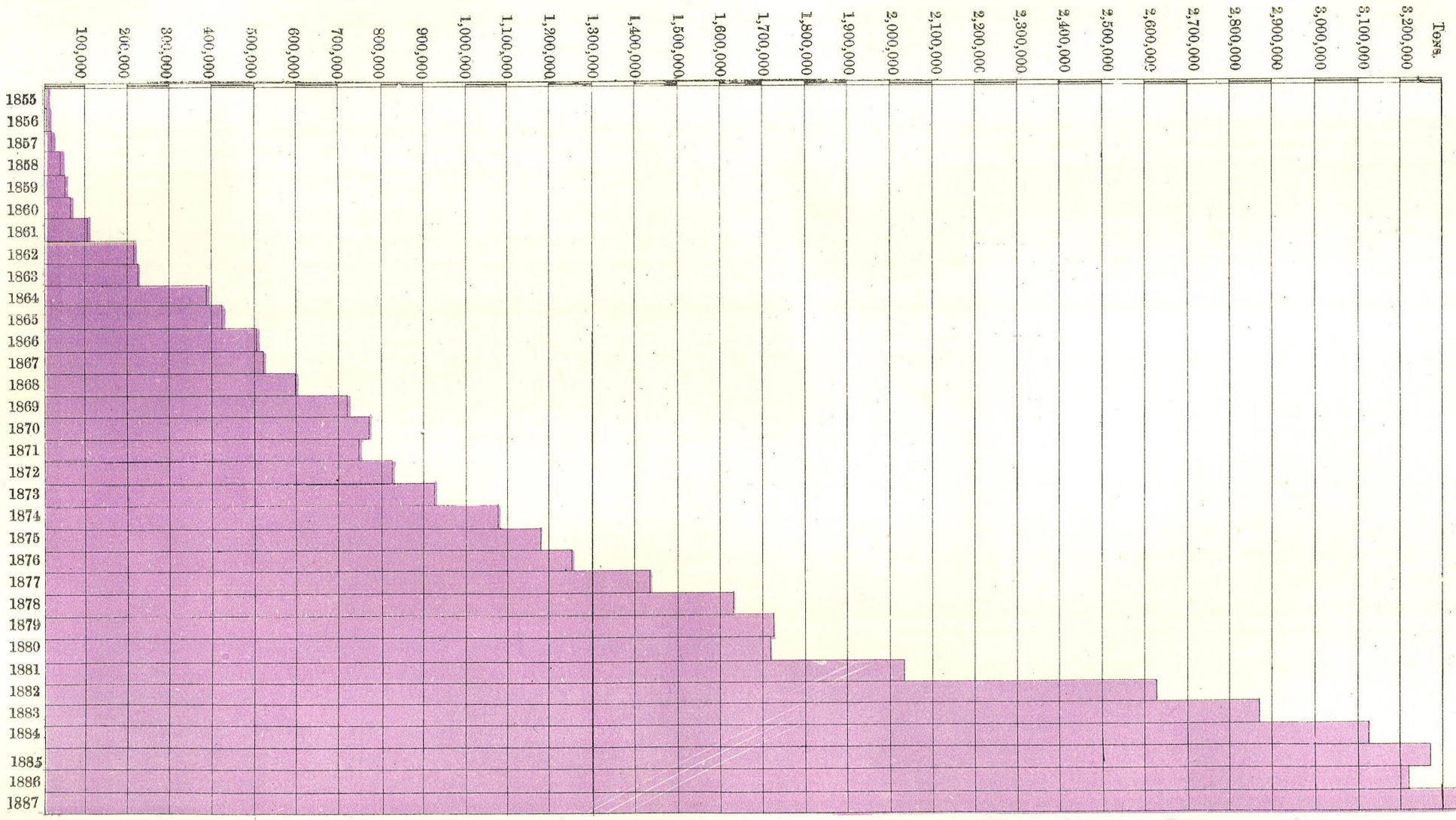
[2 Maps and 13 Plans.]



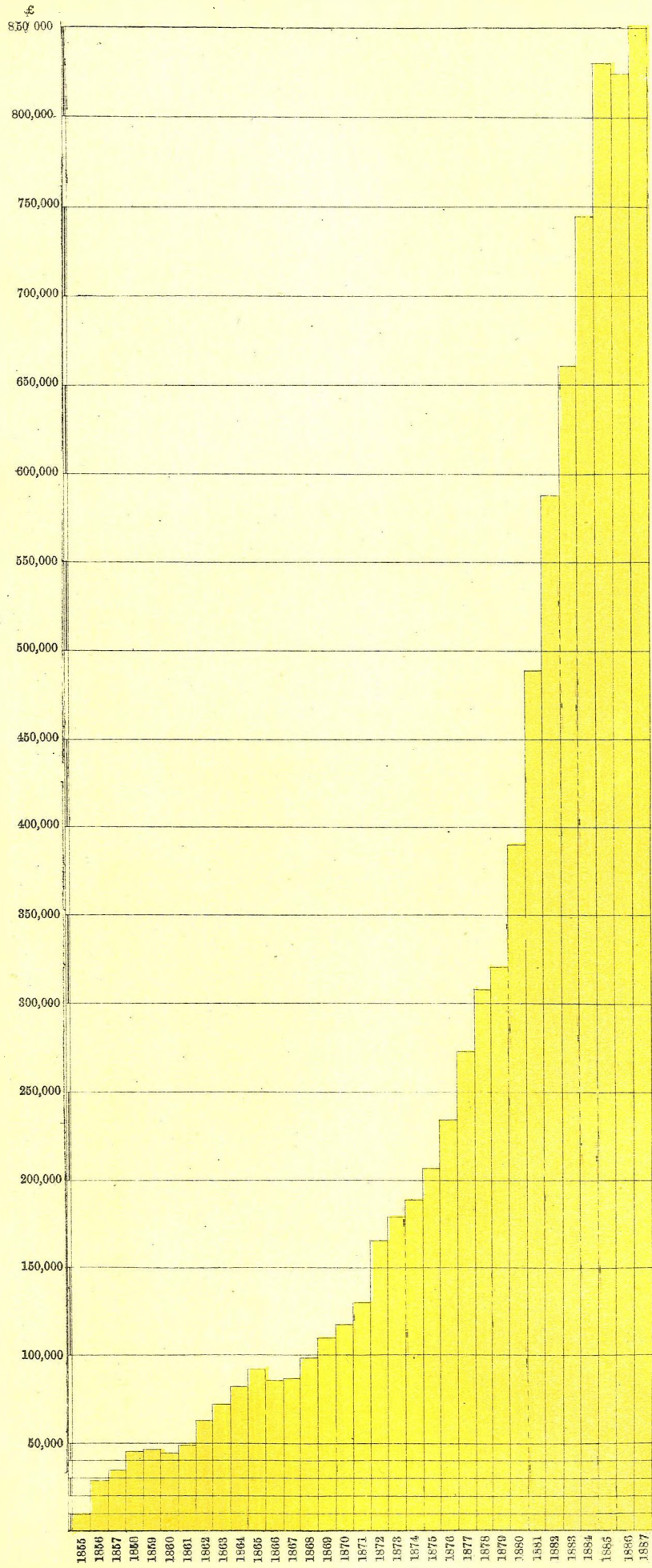
NUMBER OF PASSENGERS.



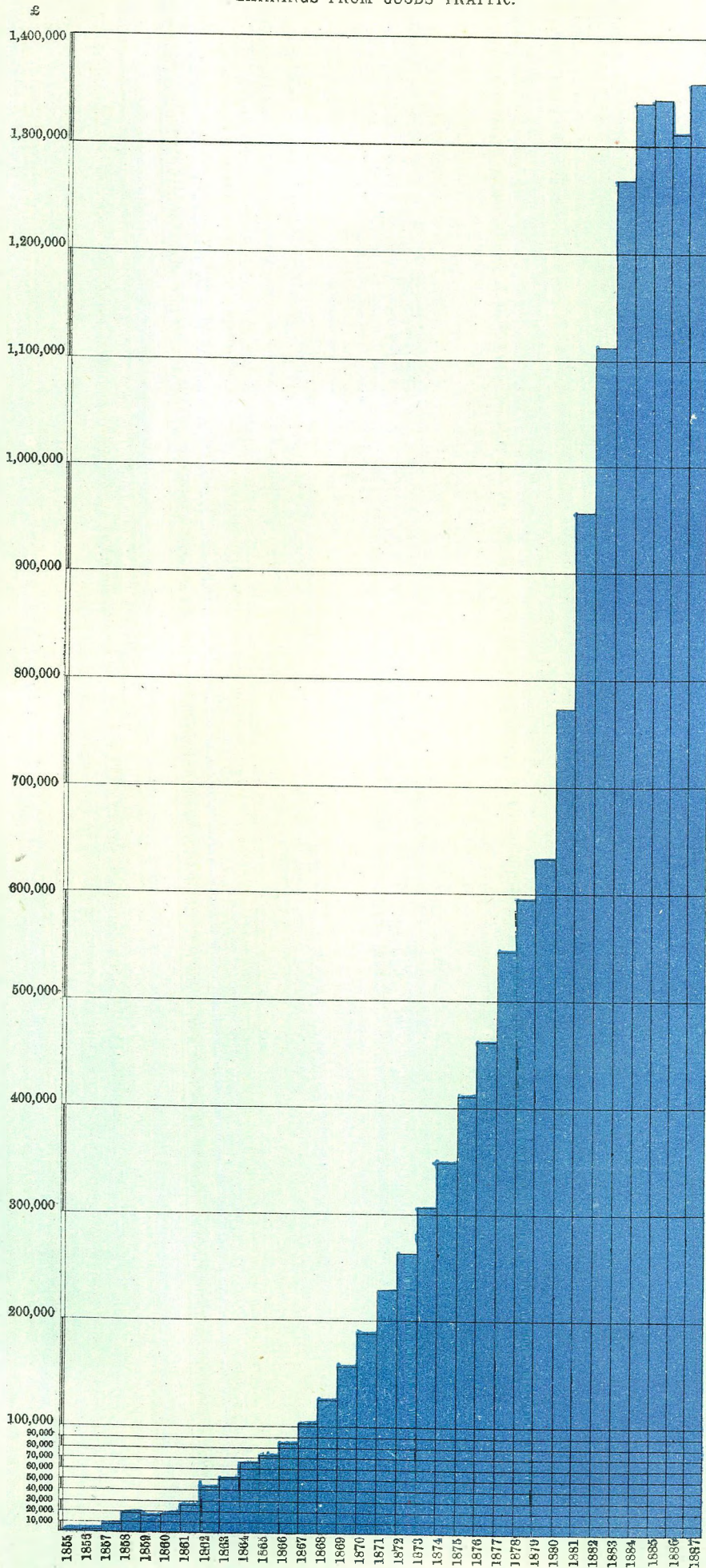
TONNAGE OF GOODS.



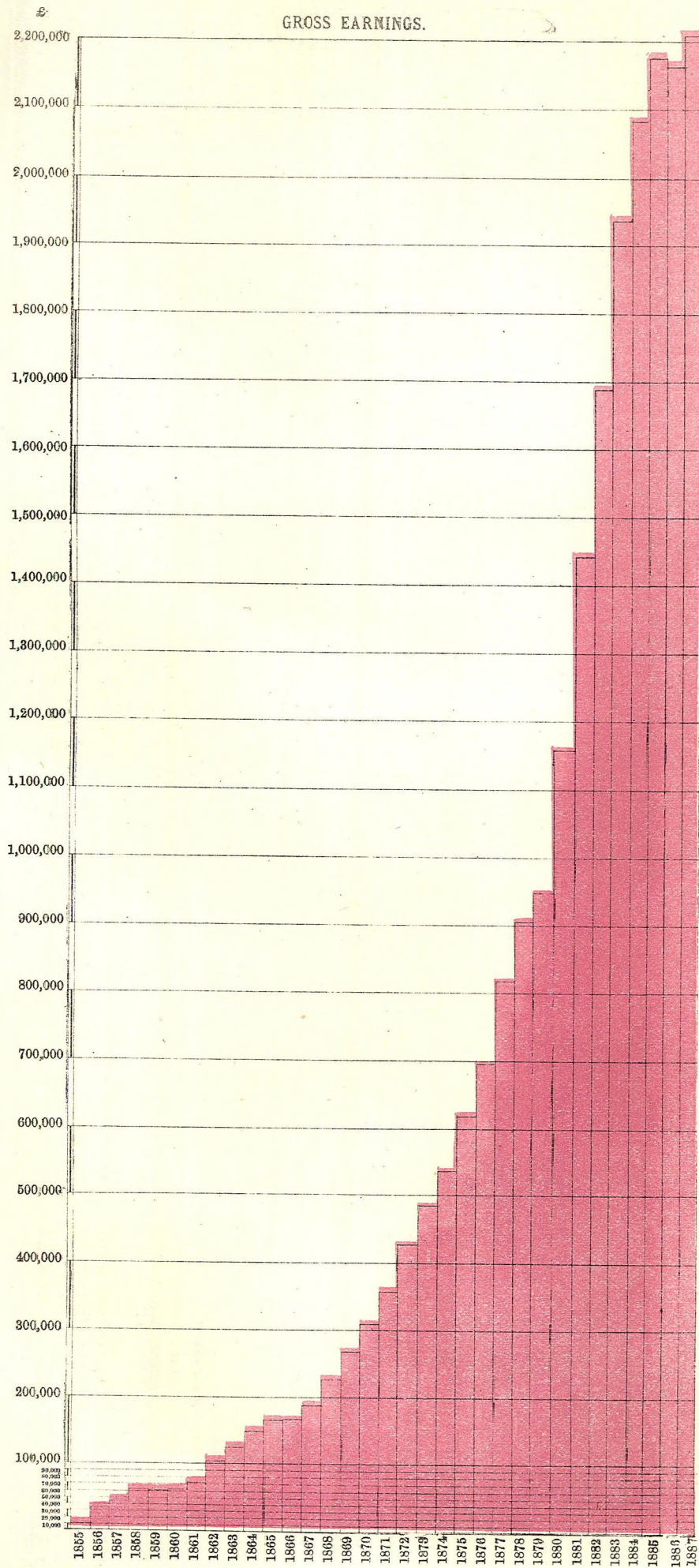
EARNINGS FROM COACHING TRAFFIC.



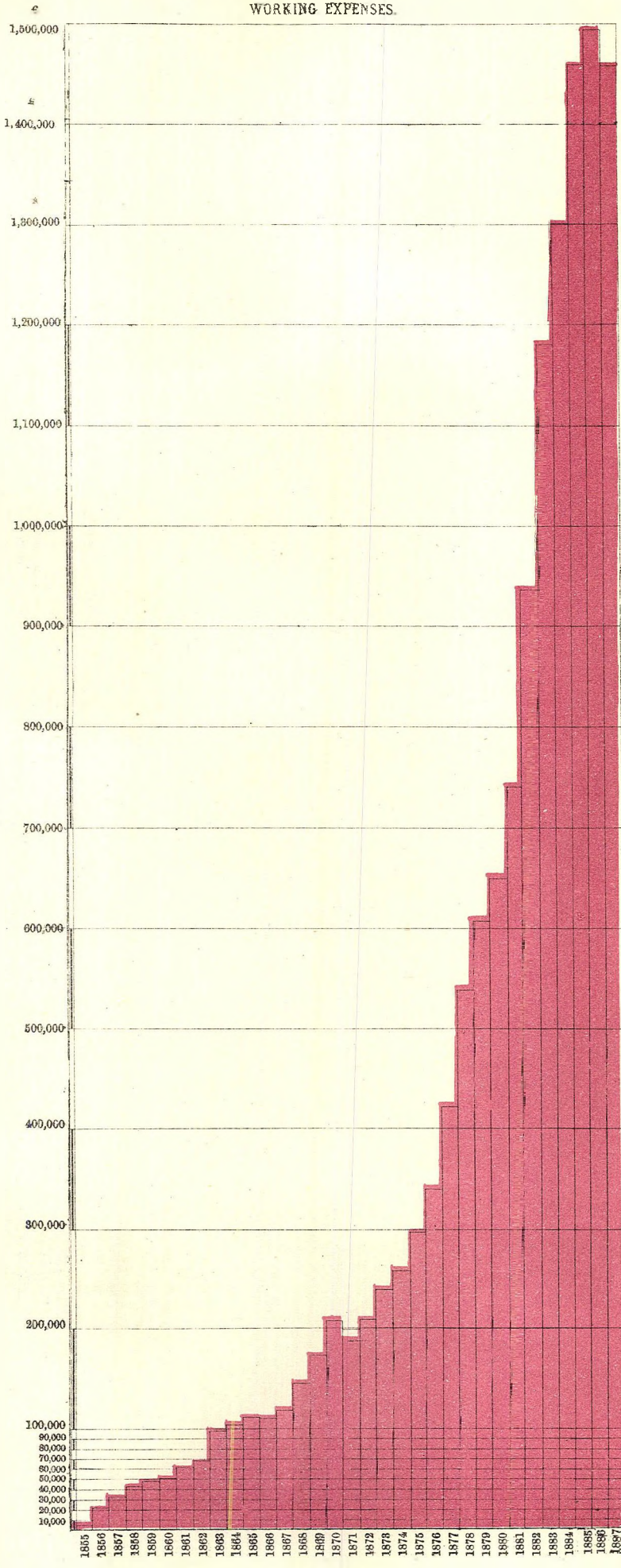
EARNINGS FROM GOODS TRAFFIC.



GROSS EARNINGS.

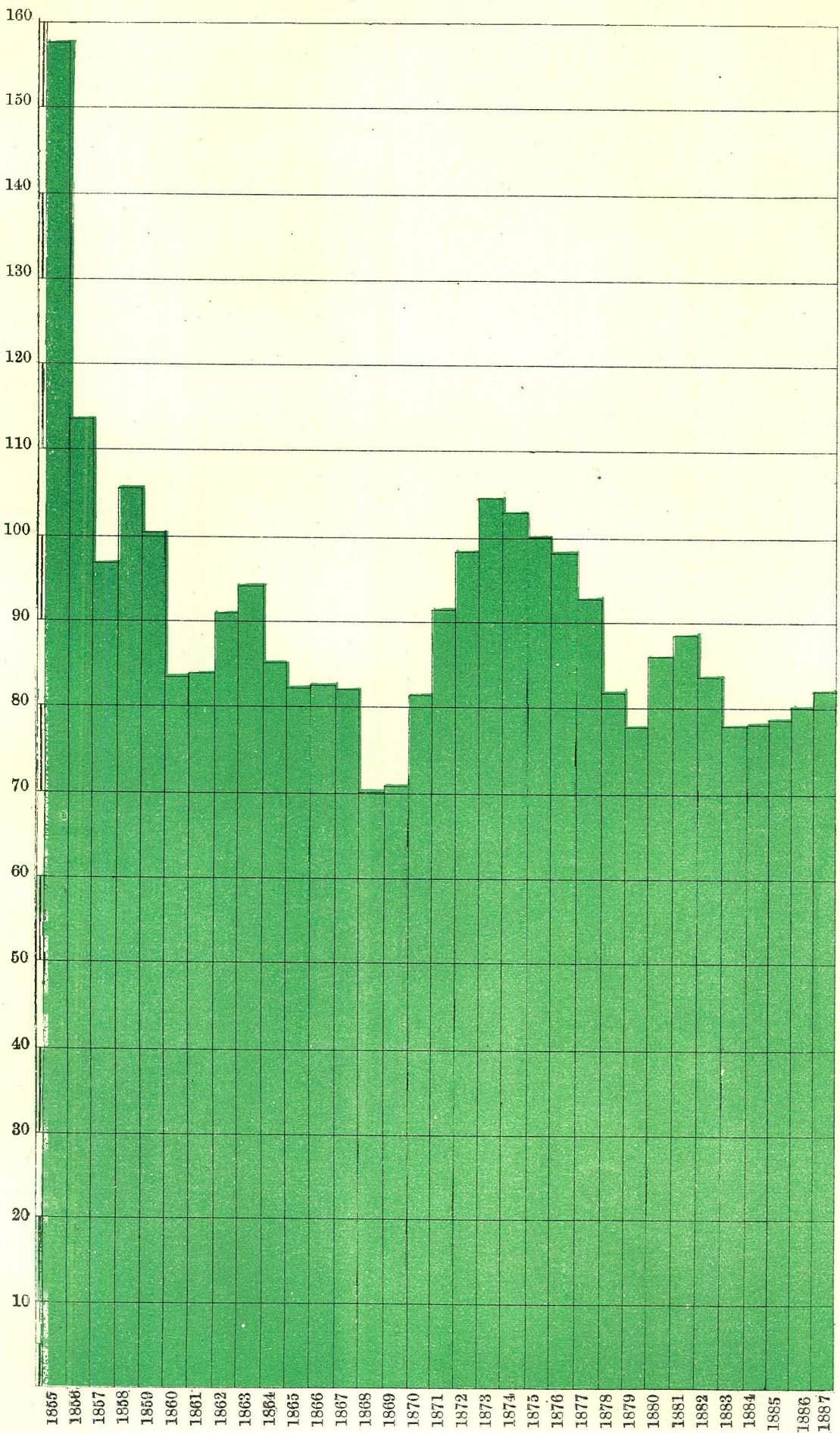


WORKING EXPENSES.

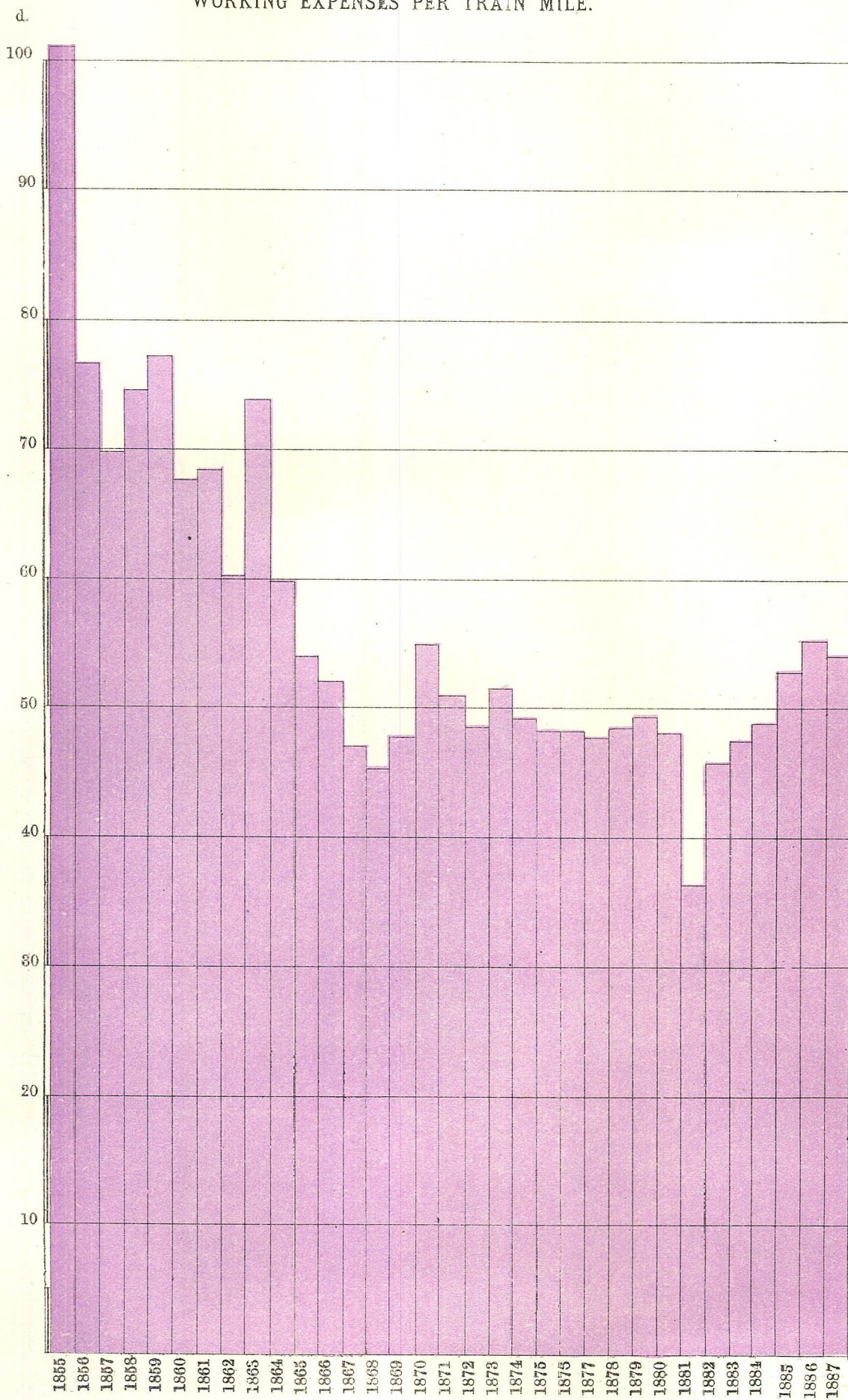


EARNINGS PER TRAIN MILE.

d.

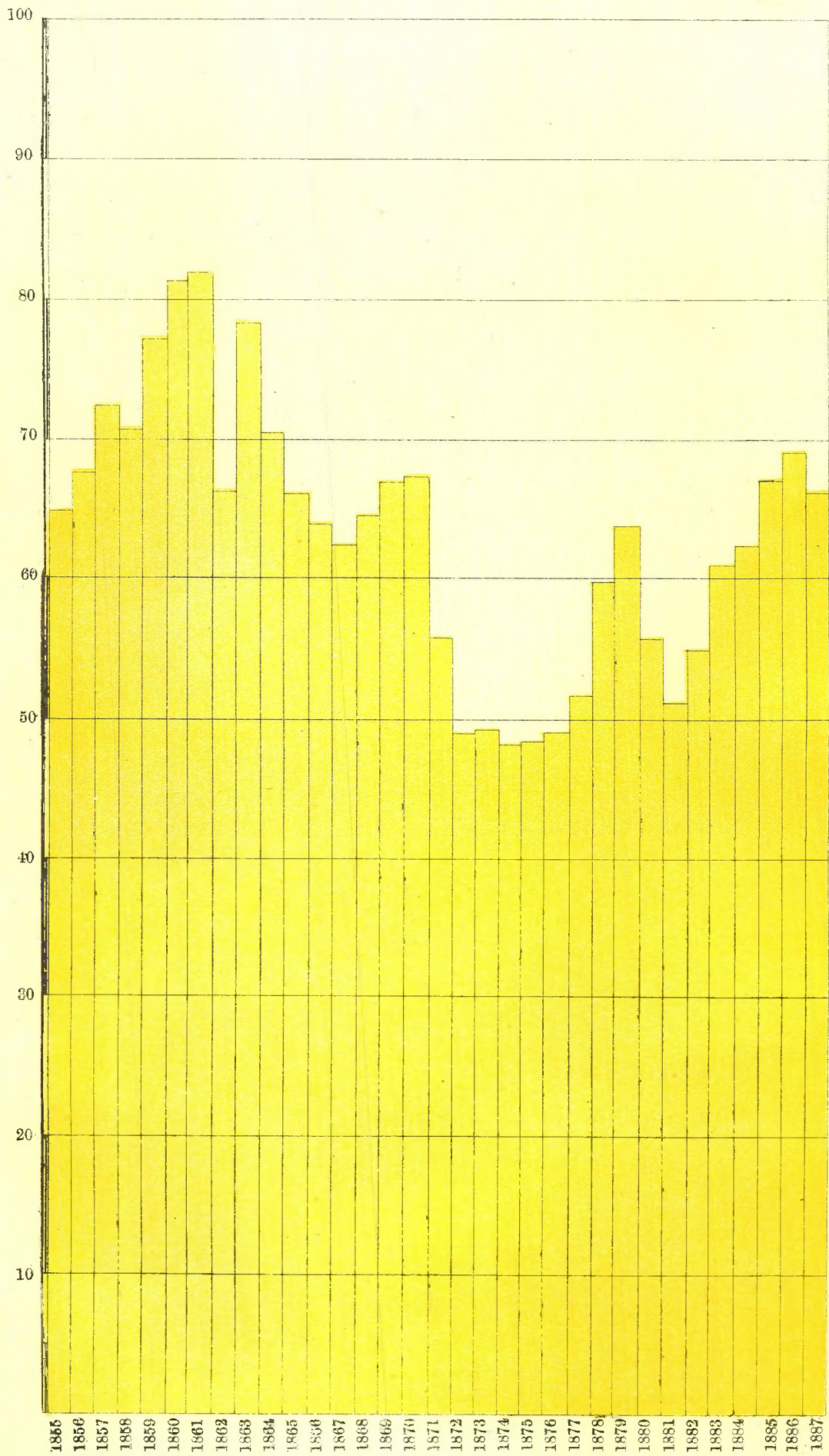


WORKING EXPENSES PER TRAIN MILE.

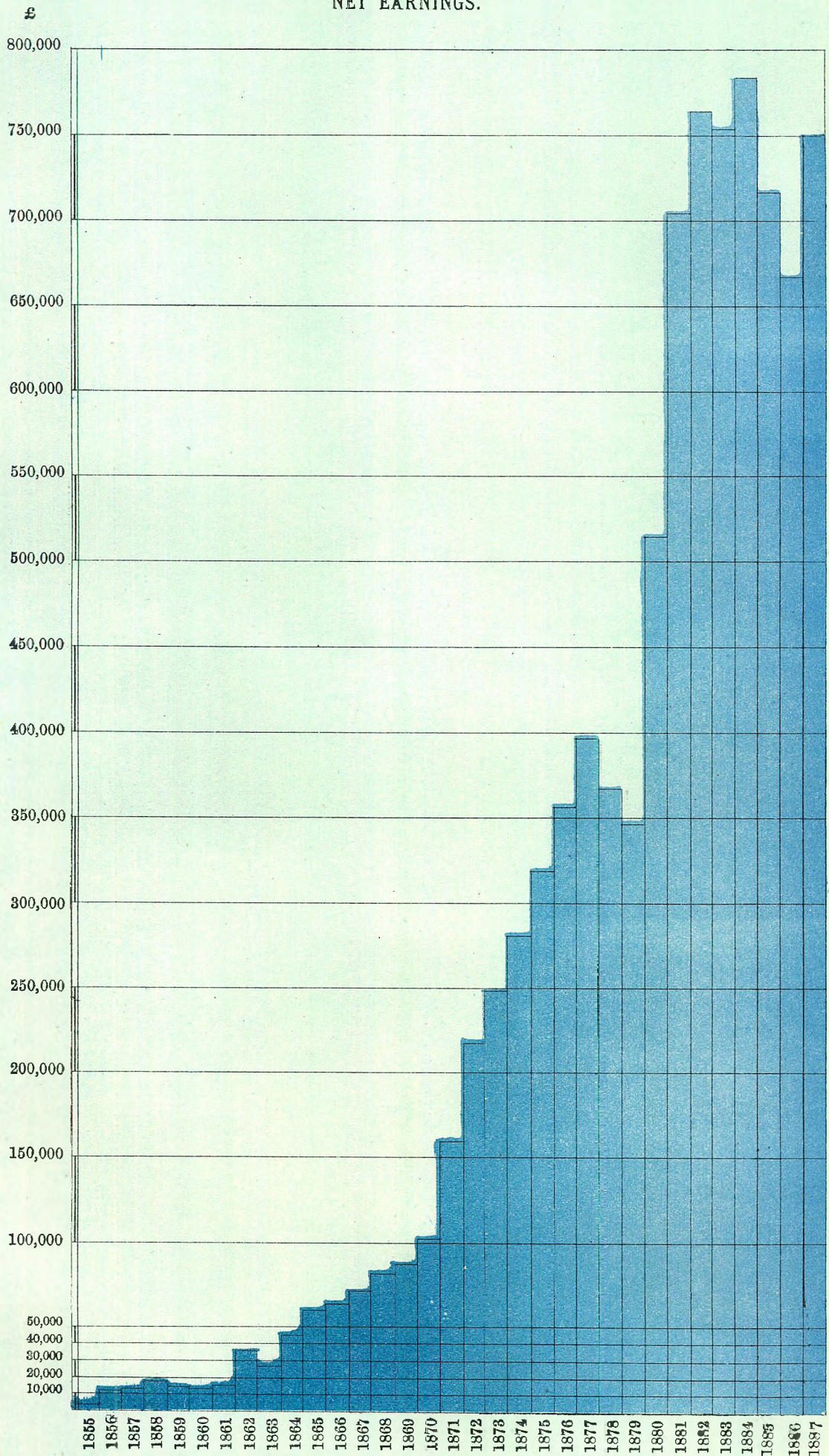


PERCENTAGE OF WORKING EXPENSES TO GROSS EARNINGS.

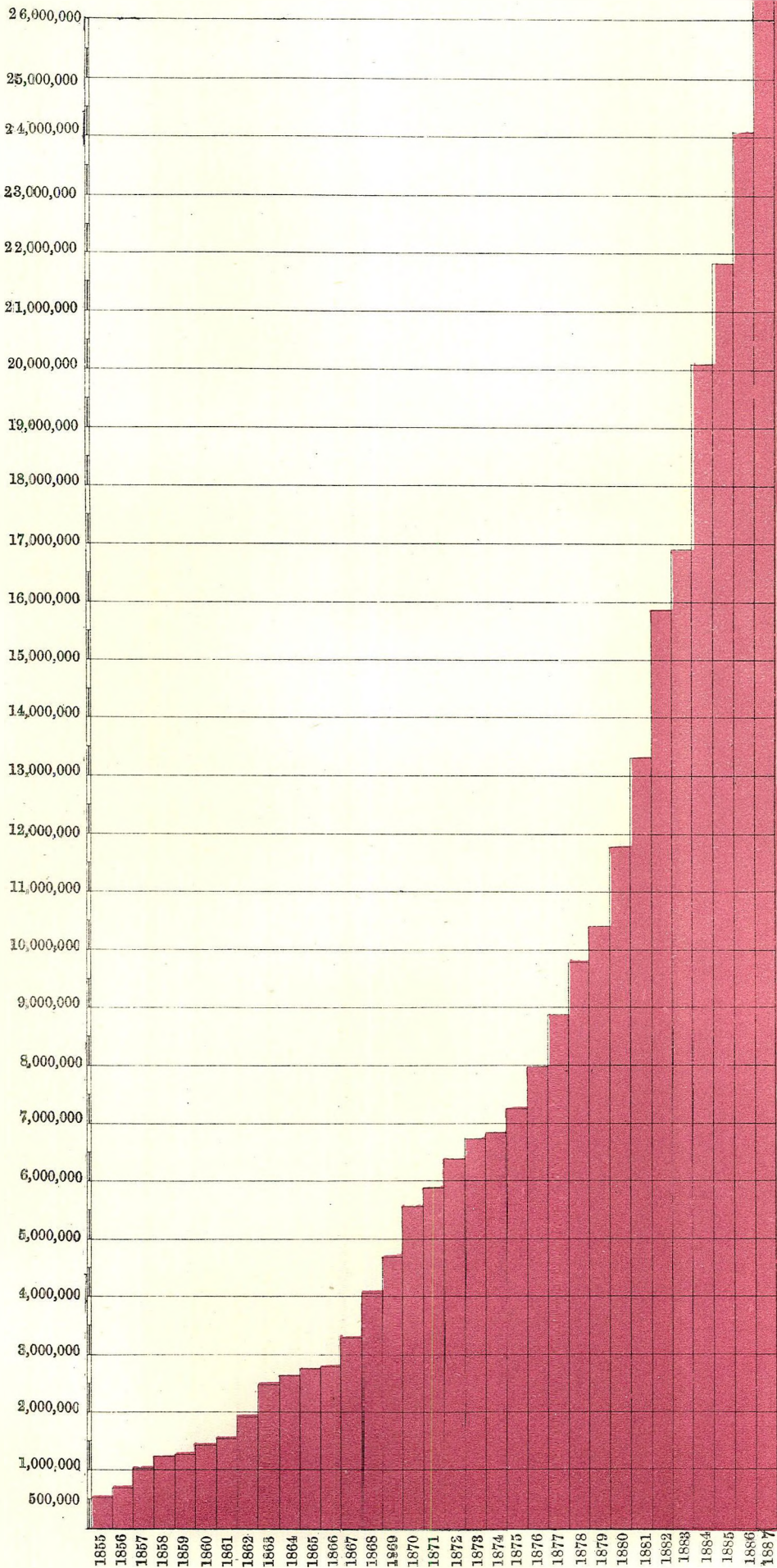
PER CENT.



NET EARNINGS.

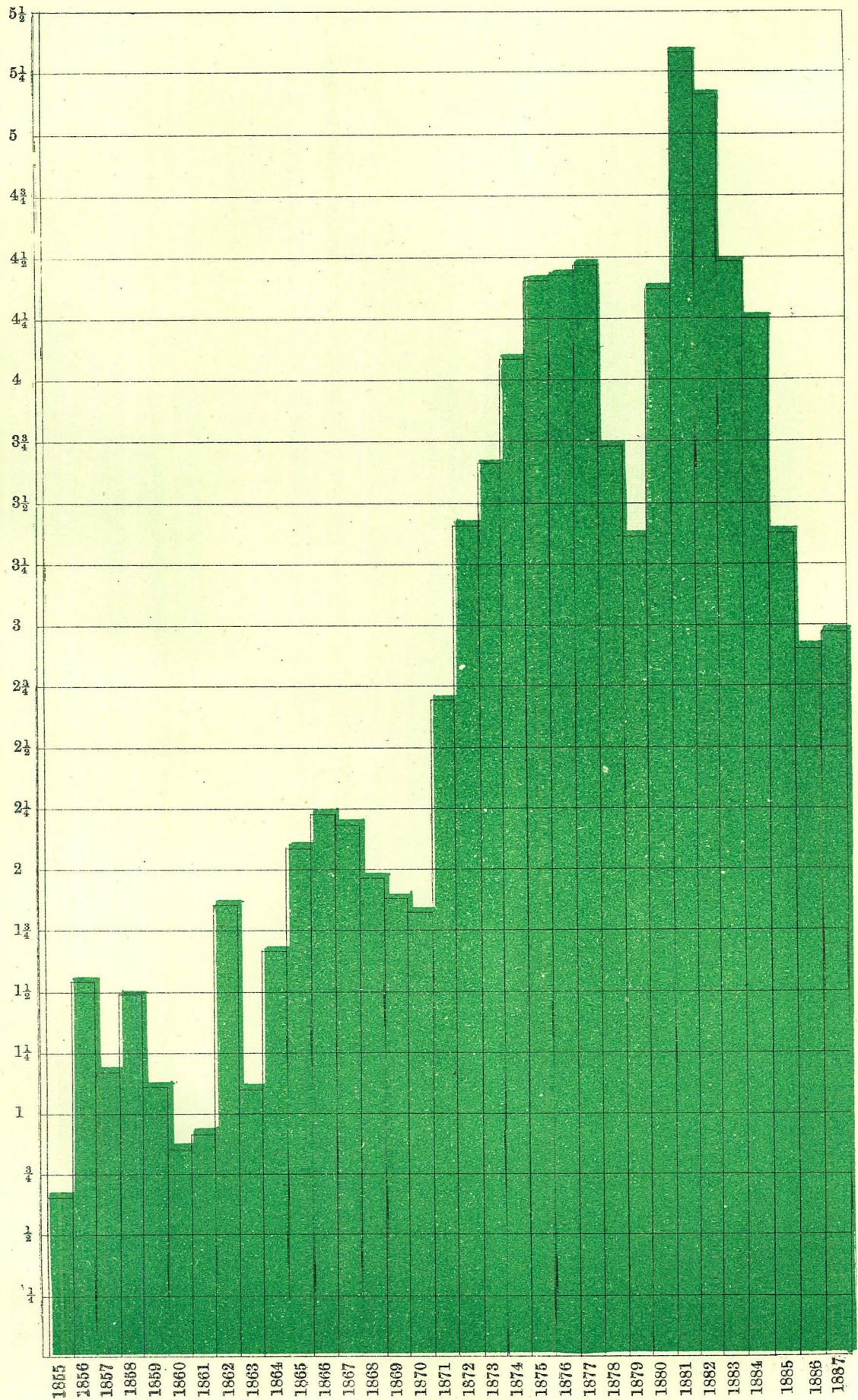


CAPITAL INVESTED ON LINES OPEN.



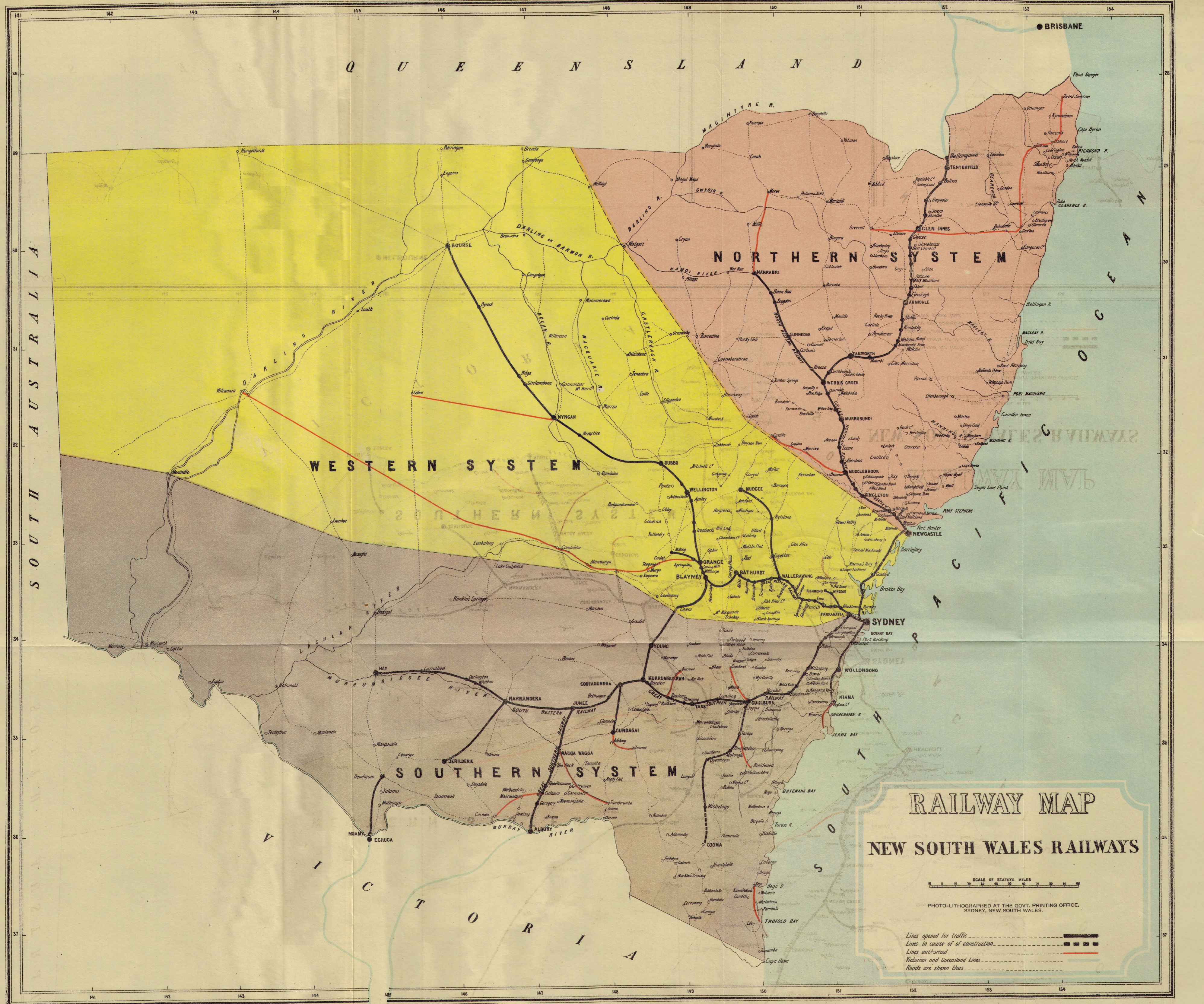
INTEREST ON CAPITAL.

PER CENT.



(5299)

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



RAILWAY MAP

NEW SOUTH WALES RAILWAYS

SCALE OF STATUTE MILES

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

Lines opened for traffic
 Lines in course of construction
 Lines authorized
 Victorian and Queensland Lines
 Roads are shown thus

(Sig 391-)

MELBOURNE

MAP SHEWING THE RAILWAY SYSTEMS OF AUSTRALIA

SCALE OF STATUTE MILES
0 100 200 300

REFERENCE
 Lines open for traffic
 Lines in course of construction
 Lines authorized

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

Comparative Statement showing Railway Mileage, Earnings, &c., for the year 1887.

Area of Country	Population	Miles of Railway open	Authorized	Total mileage when completed	Capital expended on lines open	Total authorized	Gross receipts	Net receipts	Interest on Capital
New South Wales	310,700	1,042,919	2,036	3,413	26,532,132	42,195,161	2,208,294	750,534	2,963
Victoria	87,884	1,086,110	1,880	2,892	24,985,850	29,980,253	2,453,078	1,025,902	415
South Australia	380,070	320,000	1,420	1,773	9,083,093	11,017,489	897,192	412,890	2,92
Queensland	608,224	342,614	1,765	2,213	11,320,394	17,059,652	778,806	243,534	2,151

With the exception of the figures relating to the Population, the Victorian and South Australian statistics refer to the year ended 30th June, 1887.



1887-8.

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.



PEAT'S FERRY RAILWAY ACCIDENT.

REPORT AND EVIDENCE TAKEN BEFORE DEPARTMENTAL
BOARD OF INQUIRY;

DEPOSITIONS TAKEN AT CORONER'S INQUIRY;

ALSO,

CORRESPONDENCE, &c.

ORDERED BY THE LEGISLATIVE ASSEMBLY TO BE PRINTED,
23 JULY, 1888.

SYDNEY: CHARLES POTTER, GOVERNMENT PRINTER.

1888.

[7s.]

248—

[917 copies—Approximate Cost of Printing (labour and material), £144 16s. 4d.]

ERRATA.

- Page 44, line 8. *For "Galead" read "Gayleard"*
 Page 47, line 69. *For "conelusion" read "conclusion"*
 Page 95, line 53. *Omit "(mark)"*
 Page 99, line 2. *Omit ";" after "way"*
 Page 99, line 7. *For "?" read "!"*
 Page 99, line 45. *Insert "14"*
 Page 99, line 51. *Insert "15"*
 Page 100, line 5. *For "Wesham" read "Werrick"*
 Page 100, line 12. *For "Gaylead" read "Gayleard"*
 Page 100, line 63. *For "this" read "the"*
 Page 100, line 72. *For "sixth" read "first"*
 Page 105, line 6. *After "Driver" read "Hulme's"*
 Page 105, line 7. *For "29/9/87" read "29/7/87"*
 Page 105, line 29. *For "pulling" read "putting"*
 Page 132, line 73. *After "theories that" read "have been"*
 Page 133, line 7. *Omit "," after "train"*
 Page 134, line 30. *For "7 $\frac{2}{3}$ inches" read "7 $\frac{3}{8}$ "*
 Page 136, line 9. *For "analyse" read "analysed"*

1887-8.

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

RAILWAY ACCIDENT AT PEAT'S FERRY

(REPORT AND EVIDENCE TAKEN BEFORE BOARD OF INQUIRY.)

Ordered by the Legislative Assembly to be printed, 23 July, 1888.

RETURN to an *Order* of the Honorable the Legislative Assembly of New South Wales, dated 8th November, 1887, That there be laid upon the Table of this House,—

“Copies of all reports, letters, correspondence, evidence, opinions, findings, recommendations, and all and every attainable information related to or connected with the late Peat's Ferry Accident.”

(Mr. Schey.)

No. 1.

Memo. from Mr. Loco.-Foreman Cobb to Mr. Assistant Loco.-Engineer Downe.
Government Railways,

Locomotive Engineer's Branch, Redfern Station, 22 June, 1887.

I VERY much regret to have to report that a most serious accident occurred yesterday at Hawkesbury to a special passenger train, which left Sydney at 10.25 a.m., consisting of equal to 13½ vehicles; engine, No. 178; driver, Thomas Wilson; fireman, John Pye. From the latter's statement, attached, it appears that all went well until the train reached Ryde, when the air-pump stopped for want of lubrication; this was soon rectified. When the train reached a mile past Ryde station the engine came to a stand, the load being too heavy. A second attempt was made, when the train again came to a stand, near Thornleigh, where the train was parted, and one half taken on to Hornsby, the engine returning for the other half. The train was then coupled up again. The air-brake was not, however, tested. The brake appears to have worked all right until the second tunnel was reached, when the fireman states that he noticed the train was going too quickly, the driver saying, at the same time, “The train has got away from us.” The fireman had previously applied his hand-brake on the top of the incline. The driver at this time appears to have put the air on full, but the brakes seemed to have no effect whatever on the train. He sounded the whistle for the guard to apply his car-brake, and reversed the engine, and seems to have done everything in his power to avert the collision, but all to no purpose, the engine running into some trucks and turning over into the river, causing the death of driver Wilson, Mr. Rennie, and others; the fireman was not much hurt.

The air-brake appears to have failed from some cause.

The engine was in good order and condition.

Wilson has been eleven years in the service, five of which he has driven various passenger and goods trains; he was a most efficient driver, and every confidence was placed in him.

JOHN COBB.

22 June, 1887.

JOHN PYE states:—I am fireman to driver Thomas Wilson; I have been with him about eighteen months; during that time we have run all kinds of trains fitted with the Westinghouse air-brake; on Monday last we left Sydney with engine No. 176 with a special train at 10.25 a.m. for Hawkesbury; no difficulty was experienced in getting there; we had nine and a half vehicles on.*; we were engine first leaving Sydney; when we left Hawkesbury we had eight and a half vehicles on, and had some difficulty in getting up the incline, and another engine had to assist us; the air-brake worked very well, but on arrival at Sydney driver Wilson found that the left coupling-rod was bent, and this he reported, and another engine, No. 178, was provided for Tuesday; we left Sydney with the same special at 10.28 a.m. on the 21st with what Wilson reckoned was equal to fourteen vehicles; we reached Ryde about eight minutes behind time; while stopping there Wilson told me that the air-pump had stopped working; I put some tallow into the lubricator and the pump started again at once, and did not stop again to my knowledge; about a mile from Ryde the engine came to a stand, the load being too heavy; Mr. Rennie, of Messrs. Amos & Co., came on the engine and advised that we set the train back to Ryde, which we did, and made another attempt, but came to a stand again near Thornleigh; Mr. Rennie advised that we should part the train and take half of it to Thornleigh; this was done, but on arrival there it was found that the siding was full, and the half train was then run on to Hornsby, the engine returning for the other half; the train was then coupled up at Hornsby, the latter part of the train being then next the engine; the air-pump

* Not quite sure whether ten and a half down and nine and a half up.

was then working all right; we did not test the air-brakes after the train was coupled up; after leaving Hornsby, Mr. Rennie told Wilson to go quicker, in order to get up the next incline; I cannot say for certain whether we stopped on this bank or not, when we got to the top of the long incline leading to the river; the air-brake worked all right until we got to the second tunnel; we had then 80 lb. air pressure; I noticed then that the train appeared to be going too quickly; just at this time the driver applied the air full on, and said to me, "The train has got away from us"; when he said this we had then got through the tunnel; I had previously applied my engine-brake at the top of the incline; the driver also kept applying the air on and off until we reached the tunnel, when he put it full on and left it so for a couple of minutes; the brake appeared to have no effect whatever on the train; I cannot say whether the air-pump was working or not at this time; he still kept on applying the brake, and whistled for the guard to apply his brake, reversing the engine at the same time; the engine wheels then skidded; I slacked my engine-brake a little and put it on again—the tender-brake, which was connected with the air, the wheels of which were also skidding at this time; we kept on increasing in speed until we came into collision with the trucks at the station; I cannot say whether driver Wilson tested the air-brake before we left Sydney; he may have done so unknown to me; the reason Wilson ran the engine-tender first on this occasion was that he thought he would get up the incline from the Hawkesbury better; Wilson was perfectly sober—I never knew him otherwise; previous to being with driver Wilson, I was nearly two years with driver James Smith, running suburban passenger trains; I have a thorough knowledge of the Westinghouse air-brake; I had not previously been on this line until the 20th instant.

JOHN PYE.

Witness—F. J. PYE, 22/6/87.

No. 2.

Minute from Mr. Locomotive-Engineer Scott to The Commissioner.

Peat's Ferry Accident, 21/6/87.

I BEG to report for your information that Mr. Cobb interviewed the fireman (John Pye) at his residence yesterday, and took down the attached statement, which was witnessed by his father.

Mr. Downe informs me that a strong gang of men, with the necessary appliances, have been employed in clearing away the wreck, which they have accomplished, with the exception of the two telescoped carriages; also that the body of the late driver Wilson has been got out from under the engine.

W. SCOTT, 23/6/87.

Seen by Minister, 23/6/87.—CH.A.G. Put with papers. Forward to Board of Inquiry.—
CH.A.G., 23/6/87.

No. 3.

Minute by the Commissioner.

Subject :—Accident at Peat's Ferry.

Department of Railways, Sydney, 22 June, 1887.

IN connection with the deplorable accident which happened yesterday at Peat's Ferry, I appoint the following gentlemen to inquire into the causes which have led to the accident:—

Mr. D. Vernon (Chairman) ...	...	Secretary of Railways.
Mr. Max. Thompson ...	...	Assistant Engineer.
Mr. T. Midelton ...	...	Tramway Engineer.
Mr. W. V. Read ...	...	Traffic Manager.

I wish the inquiry commenced at once and completed as early as possible, consistent with the due investigation of the causes of the disaster.

CH. A. GOODCHAP.

No. 4.

Report of the Board appointed to inquire into the Peat's Ferry Railway Accident.

IN accordance with the instructions contained in the Commissioner's minute of the 22nd instant we beg to submit at the earliest possible moment the result of the inquiry which we have held respecting the cause of the lamentable accident which occurred at Peat's Ferry Station on Tuesday afternoon, 21st instant.

A list of the witnesses who have been examined, together with a complete copy of the whole of the evidence taken, is forwarded herewith. Every care has been taken to make a thorough and impartial investigation. Each witness has been allowed as far as possible to tell his own tale in his own way, and no effort has been spared in endeavouring to elicit the whole of the facts and circumstances connected with the unhappy event in order to arrive at a true solution of the matter.

After the most careful consideration we think that the evidence points conclusively to certain facts from which the cause of the accident is not difficult to gather.

The

The first fact which is established by the evidence is *that the train was amply provided with brake power*. The total weight of the train—exclusive of passengers—amounted to 150 tons 1 cwt. 3 qrs., and it consisted of eleven vehicles—reckoning the engine and tender as two.

Of this number six weighing 123 tons 5 cwt. 3 qrs. were provided with efficient brakes, and we do not hesitate to say that, apart from the Westinghouse appliances altogether, the hand-brake power alone was more than sufficient to admit of the train being braked down from Hornsby to Peat's Ferry.

The second fact which we consider the evidence conclusively establishes is *that the brake appliances were complete and in good working order when the train left Redfern Station*.

The testimony of the shunters, Derham and M'Carthy, as well as of examiner Werrick, together with the fact of the frequent use which was made of the brakes of the train, which stopped at all stations as far as Ryde, place this matter beyond all dispute.

The third fact which in our opinion the evidence clearly points to is *that these same brake appliances were in the same condition when the train—after being divided and recoupled—left Hornsby Station*. The testimony of the guard, corroborated by that of porters Stead, Rice, and Galead, as to the coupling-up, &c., and that of fireman Pye and others, as to the subsequent use of the appliances admit of no other conclusion.

The fourth fact established by the evidence is *that the train, which appears to have been under control until after it emerged from the first tunnel, was allowed to attain a very high rate of speed, and the driver, for some reason or other, was unable to control it*.

The fifth fact which may be considered to be established, by the testimony of all those who were able to give evidence on the matter, is *that immediately after the accident the brake-blocks were found to be off all the wheels of the carriages, the tyres of the same were all cold, and the brake connections of the carriages, excepting those between the engine and the first car, and those between the first and second cars which telescoped, were all correct*.

From the foregoing facts it clearly follows *that the accident arose from a sudden failure of the brake power*; that this failure was not owing to either the insufficiency or imperfect condition of the brake appliances, but (and this is the only conclusion consistent with the whole of the facts) to an injudicious use of them on the part of the unfortunate driver. *The air reservoirs of the carriages became exhausted, in which condition the application of the brake was impossible; and there was not time enough for driver Wilson to recharge the reservoirs and bring them into use before the accident took place*.

It will be seen from the evidence that when, on the morning following the accident, it became possible to examine the brake connections between the two cars which telescoped, the tap at the rear end of the first one was found closed.

There is, in our opinion, however, not the slightest room to doubt, from the position in which the tap was found, that it was the telescoping which turned it. In fact, under the circumstances, the handle could not have been found otherwise; it was turned just in the direction which the act of telescoping was bound to effect, being the reverse of the position in which it would have been found had it been closed by hand; added to which it was in a part of the train where there had been no interference during the journey either with the coupling or brake connections.

It was also discovered on the day after the accident that the branch pipes connecting the main service pipe and the triple valve was broken under second-class carriage 73.

The tap shutting off the pipe was found properly closed, and from evidence obtained it is perfectly clear that the carriage was in the same condition when it left Sydney. It did not interfere in any way with the completeness or efficiency of the brake appliances.

With regard to the fact of the train being without an ordinary luggage or brake van, we may state that such a vehicle was perfectly unnecessary either for carrying luggage or to subserve safer working; in fact, the American car at the rear of the train when it left Sydney was, owing to its greater weight, *better* than the brake van.

Although

Although a guard is empowered to make use of the air brake in cases of emergency—as, for instance, when he finds it necessary to stop the train for some reason *unknown* to the driver—there can be no question that when the connections of a train are complete and the driver is working his brakes it would be simply mischievous for a guard to interfere. The driver had charge of the brake, and necessarily must have been the first one to recognise that the train had got beyond his control, and, presuming he had not up to that time exhausted his reservoirs, had just the same power to apply the brakes as the guard.

In working a driver requires to use his power of *releasing* as well as his power of *applying* the brakes, and any attempt on the part of the guard to use his valve would only thwart the driver's action.

It must be admitted, we think, that the engine was slightly overloaded, and had more vehicles on than could be easily *hauled up* a long incline of so steep a grade as 1 in 40.

In accordance with the rule and practice of the Department, it was the duty of the driver, if he had any doubt of his ability to take his train through to its journey's end to have intimated the fact to the proper officer, and to have asked for assistance.

The following is a copy of instructions which appear at the back of all driver's daily reports-sheets:—

“Drivers are expected to use great discretion in deciding what load they can safely take over the different parts of the railway system, fully considering the state of the road, the weather, and the condition of their engines, also the great importance of taking as great a load at all times as possible, consistent with keeping good time.”

It is evident that driver Wilson did not anticipate any difficulty in taking his train to the Ferry, although he expressed a doubt before leaving of his being able to bring it *out* from the same station. This, however, would not necessarily have been required of him, as on such holiday occasions passengers do not return by the same trains, or in the same numbers, as those in which they may leave in the morning, and the return engines would no doubt have been arranged as suitably as possible. We are, notwithstanding, of opinion that there is room for better provision being made against an engine being despatched with too heavy a load, as such a thing can only result in delay and inconvenience to the public.

Still it must be distinctly understood that a reduction in the weight of the load of this particular train would in no way have prevented the accident.

With respect to driver Wilson's selection and qualification for the work allotted to him on the day of the accident we are of opinion that a careful consideration of Shed-Inspector Farquhar's evidence is sufficient to show that there is no ground for censure. Apart from the fact that upon the day in question the resources of the Department were most severely taxed it must be remembered that driving upon a line with a gradient of 1 in 40 would not appear to be a very formidable task to a Loco. Inspector; also, that Wilson was a driver of some years' standing; that he had a long acquaintance with the working of the Westinghouse brake; that it was all *daylight* work; that his brake appliances were ample, and he had been over the road the previous day.

Although it is against the rules for any one other than an authorized officer of the Department to ride on an engine we are of opinion that the presence of Mr. Rennie on the engine beyond Ryde, for which unauthorized action he paid the penalty of his life, should not have been disadvantageous to the driver.

We must also observe that the formal test of the air-brake connections, which, according to the rules of the Department, should have been made by both the driver and guard before leaving Hornsby, was not carried out; the operations, however, gone through afforded undoubted proof that all was correct in this respect.

The fact of the guard not having been over the road previously has no bearing in the present case. It is only where a guard has to share with a driver the responsibility of braking a train, *under the system of hand brakes*, that a previous knowledge of the road is really necessary on the guard's part. With the Westinghouse air-brake in use a guard has nothing to do with the ordinary braking of the train, and therefore any trained man with or without a knowledge of the road may safely be sent under such circumstances.

There are two or three discrepancies in connection with the evidence of one or two witnesses which perhaps we need hardly specially refer to beyond mentioning that

that the effect of the accident has been a severe shock to guard Clissold and it has evidently affected his memory of some of the events, and of the order in which they took place.

Before closing our report we may briefly refer to porter Proctor's action at the points. It is not the case, as originally reported, that he held these over on his own responsibility to prevent the runaway train colliding with two other trains which were standing on the second road; he merely did what he was told-off to do; but he did it well, and is deserving of great commendation for his firmness in sticking to his post.

We desire to draw attention to the manly and steadfast conduct of the late driver Wilson and of fireman Pye.

These men must have known for two or three miles before arriving at the Ferry that certain disaster, if not death, was before them, notwithstanding which both men stood to their post of duty.

D. VERNON (Chairman),
MAX THOMSON,
THOS. MIDELTON,
W. V. READ.

The Commissioner for Railways.
July 1st, 1887.

Departmental Inquiry Board.

PEAT'S FERRY RAILWAY ACCIDENT.

MINUTES OF EVIDENCE.

First Day.—Thursday, 23 June, 1887.

PRESENT:—

DONALD VERNON, Esq., Chairman.
THOMAS MIDELTON, Esq., | W. V. READ, Esq.,
MAX THOMSON, Esq.

Alfred Clissold called in and examined:—

The Chairman.] You were the guard of the excursion train that met with the accident at the Hawkesbury A. Clissold.
on Tuesday, were you not? Yes, sir.

Now will you be kind enough to give us in your own words an account of what took place from the time you left Sydney until the accident occurred? I left Sydney four minutes late. Our correct time was 10:25 a.m., but we did not leave Sydney until 10:29. We stopped at all stations to Strathfield, and then went straight on to Ryde. After leaving Ryde, before we reached the top of the first incline after leaving Ryde Station, the engine-driver came to a stand on the bank and could not proceed. I went forward to him, and spoke to him about the stoppage, and he said that he was afraid he would not be able to get up, and that the water was running short. We then backed down the hill, and stopped on the bank and took water. Then he ran back again and started a second time. When the train arrived at Beecroft, we did not stop at the platform. The engine-driver tried to get up the hill, and came to a stand in the cutting beyond Beecroft platform. I again went to him, and he told me that he did not think that he would be able to lift the train from where it was. We then parted the train. } h

At the cutting? Yes, at the cutting; and we secured that part.

Now be very particular in telling us all you did. I want you to minutely describe everything that you did? Yes sir. The driver said that he thought he would not be able to lift the train from where it was. I then got a sapling and put it right through the wheels. We parted the train after the driver told me that he could not succeed in getting it up.

Whereabouts did you part the train? I parted the train in the cutting at Beecroft.

But what I mean is, whereabouts did you part the train—what part of it did you separate from the other? We parted the train at about the centre. } c

Describe exactly how you uncoupled the train? I got underneath and detached the air-pipe, and shut off the taps.

That's right. I want you to be particular in telling us everything you did. Now, after you had uncoupled the air-pipes and the general couplings and shut off the taps, what did you do next? Well, there was this inspector, Mr. Rennie; he was on the bank at the time, and he went on with the first portion of the train. I remained with the portion that was left behind, and the first portion they put into a siding at Hornsby.

Oh; but you did not see them do that. Tell us exactly what your own movements were? Yes sir. I did not of course see them put the train into the siding.

Mr. Midelton.] I presume that was done at the station?

Mr. Read.] No; near the cutting, at Beecroft.

Mr. Midelton.] Was the tail of the train left on the main road? Yes sir; there was no siding there.

The Chairman.] Just continue your narrative now.

Witness.] After remaining there for some little time they came back for the train, and I attached the engine on to the remaining portion of the train. } c

The Chairman.] How did you attach it—describe it as minutely as you can? I fastened the air-couplings and opened the tap. I then released the breaks, and I removed the sapling out of the wheel.

What do you mean by releasing the breaks? As soon as you backed the engine ———

I know all about that. What I want to know is what happened. You coupled up the air-brakes and opened the taps. Did the driver release the breaks? On the engine he did.

Were the breaks on or off? They were off, and the sapling was holding them.

Now

A. Clissold. Now go on? They took the train into the siding at Hornsby, and I made good the connection between the two parts.

c { Describe exactly how you made this connection good? I attached the air-pipes and opened the taps, and turned the taps downwards. This was done in the presence of a young man who has charge of the station. I do not know his name. He was standing by when I did it. As soon as it was done he said "all right; get away." I gave the signal and the train started. After leaving Hornsby—

Wait a moment. When you got up to Hornsby with your rear portion of the train, how did you find the breaks of the first part of the train which preceded you? I think they were off.

Don't think? Well, I can't say positively whether they were off or on. I did not examine them.

But in making good the two portions of the train, do you remember exactly what you did with the taps?

Yes, but I can't say positively what I did with the taps.

But did you open the taps? Yes, I opened them.

Of the rear portion of the train? Yes, of the rear portion of the train where I got between.

c { Did you open the taps on the portion of the train which you found standing at Hornsby on your arrival there? Yes. I put the taps downwards.

Then you put down the taps on the last carriage of the part that you took up, and you opened the taps of the carriage to which you attached it? I did, sir.

Describe what followed? After we left Hornsby station, going up the first bank from that station the train stopped.

What bank do you refer to? The first bank after leaving Hornsby station. I do not know the name.

d { How far beyond Hornsby? I should say about half-a-mile or better. I was going forward to see what was the matter, and I found that the air had not worked on one of the Redfern composite cars. I found the break on, in consequence of the air not having released itself. I released the air and the driver started away, and did not stop again. And going down I found that all went right until we got through the first tunnel. There were no other stops, and after passing through the first tunnel I found that the speed was increasing.

Do you remember noticing whether the break was applied by the driver before you arrived at the first tunnel? I cannot say positively, sir.

That is all I want. Now continue your own description. Which carriage were you on? I was on the car next to the engine or the second one from the engine at the time. Yes, it was the second car from the engine. I was on the rear end of the American car. I noticed the speed of the train was increasing, and I applied the hand-brake with all my might. The engine driver then opened his whistle, and kept it open all the way, and I hung on to the brake with all my might. This was as we passed through the first tunnel, between No. 1 and No. 2 tunnels. There is a water-tank near the place.

What did you understand by the whistle? I thought that there must be something wrong by the driver's continuous whistling.

It was continuous whistling? Yes, not sharp whistling, but an open whistle, and he kept at it continuously all the way down.

Was that after he emerged from the tunnel? That was after he was going from No. 1 tunnel, as near as I can remember.

And how long was that whistling kept up? Until such time as the engine and the driver went over the bank.

Do you remember noticing whether any application of the brake was made about the time that he commenced to whistle? I cannot say positively.

Then you do not remember any application of the Westinghouse brake after leaving Hornsby? No, sir.

I want you to be careful, and to try and remember? Yes, sir; I will give truthfully what I know.

I don't mean that; I know you speak truthfully. What I mean is in regard to your memory—try and be careful and recollect? Yes, sir; as far as my memory goes, I will give you the truth.

h { What I want is for you to do your best to remember what really took place. The Inspector, Mr. Rennie, was riding on the engine from Hornsby, and was with the driver. The driver never made any remarks to me about the end of his train after the time that I spoke to him. The fireman made a remark to me, in the presence of the Inspector, that he was afraid the brakes would not act, that the donkey would not act, and he then stepped out on the foot-plate, and began to rap the cylinder with a piece of iron to show what he meant.

Where did that take place? I think that was after we left Ryde. He ran back twice, and made two attempts, after leaving Ryde. The first time he was stopped.

Mr. Midelton.] He was going with the tender first? I don't really know, but I believe he was.

Were you on the fireman's side of the engine? No; on the driver's side. Then we were all standing in company, and I was standing close by when he made the remark.

And he went out on the driver's side to object to the donkey? Yes, before the piston would work.

The Chairman.] I understand you to say that the fireman expressed his fears that the donkey would not work? Yes, in the presence of the driver.

The fireman did not complain that the donkey had failed up to that time? No, he merely expressed a fear that it might fail.

Now, then, will you finish your account? Yes, sir. I then hung on to the break with all my strength, until such time as the train turned over at the river. One portion of the car that I was standing on telescoped into a car of the Redfern type. And the first person I saw when I recovered myself was the inspector. He was the first man I saw, and he was to all appearances dead. He was lying on the bank. I then rendered all the assistance I could in getting the injured out of the train. I helped to carry one young man who was taken out quite dead. His name I cannot now tell. I then rendered all the assistance I could in getting out the wounded.

Did you make any examination of the train after it was wrecked? I did; I looked around and examined it as Mr. Kirkcaldie did when he came down.

Never mind Mr. Kirkcaldie—tell us what you did? I examined it, and found that it was all complete.

In what way complete? That the taps were alright and open.

The train never parted, then? The only portion that parted was the engine from the first carriage.

And it was all as it was at first—just coupled together? There was no portion of the train parted except the engine from the carriage.

I think, if you recollect a moment, you will see that some of the cars telescoped into one another? No; the car telescoped into one of the Hudson type. Well,

Well, and were they not uncoupled or separated by that cause? I did not notice.

A. Clissold,

But it was inevitable, was it not? Oh, yes; they could not have telescoped into each other without becoming uncoupled. It was an impossibility.

Yes, and the couplings must have been broken in that case? I should think so.

Mr. Thomson.] Have you any idea as to what speed the train came down that incline? I hardly know. All I know is that we came down at a very great speed. I was slung off my feet several times, and had all I could do to hold on.

Could you not make a rough guess—were you going 20 miles or 40 miles an hour? I should imagine that we were going at least 40 miles an hour, but I really could not possibly say. It was a very great speed, and I had all that I could do to keep on my feet.

The Chairman.] What cars were those that were cut off at Beecroft, and with which you remained behind, while the driver took the other portion up to Hornsby? It was a Redfern type of car.

The two? Two only.

Mr. Midelton.] One was a new car? Yes; one of them was quite a new car.

The Chairman.] And when you recoupled the train at Hornsby these two cars were in front? Yes, sir; near to the engine.

Mr. Midelton.] The American car was the rear car when you left Sydney? Yes, sir; and I remained upon it as guard up to the time that its position was changed.

The Chairman.] Did you put on your brake before the driver whistled or after? I put on my brake after the engine-driver whistled.

After he whistled? Yes, sir.

Did you notice whether you really applied the brake or whether you were only screwing it up tighter—did you put the brake on, or did you merely work your wheel? I applied the brake, Then the brake was off immediately preceding the time that you worked your wheel? Yes, sir. I put the brake on.

Mr. Midelton.] Would you describe again the action which you took at Hornsby—just tell us exactly what you did when you got the two front cars on to the second portion of the train—did you couple the train yourself? I did.

Now describe in your own way what you did? The first thing I did was to couple the air-pipes together. I then turned the taps and afterwards attached the side chains. This was done in the presence of the young man who has charge of the station at Hornsby. I do not know what his name is.

Now is that all you have to say about it—you have left out the main portion—you have omitted the main screw couplings? Of course I mean them too.

But you did not tell us? Yes; but I had, of course, to put the screw couplings on. The young man brought the screw couplings from the other part of the train.

Mr. Midelton.] That is a very important piece of evidence. You put the screw couplings on first? Yes, sir.

And then you put on the air-pipe, and then the side chains? Yes, sir.

Who received the signal—the driver or the fireman? I think the driver was standing at the side when I gave the signal. I think he was on the left-hand side of the engine.

Now will you proceed from Hornsby to the first tunnel;—could you say whether the driver applied his brake between Hornsby and the tunnel? I really could not say.

Mr. Read.] Do you think that if the air-brake had been used on the cars it would be noticeable? No answer.

The Chairman.] He has already distinctly said that he does not remember. I have asked him particularly whether he remembers the driver using the air-brake at all or not.

Mr. Midelton.] Did you notice that this brake had worked properly up to Hornsby? Yes, sir; I think so; I think it acted when the driver stopped on the bank. } c

Everything went right up to Beecroft; then you went on in consequence from there to Hornsby? Yes, sir.

The Chairman.] Referring to the statement which you have already made, that soon after leaving Hornsby, when you found the train had stopped, you went forward and released the air-brake on one of the carriages;—can you now tell me which carriage that was? That would be one of the carriages of the Redfern type.

I do not mean exactly the kind of carriage it was; what I mean is where it stood in the train;—how far was it from the engine? As near as I can remember, it would be the third carriage from the engine. It was a closed second-class carriage that was next to the engine. Behind this was another car that kept me from getting to the other.

Do I understand you to say that it was the third carriage from the engine that you released the air-brake from? Yes, to the best of my recollection.

What carriage was it that you were standing on,—that you jumped upon when the driver started away? The second from the engine.

Will not this help you to remember the particular carriage from which you released the brake—the fact of your jumping on the second car from the engine; the driver started away immediately when you released this air-brake;—now was that the car the brake of which you released—was the car behind the one that you jumped on, or was it in front of it? Well, I really can't positively say just now.

But there was only one car in front of you;—you were on the second from the engine? Yes.

Now cannot you recollect;—can you tell me whether it was the car next the engine, the brake of which did not release itself? To the best of my recollection it was the second car next to the engine, the brake of which did not release itself.

Then you must have run the whole length of your train before finding out what was the matter? Yes, sir.

You remember doing so now? I do.

And then you say, to the best of your recollection, that it must have been the car next to the engine the brake of which did not release itself? Yes, sir.

I wish you would try to recollect the circumstance exactly. Try and refresh your memory, and see——

Mr. Midelton.] Was it a four-wheeled car or an eight-wheeled car? No answer.

The Chairman.] The one next the engine at this time must have been an eight-wheeled car. *To witness:—* Do you remember whether it was a four-wheeled or an eight-wheeled car? Well, I do not know. I am trying

A. Clissold. trying to recollect the position of the tap. The tap was on the right-hand side of the carriage. I was just calling to mind whether I did not stoop underneath.

Mr. Midelton.] Quite so.

Witness.] Some of them you can get at quite easily, but I really cannot for the moment say positively.

Mr. Midelton.] Where was this particular tap? On the side.

The Chairman.] And you had not to get under the car? No, I could reach it quite easily without getting under. Now that I call to mind, I think it was one of the old carriages, because I could see the grease and oil around the release tap. That is what makes me think of it. The new carriages coming out would be all bright and clean.

Mr. Midelton.] Do you remember what the tap was like? Well, I will just describe it to you. It was in this way. [*Witness gave certain illustrations to show the position and character of the tap. Mr. Midelton here showed the witness a diagram.*]

Witness.] The handle was hanging down at the side and could be moved either way. As soon as I opened it I waited until the blocks were off, because I could see that it got on the blocks.

The Chairman.] Now, after thinking over it again, can you speak as to the position of that car;—how far was it from the engine? It would be the third—about the third. I can tell you as near as can be how they were placed. The one next to the engine was of the new Redfern type. There was a closed second next to the van that telescoped into where I was standing; and next to this were four open carriages. There were nine in all.

Now I will ask you again. Can you from your recollection of the circumstances, say whether it was the first, or the second, or the third car from the engine, or the fourth from which you took off the blocks? It was the third, I believe sir.

Mr. Midelton.] The second from the engine was an American car? Yes, and it was there that I was standing.

And it was the next car which you took the break off? Yes, sir; it was a four-wheeled Second-class.

And a Redfern composite car was next to that? Yes, sir.

And what was next to that? There were four open carriages trailing. In regard to the position of the carriage which I took the block off, the one next to the engine was a new carriage. It is number 114 of the Redfern type. The next was No. 47—a first-class American carriage; the next to that was a second-class carriage, No. 73, next to that was a four-wheeled second-class; to the best of my recollection, the next to that was an eight-wheeled; and then there were four open second class carriages. These were right at the rear.

Mr. Midelton.] No. 70 was there, what is it? It is an eight-wheeler.

And what was next to that? Then the composite car. The American car.

The Chairman.] Then you can only remember eight carriages in all that you can describe? No sir; I cannot call to mind any more.

You cannot tell us what the ninth vehicle was? No. I cannot give any description of it.

Henry Perkins called in and examined:—

H. Perkins. *The Chairman.*] You are an engine-driver? Yes, sir.

Who are you working for at present? I am at present engaged with Messrs. Amos Brothers.

Mr. Midelton.] How long have you been employed at engine-driving? About six years driving; but I have been engaged with locomotives for about ten years.

The Chairman.] How long have you been employed upon this contract? About fourteen months.

You were present at the scene of the accident on Tuesday last, I believe? Yes, sir.

You saw the excursion train arrive at the Hawkesbury? Yes, sir.

Will you give us in your own way an account of what you saw on that occasion? Yes, sir. I was standing with a number of other gentlemen just about—I should say—about a chain away from the points which Proctor held. I think I was about one of the first who saw the train and heard the whistle as she came rushing along. I sang out to the men that the train had got away from them. I saw Proctor holding the points, and one of the men called out to him to stick and hold the points. Just as he did so, she flashed by, and as it struck me that I was rather close, I got out of the way. The first thing I saw after the collision was the body of the Inspector, Mr. Rennie. I saw the fireman slung over into the water, and I went to his assistance. I took him out and got him a dry pair of trousers and other clothes. I told the people who were standing about not to be alarmed, as there was no danger of the boiler bursting. I jumped over to it after I got the fireman out, and I then tried to see if I could discover the driver, for whom I looked everywhere. I did not succeed in finding him. Previous to this I looked around, and saw that the "Donkey" was working. I shut off the "Donkey," and shut off the taps of the gauge-glass. I had a look to see what the position of the engine was, and I saw that it was in forward gear, reversed, and the regulator partly open. I saw that there was no danger from it, and no cause for alarm. The steam was blowing off from the injector-valve. It was blowing off there and also out of the safety-valves, so I told the people about that there was no danger. I then looked around in order to see if I could not render some assistance; but seeing nothing to be done, I went back to the fireman, and got him a dry shirt, a pair of trousers, socks, and an overcoat. I then sent him away to the train. I then walked around to see what damage had been done to the contractor's plant, and to see how far the engine and trucks had been damaged.

The Chairman.] That pretty well represents the part you took in it? Yes; that is about what I did. I then went and had a look at the train to see if the brake-blocks were on it. I brought the fireman with me of engine 81. I found that the blocks were hanging quite loose. I did not touch them except with my foot. I saw at once that they were hanging quite loose.

The Chairman.] Did you examine the whole of the blocks? No, sir; only two pairs; saw pairs of wheels on the side of a carriage. I saw that the air was supplied from the engine. The valve was open, and the lever drawn up. I saw that the lever was open when I looked around the engine.

Mr. Midelton.] You mean the driver's break-valve? Yes; the lever by which the air is applied to the train.

Did you notice anything about the sand gear or the tender? The tender was just above the water; I was standing on the side of it.

The Chairman.] Have you any idea at what rate of speed the train came through the station? Well, a person asked me the speed and I said about 50 miles an hour. The person laughed at me and said that it could not have been above 20 miles an hour.

Mr.

Mr. Midelton.] Was she coming tender first? To the best of my belief the tender was first; I saw that ^{H Perkins.} they were waving off the train at half a mile distant.

Which side of the line were you on? I was on the hotel side, but close to the line.

Did you notice the position he was in when the driver passed you? No; I could not see who was on the engine. I could not notice the position of anyone.

You could not tell from the sound as the train came along whether the brakes were on or off? No; everything passed so quickly that I could not discern anything.

Was the "Donkey" working slow? She was working slow just as if she was at high pressure; she was just barely in motion. She was in the water, and the funnel being off, she made a peculiar noise. This peculiar sound from the exhaust from the donkey working would not let the people go near.

Mr. Thomson.] Did you notice the pressure of the air on the gauge? No; it was so disfigured that I could not notice anything.

Mr. Read.] What part of the train was it that you tried this brake? To the best of my belief it was the third carriage from the engine.

Mr. Midelton.] Was it a four-wheel or an eight-wheel carriage? I really could not say. Of course I was a bit excited by the occurrence. I brought the fireman over to the cars and asked him, "How do you account for that?"

Mr. Thompson.] Did you examine the wheels of the two carriages that telescoped? No, I did not.

Mr. Midelton.] Did you know the driver or the fireman of the wrecked train? Yes; I met them on the previous night; they were with me then. He was unable to get up the bank on the previous night, and I came back to see what was the matter with him. He could not get up the bank, as the engine slipped. That was how I got to know him. I was just talking to him for a few minutes, and he said that he would not have had it happen for a five-pound note. He got partly up the bank, but could not get up the whole way. This was when he was going on the trip to Sydney, and I am alluding to the bank leading up from Peat's Ferry to Sydney. The driver said also, "I don't suppose that they will let me come up here to-morrow now; I was to have been up here to-morrow, but on account of this happening I suppose that they will not let me come up." He seemed to think that a great many people would be going up there on that day, and for some reason or other he was anxious to be there too.

This was on the previous night? Yes.

And how could he speak of the up journey before he made it? I met him after he had tried to get up the bank and had come back again. I saw him go away from the station on Monday night; he went to the third tunnel from Peat's Ferry. I have been working on that road for several months, and have done the principal work upon it.

What is your experience upon that grade when you have loads? Well, I only went up the bank at the rate of 5 or 6 miles per hour.

But I am speaking now of going down? Oh, I always came down very cautiously, because I came down with very heavy loads; I used to have 10 or 11 tons of bricks, or stone, or whatever it might be.

Do you always have a brake van on your train? Sometimes we had a brake van.

Have you ever had a mishap? No, but I think it was because I have always been very cautious.

The Chairman.] What was the weight of the engine that you drove along that road? About 46 tons.

What would the engine weigh? About 50 tons—that is to say, the engine and the tender.

Mr. Midelton.] What engine is that you refer to? It is the "Westward-ho," and is made by Kitson. I should tell you that when I got the fireman out of the water I asked him where the train got away from them; he was then quite conscious at the time, and he said that the train got away from them just about the tanks, and that when she got away they could not pick her up again. The train got away just about the place where the grade 1 in 40 commences, near No. 2 tunnel, on the Peat's Ferry side.

Mr. Midelton.] That was his voluntary remark to you? Yes, sir, that is what he said to me.

Did he say anything else to you at that time, or did you ask him any questions? I said how did this occur? He said "We have had too many on." These were his words. He then asked me about his mate and Mr. Rennie, and I told him that I thought he was no more; that it was all over with his poor mate, and that Mr. Rennie was killed outright. He said to me that he would have forfeited his life for this man (Mr. Rennie).

Do you know if Mr. Rennie was in the habit of riding on engines belonging to the Government? No, he did not generally do so. He generally rode on the trains. He sometimes rode on the engines if he knew there was an engine-driver going who was unacquainted with the road. He used often to ask if the driver knew the road, and if he did not he would generally ride along with him on the engine to show him the road.

What was Mr. Rennie's profession? I do not know what his profession was, but he was manager for Amos Brothers.

Mr. Thompson.] Did the fireman mention anything about the brakes to you? No; he did not mention anything there about them.

Mr. Midelton.] Or about the donkey not working? No.

Did he say that anything had failed? No.

Your conversation with him the night before was a very short one? Yes; he merely said that he might be coming up to-morrow. We were talking just when he was standing on the foot-plate.

The second time he tried to get up he succeeded? Yes; but he was pushed by another engine.

Was the engine he had on Monday evening the same as he had on the second day? No; he had number 176 the first day, and number 178 the second day.

Number 178 is the one that now lies at Peat's Ferry? Yes.

You are sure of that? Yes; that was the one I saw there; he told me that he had 176 on the Monday evening.

You did not see it yourself? I could almost believe that I did see it; now I remember I did see it; I gave one look at it, and I could see that it was number 176; I know this also because he said to me, "I will not have the same engine to-morrow."

Did he say what engine he would have to-morrow? No, but he said that he was afraid that they would not allow him to come up on the following day, as he seemed very anxious to do.

William Frame examined:—

W. Frame.

Chairman.] What is your position in the Service? I am an engine driver.

How long have you been driving? Between twelve and thirteen years.

Have you been working long on the Hawkesbury line? No; only on Monday and Tuesday last.

You were down at Peate's Ferry on Tuesday, the day of the accident? Yes; I went from Sydney with the 8 a.m. special.

Will you tell us, in your own words, what you saw and did on the occasion of the accident? Well, when the train was coming down around a curve, I suppose about 500 yards away, I first saw her. When we first saw the train, I noticed that the pointsman was standing near the points, and as the train was getting closer I saw him looking up and down the line. I said to him, "You hold those points, and stick to them whatever you do." At that time I was standing about 15 or 20 yards from him, for as the train was coming down we got closer to the line. After the train passed me I followed it down as quickly as I could, and I met the contractor's driver; he was holding the fireman belonging to the runaway engine, and I then helped to carry him. I afterwards turned back and looked for the driver. After I had glanced around the engine to see if I could find him. I went up and assisted in getting a little boy out of the American car. A man carried him away, and I went back into the car. I saw that there were already too many in there to do any good, and I came out.

Were you on the wrecked engine at all? Yes.

Did you make any examination of the engine itself or its working parts? No, it was nearly covered with water, but you could just get along the foot-plate of the engine?

Did you see anybody else on the engine? Nobody at that time, but afterwards the contractor's driver and myself went on the engine together.

What did you do on that occasion? We looked around to see if we could find the driver. The contractors' driver shut the gauge glass-cocks; there was water in the glass at the time.

Did you notice whether he did anything else? Not then.

Did you notice particularly the regulator? No, I did not.

Did you make any examination of the carriages that were wrecked? I had a look around the carriages. I found that there were none of the blocks on any of the wheels; but I could not get at all of them.

How many were there that you could not get at? There was the American car. I saw part of it, and in front of that was a first-class carriage, both being heaped together.

Have you any idea of the speed of the train as she passed the pointsman? Well, I could hardly tell, but as near as I could guess I think she was going at about 60 miles an hour. She was going very fast, as was shown by the way the train was oscillating.

Mr. Midelton.] Were you the driver of the up train standing there? Yes.

You were waiting for Wilson to come in before you could go out? Yes; he had to come in before I could get away, but I was not supposed to leave there till 10 past 4; but directly after the accident the station-master told me to get ready to take the injured back to Sydney as quickly as I could.

Was that directly after the accident? No, not directly; but it was not long after I had been looking around the train.

Did Wilson make any signal at all? Yes; he was whistling all the way before he came in sight.

With what object do you think? Because he knew he was going too fast, and that he could not pull up at the station. That, I think was his idea in whistling.

To create attention at the end of the hill? Yes.

Did you notice anybody on the foot-plate of the engine as she passed you? They went past so quickly that you could hardly tell whether there was anybody on the foot-plate.

Engine first, or tender first? Tender first.

Did you have any conversation with Wilson the day before? No; I had spoken to him but had no conversation.

Have you had any difficulty in going down the incline with your train? No.

You had only been down once before? I have only been twice down altogether, and each time had no difficulty in going down.

Had you any difficulty in coming up? No.

Had you the same class of engine as Wilson? No; mine was a different class of engine. I had No. 63—one of Stephenson's.

Did you run 63 the day before? Yes; on each day.

Six wheels coupled in one case, and four wheels in the other? Yes.

How long have you been working 63? Only since last Thursday.

Is she fitted with the Westinghouse brake? Yes.

Was that done lately? Yes; but I may mention that I worked 63 when I came out here first; I then ran her along with goods.

Mr. Thompson.] Did you examine any part of the broken gear after the accident—wheels or anything like that? No, I only looked at them as I was going along.

You did not touch them? No, I did not.

Mr. Midelton.] Did Mr. Rennie ride with you the day before? No.

Did he ever ride with you? No; the Station-master at Hornsby wanted to ride with me the day before, but I would not let him.

Did you go tender first the day before? Yes, I went down tender first both days; I heard it was a steep pinch to come out, and of course it would be better to come up engine first.

Mr. Read.] What load had you the second day? I took eleven carriages the second day.*Mr. Midelton.*] I presume this was extra traffic, and that the trains Wilson and yourself were running were extra trains over the time-tables. Who regularly worked the time-table trains? Cartwright.

Is that the only man? Except the goods, and I don't think the goods go down there now.

Did Cartwright take the regular train down that day? He would take it down at night. He comes from there in the morning and goes back at night.

I think you said the pointsman was at the points when the train came in sight? He was standing over against the lever when the engine was coming around the corners. He was sent there purposely to stand at the points to let the train in.

You say he was sent there? Yes, purposely to do it; and I was afraid he was not going to do it from the way he looked; that was what made me sing out to him.

William

William Hume examined:—

W. Hume.

Chairman.] You are an engine-driver? Yes.

How long in the Department? Since 1870.

How long driving? Since 1875.

You were at the Hawkesbury River on Tuesday last when the accident took place, were you not? Yes.

What took you up there? I went up with a second special, 8.15 a.m., from Sydney.

What engine were you driving? I was driving S1.

What load had you on? On Tuesday I had equal to seven and a half.

Now give us your own account of what you saw and did in connection with the accident? Of course I arrived there about 10.20 in the morning, and I was knocking about my engine till shortly before this train came up. I then walked up towards the station to Mr. Cavanaugh. He said, "This is a go"; I said, "What is that," and he said, "This train being so late." I think she was about two hours late at this time. Driver Frame was there, and was watching some men who were chalking off some ground. I went over to him, and a few minutes afterwards I heard the train coming down the bank. I heard him continuously whistling, and I thought there was something wrong then. Almost immediately after hearing the whistling, I saw the train approaching through the cutting. The shunter was at the points, and three or four of us almost simultaneously shouted to him to stick to the points. Almost immediately afterwards the train passed, and there was no chance of doing anything except to hold the points over. As soon as the train had passed I ran down to see what had occurred. I saw the train broken up, and I assisted in getting the passengers out.

What speed do you think the train was going? Well I should think she was going fully 50 miles an hour. Well go on with your account;—what did you do next? At first I saw a little fire coming from one of the carriages. I then went back to the engine, got some water in a bucket, and we extinguished the fire. We then commenced carrying the wounded and all those who had been in any way injured in the carriages out. When that work was completed we searched for the driver, and we found him under the engine, but we could not get him out.

When did you find the driver? After the passengers were got out of the carriages.

Who found him? There were three or four of us there when he was found. I think one of the contractor's men went down into the water and he found him. He just managed to get one arm above the water, and you could just see the top of the driver's head, as the tide was pretty low at the time.

Did you make any examination of the engine as she lay in-the water? No; we could only see the top, but we noticed the air-gauge.

Tell us precisely and minutely what you did notice? I noticed the air-gauge standing at 70 lb., and I heard the Donkey working while in the water.

Did you see it? Yes.

And you could read the air-gauge? Yes, I could. The steam valve was open, for the right-hand injector was blowing off at the time, and she was wasting steam on that side.

How was the regulator—was the engine in forward or backward gear? I did not notice the reversing gear. My mate said he noticed, but I did not myself.

Did you notice anything of the sand-valves? I did not take notice of her sand-boxes. You could not see her tender valves, as she came down tender first.

Did you make any examination of the wrecked carriages, or did you look at the brake blocks, wheels, or axles? I noticed several of the brake blocks loose on the wheels, and I saw that the tires were not in any way warm. I brought my mate along to notice the brakes, and I found that the taps were turned down on all the carriages except the front carriage, and I could not get down there to see, nor could I get down to the tap on the engine. } g
e

How many tires did you feel? I felt the tires of two carriages; one of them was the composite carriage; I think it was next to the car where the guard was.

Did you feel the wheels of those vehicles which telescoped into one another? No, I did not feel them.

Mr. Thompson.] Did your mate feel them? I could not say whether he did or not.

The Chairman.] Is that all you know about the accident? That is all I am aware of.

Mr. Midelton.] Was that your first trip down there? Monday and Tuesday was the first time I have ever been past Strathfield on that road.

How did you get on with your train? I got on very well; of course I had a train that I could manage properly.

Did I understand you to say that you felt the tires of the third carriage from the engine? Yes.

Was it a four-wheeler or an eight-wheeler? It was a four-wheeler, as near as I can remember.

What were they like? They were pretty cool.

Did anybody else feel the other tires? Not that I am aware of.

The Chairman.] What was your object in feeling the tires? On account of the great speed she came down. I thought that the taps could not be turned because of the great speed at which she came down. } g

You found them cool? Yes.

If you found them hot, what would you infer? That the brakes were on.

What do you infer from finding them cool? That the brake had not been on the carriage. If it had the tires would have been very warm.

You know that from experience? Yes, both on goods and passenger trains.

You have often felt the tires of wheels to ascertain this? Yes.

Mr. Thompson.] You stated that you saw a carriage on fire? Yes.

Which one was that? I am not sure whether it was the American car or the Redfern type. The fire was in the under-frame against the gas cylinder.

You are not certain where it was? No; it was just where the two carriages were telescoped together; but I am not certain whether it was the Yankee carriage or the Redfern pattern.

Mr. Midelton.] How do you think it originated? I could not tell.

Mr. Thompson.] Could it have come from the brake-blocks? No; I fancy it was from the escape of gas.

Mr. Midelton.] Some fire may have tumbled out of the ash-pans? It might have been so. I think that is a most likely thing.

Did you have any conversation with Wilson the day before? I just spoke to him, that is all; I had no conversation with him. } g
The

W. Hume. *The Chairman.*] You have known tires to become very hot by the continual force of the brake-blocks
 Very often.
 To what extent? In coming down a hill; in other places I have found the tires very hot.
 Were they so hot that you could not touch them? Yes, often that is the case. Sometimes I have seen the brake-blocks on fire. I have seen that done, and sometimes they will do that in very short distances. But you have also found them to become very hot with the ordinary iron shoe? Yes.
 So hot that you could not touch them? Yes; I have seen it become so hot as to discolour the iron.
 Sg { *Mr. Read.*] How long after the accident was it that you examined the wheels? I could not say exactly. It was as soon as we got the passengers out of the carriages. We were very quick over that as there were a good many hands there; but I could not say exactly the time.
Mr. Thompson.] Was it half-an-hour? It might have been.
 Do you think the tires could have got cool in the time? No, not if they were very warm; they would not get cool in the time.
 This was the third car from the engine—a four-wheeled second class? Yes.
Mr. Read.] You say you did not feel the tires of the carriage next to the engine? No, I did not.
The Chairman.] You say your mate was on the spot? Yes.
 Did he render any assistance? Yes.
 Could he give us any further information than you have afforded? I could not say; but he is here.

William Neale examined:—

W. Neale. *The Chairman.*] What position do you occupy? I am a fireman.
 How long have you been firing? Three years and seven months.
 I understand that you were on the scene of the accident on Tuesday last? I was.
 Will you tell us in your own words what you saw and did as briefly as you can? I did not see anything of the train coming in. I was in a carriage at the time having something to eat; but I heard the crash, and the flying wreckage knocked me out of the carriage.
 What carriage were you in? A carriage on our own train—the first carriage from the engine.
 How came you to be knocked out of it? I was in the front end of the carriage, and some of the trucks against which the train collided struck our engine, then I helped to get the passengers out of the carriage.
 Did you go to look at the wrecked engine? Yes; after I heard that the fireman was got out I saw the engine lying there. She was engine first then; but she came down the embankment tender first.
 Did you notice the reversing gear? Yes.
 How long was that after the smash had taken place? It may have been an hour.
 Was anybody with you? Yes; the contractors engine-driver was there; he was on the engine at the time.
 What else did you notice besides reversing gear? I noticed that the lever had been opened and applied, and the indicator showed, I think, about 60 lb. of air.
 Did you see the indicator? Yes.
 Did you read it? Yes.
 Why, don't you remember the exact register? I would not be certain about it, but I think it was about 60 lbs.
 Why do you think it was 60, more than 50 or 70? I could not now positively state whether it was 60 or 70; it was one of them.
 Did you notice the figures? Yes; but I do not positively recollect.
 Did you notice anything else? I did not inspect the engine; but I saw the brake-blocks all loose and hanging.
 How many did you examine? I examined the blocks of two carriages and they were all loose.
 Did you examine the blocks of the carriages which were telescoped into one another? No; it was the two next to them that I examined.
 The third and fourth vehicles from the engine? Yes.
 Did you examine anything besides the brake-blocks? No.
 Did you feel the tires? Yes; one of them.
 Sg { How many? Of the two carriages that I examined.
 Were they cold or hot? They were perfectly cold then.
 How long was that after the accident? It might have been two and a half hours after.
 As long as that? Yes; fully.
 Did anyone feel them before you? Not that I know of.
Mr. Thompson.] Did you expect to find them hot at that time? I did after the distance they travelled if the brakes were on all the time.
 Are you any judge of the speed of trains? Yes; I can tell pretty well.
 But you did not see the train coming down? No, not till after it had left the road.
Mr. Midelton.] Did you hear the whistle? Yes, I heard a whistle before she came.
The Chairman.] Did you manipulate any part of the engine as it stood in the water? No, I did not.
 Did you see anyone else manipulate it? No, I did not.
 You merely looked at it? Yes, that is all.
 Was the steam-gauge readable? No, I think the steam-gauge was broken.
 You did not read it at any rate? No.
 Did you notice anything about the sand gear? No, I did not. I could not see the sand gear.
 Did you know driver Wilson? Yes.
 Did you see him the previous day? Yes.
 Did you have any conversation with him as to the running of the trains or engines? I only said to him that we were all strangers down there on the road, alluding to three drivers and three firemen, who were there. He was going oystering at the time.
 Going where? Going down to the river to get oysters, so I had only time to just speak to him as he passed.

Mr.

Mr. Midelton.] You are fireman to Hume? Yes.

W. Neale.

Was that remark of yours voluntary about your being all strangers there? Yes; I made the remark to Wilson when I met him.

Did he make any reply? No; he simply said "Yes" as he passed by.

Thomas Cavanaugh examined :—

The Chairman.] What is the name of your station? Hawkesbury River.

T. Cavanaugh.

How long have you been connected with the Department? Seventeen years last February.

What positions have you filled? First as porter, afterwards as guard, and now station-master.

Give us your own account of the accident which took place on Tuesday last, and the part that you took in it? The first thing I heard was whistling, naturally supposing that the train was coming in as usual. As she was coming through the cutting, I could tell that there was something wrong, and I called to the porter to stick to the points, but he says he never heard me. It was the usual thing to turn the trains on to the road. He held the points, and the train came rushing past the platform at a furious rate. As soon as she did I wrote a memo. to the Traffic Manager, and telling him that there was a great smash, and some persons killed. I ran out and got some people to assist me. We had a train standing on the other road ready to go out in the evening. I got all the men, and I got the passengers out of the carriages as soon as I possibly could. I wired again saying that I would send a train on to Hornsby with the injured passengers, and asking for medical aid to meet them there.

I want to know more particularly what transpired at your station and what, part you took in examining the train? I did not examine the train then. First of all I got all the assistance I could to get the injured people away.

Did you make any examination of the wrecked train? After I got the trains away I went around and examined the carriages. I saw that they were knocked to pieces and, one telescoped into another. The brakes seemed to be hanging quite loose, but I did not notice all of them. } g

How long was that after the accident? It was not until I got the train away with the injured persons; I cannot exactly say how long it was after the accident.

You have two platforms at your station? Yes.

And two roads only between them? Two roads only.

How were these roads occupied on the day of the accident, and at the time of the accident—just tell me how the roads were occupied before the train came in sight? One road had two trains on it with the engine Sydney way, each ready to go out at the appointed time. The other road had a number of trucks on it down below the platform. There were eight Commissioner's trucks and five contractor's trucks. I think. The contractor's engine was at the other end of them. The engine was on the road leading down to the punt.

The other road, then, was clear as far as the platform was concerned, and these trucks stood before and beyond the platform? There were two trains on one road and the trucks stood below the other platform.

I want to know more particularly how the roads were occupied between the two platforms? One road was empty, ready for the reception of the incoming train? Yes.

What direction did you give for the reception of the expected train? I told the porter to go and hold the points to let the train in.

Did you see him do it? Yes.

Did you see the train run through? Yes.

What rate do you think the train was running at? I never saw a train running so fast in my life before. I think she must have been going at about 60 miles an hour.

Where were you when the train ran past the platform? I was standing on the platform.

You saw the man at the points? Yes.

Is that all you know about it? I think so.

Patrick Proctor examined :—

Chairman.] You are a porter in the Railway Department? Yes.

P. Proctor.

Employed at the Hawkesbury River station? Yes.

Will you tell us, Proctor, what you know about the accident which took place at your station on Tuesday last? Well, this train was due at 12.20, but she was running late. I got my orders from the station-master about the time the train was due, and I went up and lowered the signals for her. I then waited about for her. Some minutes before she came I heard the whistle, and as the whistle did not stop I knew that there was something wrong. I then kept a look-out for her. As she was coming through the cutting, and I noticed that the speed of the train was altogether too heavy, I prepared for her and stuck to the points to put her on to the road. She rushed past at a great speed, but I held on to the points until she had passed by.

I suppose you are not a judge of speed? I could not say what speed she was running at.

You have not been a railway guard or fireman? I am not able to state what speed she was running at.

I did not take particular notice of that. My attention was all to the points to put her into the siding.

But you felt the train as it passed by you? Yes.

Did it affect you in any way; did you feel the rush of wind? The wind gave me a bit of a shock, and it carried my cap away about 30 yards also.

Were there any others standing by you at the time that she came into the station? There were a few men that were working there, standing by.

But did anyone else besides you notice that the train was coming in at a great speed? The station-master has since told me that he sang out to me. The fireman also said that he told me; but if they did I never heard either of them. I saw that there was some danger, and I attended to the points. If I had not done so she would have run into the main line, and there were two trains standing before her.

What you call the main line is the line running alongside the platform? Yes.

Is that all you know about it. What did you do after attending to the points? I then turned round—made the signals right, and followed the train up.

You

P. Proctor. You gave what assistance you could, I suppose? Yes, I assisted in every way I could.
Chairman.] I am glad to see that you acted like a man, and stuck to the points. Of course it was your post of duty; but some men would have left the points alone to insure their own safety? I knew that if she was allowed to run in on the main line she would have collided with a train half full of passengers.
Chairman.] Yes, you did the right thing at the right time, and I am glad to see you did it so well. I have no doubt that Mr. Read has made a note of it, and that you will hear from him in due time.

Francis Cox Johnstone examined:—

F. C. *The Chairman.*] What is your position? I am a station-master.
 Johnstone. Where? At Sydney.
 You were on duty on Tuesday morning? Yes.
 Up till what time of the day? Till 5:30 p.m.; but I gave up charge at 3 o'clock.
 You were on duty when the excursion train that came to grief at Hawkesbury River was despatched in the morning? Yes.
 Can you tell what took place when that train was made up, and what it was composed of? Commencing at the tail end, that is the furthest from the engine, we had a first-class American car, 47 is the number; then next to that we had a Redfern type first-class carriage, 114; then we had an ordinary open second class carriage, 45; another carriage of a similar kind, 25; two others also of the same kind, 43 and 19; then we had what we call a smoking composite American car, 69, and a composite Redfern type of six compartments, No. 70; then an ordinary close second-class carriage, 73, a four-wheeler, which was next to the engine.
 Was this train made up by your direction? Chiefly; it was a train that had been formed the night before.
 a But was it made up by your direction? Well, I take it that the foreman the night before would have made it up.
 Who was the foreman? Foreman King.
 What instructions were given him as to the composition of this train? I am not aware, Mr. Collins was on duty at that time.
 Which of these cars were four-wheelers and which of them eight-wheelers? The four-wheelers were the open seconds, 45, 25, 83, 19, and the closed second 73.
 Are you in a position to give us the weight of these respective vehicles? Yes. 16 tons 10 $\frac{3}{4}$ cwt. was the weight of the first-class car, 47. The other weights were—114, 17 tons 10 cwt. 3 lb.; 45, 4 tons 14 cwt.; 25, 5 tons 10 cwt.; 43, 4 tons 14 cwt.; 19, 5 tons 10 cwt.; 69, 16 tons 10 cwt.; 70, 13 tons 8 $\frac{1}{2}$ cwt.; 73, 6 tons 8 cwt.
 Did you see that train brought up to the platform? Yes, I did.
 From which platform did it start? From No. 1 platform.
 You say it was made up the night before? The greater portion of it was.
 What time was it backed into No. 1 platform? Perhaps 12 minutes before the starting time. It was not more than 15 minutes, and perhaps it was not 12; I am not quite positive.
 Was it backed in in this order? Precisely.
 The nine vehicles together? No, not all at one time. Two additional vehicles were put on subsequently.
 What vehicles were backed in first, and at the same time? All with the exception of the two last enumerated, 70 and 73.
 Were these carriages backed into the platform under your supervision? Yes; that is, I was in the middle of the yard directing the shunting, and I witnessed it.
 How long before starting were the seven vehicles backed in? The time I named; some twelve or fifteen minutes.
 When were the other two backed in? Three, or four, or perhaps five minutes before starting.
 Why were they not all backed in at the same time? We did not have them altogether. Two of the carriages were on another road.
 Were they not added because you found they would be required? Exactly.
 You did not add these two last vehicles until you found that they would be required? We did not.
 Were they backed in together? To the best of my recollection they were backed in together.
 Then these two vehicles, 70 and 73, were consequently next the engine when the train left the platform? Yes.
 Did you make any examination of the couplings and connections before the train started? No, I did not.
 Whose duty is it to do that? It is the guard's duty.
 Was the train well filled? Not quite full from here. There were passengers in every carriage but one. It was contemplated that passengers would be picked up at Strathfield and other stations between here and there.
 You do not know anything about the engines supplied to this particular train, I suppose? Nothing beyond the number.
 And the number was what? 178, I think. I noticed it was one of the light bogies.
 You have often seen this engine before? Yes.
 It has often been supplied to you for taking out trains? Yes, and for heavy trains.
 Are you in a position to say what load you have put behind an engine of that sort? Did you consider this an extravagant load for this engine? Certainly not. We have had heavier loads for the same kind of engine.
 What loads have you known to be attached to this engine, or an engine of a similar description? I have seen twenty, or over twenty attached.
 What was their destination in that case? Between Sydney and Picton and Penrith, and I think Waterfall.
 Are you able to say whether you have despatched loads behind this engine to stations on the Western Line? I cannot say that we have; but I daresay that we have; but I know that we have on the Hawkesbury Line. I know that we have put on that line as many as fifteen and a half on a similar engine. There were nine vehicles on this occasion? Yes, nine single vehicles.
 What, do you reckon that as a load, seeing that some were four-wheelers and some were eight-wheelers? According to the usual grade, we would reckon it at 14. Have

F. C. Johnstone.

Have you ever had any complaints from the Locomotive Department that these engines were overloaded when 15 or 15½ vehicles were put behind them? Nothing to my recollection.
 Would you not have heard of it if there had been any complaints? Undoubtedly; we generally know from the driver before he starts.
 Have you ever heard a driver remonstrate at anything like this load? No.
 Did you know driver Wilson? Yes, I did.
 Are you able to say where he has been in the habit of driving? Mostly over the Western Road, or some part of the Southern Road, and frequently between here and Penrith.
Mr. Midelton.] What is the maximum load you would put on a train to the Hawkesbury? It is regulated according to the power of the engine.
 Take any engine, what is the number of carriages you would attach to it going to the Hawkesbury? What is your limit—14, 15, or 20 vehicles? I should put on from 12 to 16.
 Would 16 be your maximum—would you ever put any more? I don't think I would put any more than 16—that is, 16 individual carriages.
 What would be the maximum number that you would put on supposing the traffic was heavy? From 12 to 14 or 15 vehicles.
 You would never put on any more? Certainly not more than 15 or 16.
The Chairman.] I suppose it would entirely depend upon the engine power as to the load you would put on? Exactly.
 You have no limit apart from the question of engine power? No.
 If you put on one engine you would put on a certain load, and if you had a heavier one you would put on more? Yes.
 So it depends entirely upon the number and power of the engine? Yes, exactly.
Mr. Midelton.] What would you regard as a maximum load for any engine on the Hawkesbury line? I should say fifteen or sixteen. I certainly should not put on more on account of the couplings, no matter what the power of the engine was.

Andrew Werrick examined:—

The Chairman.] What is the nature of your duties? I am an examiner in the air-brake Department.
 What is your regular duty? As the trains come in and out I walk down the trains to see if there is anything wrong, or anything that wants screwing up. I ask the drivers to try the brakes to see if they work all right, and if they don't I report it to my superior officer.
 Were you on duty on Tuesday last? Yes.
 You saw the excursion train which left the station for the Hawkesbury River at about 10.30 a.m.? Yes.
 Did you look over the train immediately before she left? Yes.
 How long before she left was it that you looked over her? I don't know exactly—not many minutes.
 She was not there more than a few minutes after being kicked down the road.
 Where was she standing when you looked at the gear? At No. 1, by the straight road.
 Was that where she took her load in? Yes.
 Do you know how many vehicles were on? No; I did not count them.
 What did you do in connection with the train? I looked through all the gear, and saw that everything was right. The shunter turned the cock handle, and I saw that all the brakes were hard on. When the driver came down I asked him to release the brakes. He did so, and the brakes acted all right.
 Was that immediately before the train started? Yes.
 You saw all the brakes go hard on, and you afterwards saw the driver release them? Yes.
 And that was immediately before the train started? Yes.
 Did you see the train start? Yes; I was there from 20 minutes to 10 till half-past 12 o'clock.
 Did you see the train back into the platform? Yes; I was on the road all the morning.
 How was the train backed in;—did they back the whole of the nine vehicles in at once, or in two portions? I think it was put in all at once.
 Was it added to after being backed in? I never saw anything backed in afterwards; but there was a race train which I had to look after about this time.
 I want you to confine your attention to this train particularly; and I want to know whether you saw this train backed in No. 1 road? Yes, I did; I was on the road at the time.
 And you saw the vehicles backed in? Yes.
 Are you able to say whether the nine vehicles were backed in at one time, or whether the larger number were backed in first and added to afterwards? I could not swear as to that. As far as I can recollect, I think there were about nine vehicles backed in at the one time; but it is only as far as I can recollect. I know this: that there were some open carriages with no brakes on. They were not between the other carriages.
 Did you see the first portion of the train backed in? Yes.
 And you say that you saw nothing added to it? No.
 Did you see the driver? Yes, I saw the driver; and I saw the shunter pull the cocks down.
 Did you remain by the train until it started? Yes.
 Could the engine have been uncoupled and have gone away and got two more carriages without your seeing it? No.
 Now will you tell us exactly how each vehicle was fitted in respect to brake gear—that is, how many vehicles had the Westinghouse brake-gear fitted to them in the shape of cylinders and reservoirs, and how many were merely fitted up with through pipes,—can you remember that? As far as I can recollect from seeing the train, I think there were three carriages next to the engine with brake gear; then there were four carriages with through pipes without gear, and then there was one carriage with brake gear at the latter end; that is as far as I can recollect.
 That only accounts for eight carriages? There might have been four or five of these open carriages with open pipes. I did not count them or take the numbers.
Mr. Thompson.] What sort of carriage was the hind one? I think it was a saloon carriage.
 Not an American car, or what you call a saloon carriage? I think it was one of those large first-class carriages.
The Chairman.] How many wheels had it? Eight wheels.

A. Werrick.

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- A. Werrick. *Mr. Thompson.*] Was it a carriage with compartments in it? Yes.
 A composite carriage? It had a saloon in the centre and a first-class compartment on either side.
The Chairman.] A composite first-class? Yes.
Mr. Thompson.] Did you turn off the cock at the last carriage in the train? No, the shunter does that.
 Do you see that it is turned off? Yes.
Mr. Midelton.] Did you see that it was shut on this occasion? Yes.
Mr. Read.] Did you try it by letting any air out? I examined it when the brakes were on, and it worked all right.
 You are positive of that? Yes.
The Chairman.] Do you make a point of examining each vehicle? Yes.
 On this occasion, when you told the driver to put the brakes hard on, did you make it a point to see that they were on at each vehicle? Yes; I go around to each vehicle to see if all the brakes are hard on, &c.
 And you did it in this instance? Yes.
 And when you told the driver to release the brakes, did you see that they were released? Yes.
 b } *Mr. Midelton.*] Did you see the train going out? Yes.
 Can you say positively whether an American car occupied the rear of the train, or was it a four-wheeled carriage—you would easily notice the difference in the end of the carriage—did you notice whether that was a platform at the end of the train, which would show it was an American car; or was the end of the train the plain and straight end of a composite car? I could not say that I took that much notice.
 Did you speak to Wilson before he left? I just sang out, "Driver, will you put on your brakes?"
 And he did so? Yes; and I gave him the signal to release them when I found them all right.
 You tested the brakes on each carriage? Yes.
 And then you communicated with the driver? Yes.
Mr. Read.] You are very positive about seeing the brakes on the last car working all right? Yes; that is the main, and I always look to the cock handles.
Mr. Midelton.] And they hang down, don't they? Yes; the handles hang straight down.
Mr. Thompson.] And you believe that the last car was a composite saloon carriage? Yes; as near as I can recollect.

Jacob Derham examined:—

- J. Derham. *The Chairman.*] What is your position in the service? That of a shunter.
 Were you on duty in Sydney on Tuesday last? Yes.
 Are you head shunter? No.
 Did you make up any trains on Tuesday? Yes; I assisted to make up several trains.
 Do you remember the excursion train for the Hawkesbury at 10:30 a.m.? Yes.
 Did you make up that train? Yes.
 What can you tell us about the composition of that train? To the best of my recollection it was made up of an American car, a Redfern type carriage, four second-class carriages, then another car. That was the portion that was placed down on the road first. When that part of the train was filled up they found they required more room, then a Redfern composite car and a small second were kicked down on top of them.
 Do you know in what order these two last carriages stood? The Redfern type composite came next to the American car, and the small second next to the engine.
 Did you put them together? I did not put them up.
 You shunted them up in the morning? My duty is to put them down different roads and to couple on vehicles.
 Did you couple on these two? Yes.
 Was the engine that took this train out backed on to the first seven cars that were put in before these last two were coupled? No.
 So the engine was not backed on at all till these two additional cars had been shunted on? The engine was not on till the train was complete.
 Did you finally couple the engine on to this train before it started? Yes.
 And you coupled these two last cars on? Yes.
 b } Have you anything to do with the brake connections? I turned the taps down.
 What did you do on this occasion? The tap was down on the car, and I turned the other tap down on the Redfern type composite.
 Did you turn the tap down at both ends? Yes; when I coupled the engine I turned the other one down.
 Do you remember seeing the brake tried before the train left? I did not notice it. He may have tried them whilst I was coupling them. I can answer for the brake working through the train. I saw the man who attends to the brakes going around them, and I recollect seeing the man who fills the carriages with gas waiting for him, so that he might go to another portion of the train. It was when he reached the bottom that I turned the tap down at the end nearest the engine. The man was turning the wheel at the other end, and the air being turned on caused the wheel to fly around; that proved to me the air was working through the seven vehicles. When the other portion came on the brakes were not released; but the engine-driver must have released them or the engine could not have got away from the station. It is always the practice to turn the tap down, and afterwards to release the brakes, or the train could not get away.
Mr. Midelton.] You coupled 178 engine on to 73 car? I don't recollect the number I coupled it to—some second-class four-wheeler.
 At any rate you coupled the engine to the train? Yes.
 You are sure that the cocks were opened? Yes, I am certain.
 Did you see the driver work the brake at all before starting? No.
 Did you speak to the driver before starting? No; the fireman was coming down to release the air, and I called to him that I would do so, and I did it.
Mr. Read.] You are positive that the brakes were on the end carriage of the train before the engine came on, and that the engine had to release them? Yes, it must have been through the train, for the wheel turned sharply around.
 Are you certain about the description of the carriage which was the last on the train? Yes.

What

What was it? It was an American car, with the brake facing the cabstand.

The Chairman.] How are you able to remember distinctly the rear vehicle? By seeing a man on the end of it.

What man? I believe it was the man who made the seven vehicles up.

You saw him on the end of the car? Yes.

When the car was at the platform? Yes; and had the train gone out as it was first made up there would have been a car at each end.

Do you make it a practice to put a car at the rear of a train if possible? Yes; if there is no vehicle with wheel-brake attached.

J. Derham.

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John M'Carthy examined:—

The Chairman.] What are you? A shunter.

Were you on duty on Tuesday last? Yes.

Do you remember the excursion train which left about 10:30 for the Hawkesbury? Yes.

What had you to do with it? I was breaking the train down.

What vehicle were you on when you were breaking it down? On the car.

Where was it? At the rear of the train—or the end of the train as it went out.

You were on the vehicle which was the rear end of the train as it left Sydney? Yes; I am sure of that, for there was a wheel on the car.

How many vehicles did you shunt down? Two cars, a Redfern type, and four seconds.

That is seven? Yes.

There was a car at both ends? Yes; and I was on the car next to the buffer stops.

You worked that train down? Yes; and one of the shunters put the air on, and stopped the train. I was working the wheel hand-brake, and the blocks caused the wheel to turn around faster when the air came on.

Mr. Thompson.] Could the wheel have turned round from any other cause besides putting down the brake? I was putting the brake on, but it went round faster when the air was on.

Could it be caused by anything else;—say from a twist in the chain? I do not think so, for the brake was working all right for me, and that showed that it was all right.

The Chairman.] You were working the brake when you felt the wheel turn out of your hands? Yes.

That you attribute to the other man putting the air on? Yes.

J. M'Carthy.

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Walter Shellshear examined:—

The Chairman.] What is your position? District Engineer in charge of the Central District.

What time did you hear of the accident which occurred on Tuesday last? It was about 3 o'clock in the afternoon a friend called on me who had been up to Parramatta.

What time were you on the spot? I went out with the relief train. I forget the exact time that we arrived, but I think it was about 7 o'clock.

Give us your own account of what transpired after your arrival, and what part you took. I went around and examined all the stock connected with the train, and the damage that was done to the other rolling-stock. I also examined the road to see if there was any serious damage in connection with that. I examined the connections of all the brake-gear throughout the train.

In the first place, what was the result of your examination in respect to brake-gear and blocks? As far as my examination at the time was concerned the whole of the brake-gear was correct, but there was one connection that I could not see at the time—it was at the end of the Redfern carriage, which was telescoped into the American car. That was the end of the first vehicle in the train, No. 114, a first-class composite carriage. With the exception of that connection, which I could not see at the time, the brake-gear was in perfect order.

Did you examine any portion of the material of the wrecked train? I noticed that a number of wheels were broken, but it was too dark to make any close examination.

Did you make any examination on the following day? Yes; I examined the train on the following day.

Had you opportunity of examining the air-cocks? I examined them all the first night, except one—that at the end of the Redfern carriage, which was completely buried by the debris.

Did you examine that on the following day? Yes, in company with Mr. Robert Scott, and that was closed. It was next to the American car, and that was the second carriage from the engine.

You say you found on the second day, Wednesday, the air-cock at the rear end of the Redfern carriage closed? Yes.

Can you describe how the carriage was situated—I mean the end of the carriage? Could that cock have been closed or affected by the collision, or was the air-cock in such a position as to lead you to infer that it had been closed before the train was wrecked? I believe it was closed before the collision, for the following reasons:—The hose-pipe was in perfect order. The small bracket holding the pipe was also in perfect order, and the handle of the cock was perfectly in line with the pipe. If it had been struck by anything it would be almost impossible for it to get into so true a line as it was. It was perfectly in line with the train-pipe.

Who were with you? Mr. Robert Scott.

Nobody else? Nobody.

When was this discovery made; was it as soon as it was possible to get to this particular part of the wreckage, or was it visible so that others might have manipulated the cock? I do not think it was possible, because at the time I went there first the buffers and the end of the carriage were completely buried in debris.

It was inaccessible? Yes. I might state my reasons for looking at the connection. In going to the river yesterday, the driver of the train stated positively in the presence of Mr. Kircaldie, that some of the people down at the ferry had felt the wheels of the vehicles, and that some of the wheels which he believed belonged to the front vehicles were very hot, and all the others were cold; and from that remark I inferred that the only way that could be accounted for would be if the air connection was shut off.

Who made that remark? The driver of the train.

W. Shellshear.

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- W. Shellshear.** Had you any means of ascertaining the truth of such a statement? I had no means of ascertaining the truth of it, but it could be ascertained by examination of the wheels, because if they had the full force of the air there would be distinct marks of the wheels having skidded. The wheels were put into trucks and brought up to Eveleigh.
- g** { **Mr. Read.]** Did they say who felt the wheels? The driver stated that some of the men down there had done so, but he did not mention the name.
- Mr. Thompson.]** Do you think he knew who it was? I should think so. I don't think he would make such a statement without knowing.
- Mr. Midelton.]** Who was the driver in question? Tom Cartwright.
- I suppose that special cock has been taken off? I suppose so.
- Mr. Read.]** What time was this? I wanted to see it the first thing in the morning, but I could not get in there; but as soon as the debris was cleared I asked Mr. Scott to come in with me. It was about half-an-hour before you came up that we got in.
- You knew of it, then, when we were there yesterday? Yes.
- The Chairman.]** Mr. Scott saw this as soon as you did? Yes, he went in with me.
- f** { **Mr. Midelton.]** You examined all the cocks, and this was the only one that was closed? Yes.
- Do you think it possible that it could have been knocked into that position? There was not the slightest mark upon the handle, and what was remarkable was that the handle was in line with the pipe. If it had been struck, by anything it could not have been placed exactly in line. I do not think it could have been struck because the other material, the hose pipe, &c., did not bear the slightest mark.
- I assume that the coupling must necessarily have been fractured, inasmuch as the carriage had telescoped half-way through the other? The hose pipe was not damaged in any way, nor were any of the other connections in the immediate neighbourhood damaged in any way whatever. I believe that Mr. Scott subsequently showed it to Mr. Downes.
- Mr. Thompson.]** Was the corresponding hose on the American carriage 47 damaged in any way? No, the coupling was not damaged. I noticed particularly that none of the hose connections were damaged to any serious extent.
- Have you any reason to believe that the air cocks were not affected at all between these carriages? This one was closed when I saw it, and at the time I saw it, it would have been impossible to get at it before, as it was buried in the debris.
- Mr. Read.]** Did you notice the cock on the American car? That was open in its proper position. Every other cock in the train was hanging down.
- Mr. Midelton.]** Were all the hose couplings intact between each carriage right back—of course the connection between the American car and the four-wheeled second class was turned on account of the American car going on its side, but the other connections were complete? The coupling was drawn between the American car and second-class carriage and it was drawn between the Redfern and the American carriages, otherwise the whole of the hose connection was intact.
- I would like to know your reason for thinking how this cock became closed? I am certainly of the opinion that it was not through the accident.

Patrick Blakney, examined:—

- P. Blakney.** **The Chairman.]** What are you? A platform porter and number taker.
- a** { Did you see the excursion train for the Hawkesbury River go out from Sydney on Tuesday last? Yes.
- Did you take the numbers of the vehicle? Yes.
- And in their order? Yes.
- Will you give them to us and tell us which end you commence with? I commenced at the end nearest Devonshire-street, the rear end of the train as she would go out. The first, 47, was an American car, then there was a Redfern composite carriage, 114, then four open second-class carriages 45, 25, 43, and 19, a saloon car 69, and a composite Redfern type 70, and a close second-class carriage 73, the engine was 178.
- You produce your book showing the numbers which were taken down by you on Tuesday last? Yes.

[The Board then adjourned.]

Second Day—Friday, 24 June, 1887.

The Board met at 9:30 a.m.

PRESENT:—

DONALD VERNON, Esq., Chairman.

T. MIDELTON, Esq.,

W. V. READ, Esq.,

MAX. THOMSON, Esq.

Robert Scott called in and examined:—

- R. Scott.** **The Chairman.]** What is your position in the Department? General foreman in the locomotive shops.
- You were engaged on Tuesday last at the scene of the accident near the Hawkesbury River in clearing away the wreck? Yes, sir; I was in charge of the breakdown gang and gears.
- What time did you arrive there, Mr. Scott? I think it was about 6 o'clock.
- A little before or after? I could not say exactly.
- Did you make any particular examination of the brake blocks? No, sir, I did not.
- Or of the tires? The wheel tires? No, sir.

Did

Did you make any examination in connection with the Westinghouse air-cocks? No, sir; though the others may have done so. We were not there long enough that day. R. Scott.

Did you at any time make any examination? I think on the following morning—on Wednesday. Mr. Shellshear came and asked me if I would go and see whether the brake cock was shut or open. This brake cock was on the Redfern carriage, the one that telescoped into the American car.

Just tell us what you saw. I went in and got underneath, and found that the cock was shut, so we examined it.

Will you tell us exactly where the cock was as regards the carriage, and the exact position in which you found it. Was it at the end of the carriage, in the first place? Yes, sir, it was at the end nearest Sydney.

In the first place it was at the end nearest Sydney. Was it in the middle of the carriage or at one side? Near the middle of the head-stock of the carriage.

Mr. Midelton.] That is the middle transversely?

The Chairman.] Describe it yourself? There is a pipe running longitudinally in the carriage, and this was a bit out of the centre, and the cock was just inside the head-stock that the man could reach it easily from the end of the carriage and shut it. The handle was lying horizontally with the pipe, and it was shut. There was a nick across the cock, and when the cock was open the nick is parallel with the pipe.

When the cock is shut the nick is standing at right angles or across the pipe.

In which direction was the handle pointing? It was pointing towards the engine; towards the front of the carriage.

You remember that clearly? Yes sir.

That it was pointing to the other end of the carriage? Yes sir.

Right towards the engine? Yes sir.

Mr. Midelton.] Did you work the handle at all, or did you leave it as you found it? I did not interfere with it at all.

The Chairman.] Did you observe any traces of fracture or breakage or anything of that sort in connection with the material immediately above the pipe? Nothing whatever, sir. The hose was quite perfect. The hose and cock and handle—there was not a mark to be seen upon them as far as could I see.

Mr. Midelton.] (Showing the witness the hose, cock, and other articles.) The handle was standing towards the engine. There is no question whatever about this being the cock. I went inside that car. and underneath it, and examined it.

What is the usual position? Supposing a man had handled that, and shut it? It would be down.

Supposing the guard to have gone in and shut the cocks off, how would he have left them—which way would they be pointing? I am not sure whether the cock will open more than one way or both ways.

I suppose that we can get this cock? Yes, sir.

Mr. Read.] Those that I have seen generally opened in both ways.

Mr. Midelton.] What is your opinion about that cock as regards the position of the handle? How it got like that, and so on? Do you think it was put that way or not? Have you formed any opinion on the matter? No, sir.

Mr. Shellshear called your attention to it? He asked me to go in and see whether the cock was shut or open.

Mr. Read.] At what time in the day did this take place? It was in the afternoon; somewhere between 3 and 4 o'clock.

Was it at the time that we were there? Yes, sir, I think it was. I believe you had been there, but I am not certain whether you were on the ground at the time or not.

But I am speaking of the Board? Yes, I think you were there.

It must have been while we were there, because Mr. Shellshear came back to us? Yes, now that you remind me of it, he was there a little longer than the other gentlemen.

Mr. Thomson.] Did you draw anybody's attention to the position of that cock? Yes, sir; I drew Mr. Downes' attention to it.

Did he express any opinion about it at all? No; I do not remember that he did so.

Mr. Read.] Did you discover it when I was down there past the car? I do not think so.

Mr. Midelton.] Supposing this brake-pipe on the car, (showing witness the article) supposing the handle of the cock is in this position after it is opened—tell us whether the handle was above or below, or immediately level? It was as nearly as possible in a line with the pipe.

Chairman.] Do you know if the hose and pipe are there now? Yes, sir, they are.

Perhaps you can procure them for us? Yes, sir. I had the couplings split and brought them away without being interfered with at all.

Mr. Thomson.] Have you got the hose couplings from No. 114? Mr. Laughry took possession of all the couplings; I think he had them all identified with the exception of one on the front end of the American car. The pipe was broken and the pieces were put altogether with the cock.

Mr. Midelton.] Did you put a mark on 114 when you found it shut? No; I did not mark it.

So that you cannot swear to it again? No, sir.

Chairman.] Do you not think you would know it again if you saw it? Can you procure it for us? Yes, sir.

(By request of the Chairman, Mr. Scott hands in the break-cock in question for inspection.)

Witness.] The stop has been taken off.

Mr. Midelton.] In my opinion it has been broken off.

Mr. Thomson.] You will find several of them in the same way? I think they have been taken off so that they will shut either way; (looking at the handle) that is the way the handle was standing.

Thomas Cartwright called in and examined:—

Chairman.] What are you, Cartwright? I am an engine-driver.

How long have you been an engine-driver? I have been a driver here about 3 years.

How long have you been a driver on the Hawkesbury line? Ever since it has been opened, since last October.

T. Cartwright.

Do

T. Cartwright. Do you know anything about the accident that took place on Tuesday? No, sir; I was in Sydney at the time.

I understand that you were not there at the time, but I want to know if you had any conversation with anybody about the accident? Yes, sir, I have had conversations with several men down there, as I was running on the road every day.

Well, have you heard any of those who were engaged in or about the wrecked train express any opinion as to the condition of any of the wheels? Yes, sir; when I went home on Tuesday night I stopped at the tanks to get water. I saw the pumper, the first man, and he told me that when the engine went by she was reversed; and that they were sanding, and that they ought to have been able to stop any train with plenty of sand. He said also, that he did not think the guard could have been doing much or else he would have succeeded in stopping the train. I then went down to the station to see if I could see anything. I saw one tap shut in a closed second, but as to the order of the carriages in the train, I can't say. The contractor's driver said that he found all the blocks loose. Of course from my own knowledge of the road, I know that it was quite impossible for a train to run away if the air was on the train.

Mr. Thomson.] On which end of the closed second carriage did you see the cock shut? It was the end nearest the Hawkesbury.

Mr. Middleton.] Whereabouts on the train was the closed second carriage? There was only one closed second on the train.

What part of the train was it in? Of course I can't say that because the carriages had been shunted every way before I got there.

Chairman.] What time was it that you got there? It was about 9.50 at night. We were delayed at Hornsby all that time waiting for the other train.

You did not hear anyone make any remark as to any of the wheels being hot? Yes, sir, the cleaner said that he went and felt the wheels, and he found them to be cold.

But did you hear any one say that any of the wheels were hot? No, sir.

What engines have you been driving? I have been driving the one that is now in the river at the Hawkesbury, and also No. 78.

How did you find that engine work—I mean the one that was in the river? She was in very bad order, sir; we never get anything else but engines that are in bad order.

You mean that she was not in first-class order? She was in very bad order.

What do you mean by that? She was knocking badly, and she had a lot of side play. She would oscillate from side to side in a way that I never saw before in my twenty years' experience. In fact, that was the reason that she was taken off that running. The Permanent-way Inspector complained that she was knocking the road up, and that was the reason that she was taken away.

Taken away from where? Taken away off our running.

What was the heaviest—I mean greatest number of vehicles that you took with that engine, or any similar engine, on that road? I have it in the book here; I believe about 14 is the most I have taken down there—trucks and carriages.

You had the Westinghouse brake? Yes, sir, always that brake.

Had you any difficulty in "controlling" your train going down the grades? No, sir, never.

Never? No, sir, never.

Mr. Middleton.] What engine have you now? No. 154.

What is she? She is one of the same class of the Dub's build.

No. 178 was built in the colony? Yes, sir, she was one of the Atlas build.

The Chairman.] You say you have run some mixed trains? Yes, sir; all the trains that I run are mixed trains.

And the greatest number that you have taken down would be about equal to 14? About 13 or 14. I have it in my book.

Get the book, will you? (Book produced, and witness read from it) I took down 5 empties, 4 loaded, and 4 carriages.

And upon how many of these vehicles was the Westinghouse brake fixed? Equal to 4—2 composites.

Where did you take them to? Down to the Hawkesbury, from Hornsby.

You have never experienced any difficulty at any time in "controlling" your train? No, sir. Yesterday I had 6½ carriages, a dump car, and 2 or three of goods. I never put the brake on till I get to the tank. The guard held the train with the hand-brake down to the tank.

Mr. Middleton.] How was that train made up? The carriages and the van were next to the engine, and the goods trucks behind. We always took them down like that.

The reason for that is that the brake is connected with the engine? Yes, sir.

What is your practice—to run down tender first or otherwise? Tender first; it does not matter which ever way you go. Wilson asked me that on Monday night when he was stuck up.

Do you know what load he had on when he was stuck up? I think it was 9½, or equal to 9½; I don't exactly know the vehicles.

And how many have you brought away at one time? About ten, sir.

Did you stick up with that number? No, sir, but I had a better engine than Wilson had.

What engine did Wilson have on Monday? No. 176.

Is that the same class of engine as 178? Exactly, sir.

What is the biggest load that you ever took down? I think I have told you already, sir. I took down 4 empties, 4 loaded, and 4 carriages, and I could have taken a bigger load.

The Chairman.] You could have taken more? Yes, sir, easily. The most carriages that I ever took down would be about eleven. That would be about Easter time or holiday time.

Do you remember upon how many of the carriages the brake was fixed? I do not think that I can tell you exactly, but I should say that the brake would be fixed upon seven or eight of them.

How many more could you have taken down without any trouble with that amount of brake-power? I could take about fourteen carriages—that is if I had brakes on seven. Of course if I had lost time it would be different. If you lose time you can go down without using any air-brakes; we only used the engine and guard brakes.

Mr. Middleton.] What is your practice leaving Hornsby—do you ever test your brake before you descend from Hornsby? Yes, sir, because sometimes they do not put on the air there. I always try them

them just after leaving Hornsby, and if they do not hold there, I send my mate down. I always send my T. Cartwright. mate because you cannot trust the shunter to put them right.

I understand you to say that on more than one occasion you found that the cocks had been shut? Yes, sir, half a dozen times; both from Hornsby and the Hawkesbury. Of course leaving Hornsby we stopped at the tanks and have a good chance; that is on the 1 in 40, and we do not go far past.

Do you always make a practice of testing your brakes before going down the big incline? Yes, sir; at the tanks leaving the Hawkesbury, and at Concord going down.

But as a rule your train is generally made up at Hornsby? We very seldom uncouple at Hornsby except to take on a horse-box. We take them on behind. What I mean is that we did this when we were running to Hornsby, and before the line was running to Hawkesbury.

Mr. Read.] Have you ever known what you have said about the shunters to occur since running down the Hawkesbury before the line was open to that place? Yes, sir; it occurred sometimes when we ran from Strathfield, but it has not occurred there since we began running to the Hawkesbury, nor at Hornsby, except when we had a horse-box to pick up.

Did you make any report about this to anyone? No, sir, because it caused no delay. I had no occasion to report it since it caused no delay.

The Chairman.] When you referred to the engine just now as not being in first-class condition, you were referring more particularly to the manner in which she rolled about? Yes, sir; and the valves were working very badly. She did not pull well. No part of her was good except the wheels. She was what we call "rough."

Mr. Midelton.] Had you any conversation with the driver Wilson the day before the accident? Yes, sir. What was his opinion of it? He said it was a very rough road, and I said in reply, "yes, it is pretty rough." He said "I do not know how we are going to bring goods down here." I said, "it is alright if you know the way to hold them." He said that he would know the next time. He said also that he was afraid he would get blamed for it, and I told him that I did not see how he could be blamed for it. The engine was very light on the trailing-wheel, and she was slipping fearfully.

You are speaking now from your own experience? Yes. Wilson asked me if he should turn her, and I said "No; because if you do, you will be no better, because the road is broken with bits of pinches." It is not one continuous grade—that is what the deputation was about.

What was the deputation about, did you say? About having a turn-table down there, as we did not consider it safe going down tender first. We were not able to see anything on the road on account of going down tender first.

The Chairman.] The objection to running down tender first was principally on account of the curves there and the obstruction which the tender formed to your seeing anything? Yes, sir. The tender had a rigid wheel base, and there was no "give" in it.

Mr. Midelton.] Would that matter, to be left to yourselves, to go engine first? Yes, sir, but we cannot do it. It would not make any difference which way we went. There is an incline from Berowa right to Ryde. There would be a little advantage in having the engine going first down to the Hawkesbury? But you would lose it coming up.

So that you think that it would be six of one and half a dozen of the other? Yes, sir; there is nothing for it but to turn the engine.

Mr. Read.] Did you ever inform anyone that you had heard that the tires were found to be hot? Yes, sir; I mentioned it to Mr. Laughry. I mentioned that the wheels were found to be cold.

I said hot? I beg your pardon, I meant to have said cold.

Mr. Midelton.] Have you had any trouble with your donkey-pump? Yes, sir. I have gone down several times without any air at all. I had to send the throat-valve down to Sydney several times for repairs.

Are you stationed at the Hawkesbury? Yes, sir; and if anything goes wrong I have to send it down, if it be a part that I can take away from the engine.

Do you run the whole traffic on that line? Yes, sir; except on holidays.

Walter Shellshear recalled and examined:—

Mr. Midelton.] Referring to the brake-cock of 114 car, will you tell us which way the handle was pointing when you found it? It was pointing in the direction of the engine and towards the front of the car. W.Shellshear.

Are you quite sure about that? Yes.

We have the cock here now? Yes. (*Cock produced.*)

What is your opinion of the cock being in that position—do you think that it would be put that way by somebody who had uncoupled it, or what is your general idea about it? I presume that it had been shut off. As far as I can see there is no mark on the handle, and there is nothing to show that it could have been shut off by accident.

But as to the position that you would expect to find the cock in if shut off by the guard? No answer.

If you did it yourself—

The Chairman.] Can you say what the position would be of the cock—would you have pushed the handle away from you or to you? It would depend very much upon the position which I would be in. A man might shove it back more easily than he could pull it forward if he were in a certain position. It would be about 15 inches to the end of the handle from the end of the car.

Mr. Midelton.] But supposing you were in between two cars—which way would you work it, pull it towards you or push it from you? The probability is that I should do it in the way easiest to myself.

But what way do you think nine out of every ten men would do it? The probability is that they would do it, some one way and some another; some men might push it forward, and others might pull it to them.

But what way do you think the majority of them would do it? The majority might be as likely to push it one way as the other. I do not see that I can give you a more definite answer than that. Of course it would be a very simple matter to look through all the cars in the yard and ascertain.

Would you kindly do that, then, and take the number of the cars, and give the result in evidence? Yes; but of course the stock is scattered about, and it is only on the end of the cars that they are fixed.

The Chairman.] Well, perhaps you will do this?

Mr. Midelton.] It would be very necessary.

The

W.Shellshear. *The Chairman* (to witness.) Just take a walk through the yard, and see which way the cock-handles are standing.

f { *Mr. Read.*] With reference to the statement which driver Cartwright made to you with regard to some of the tires having been found to be hot, are you positive that he made that statement? Yes: That one of the men told him that the tires were hot, and that others of them were quite cold. He positively denies that now? Well, Mr. Kirkcaldie was on the engine at the time. He said most distinctly that the front wheels were warm, and that the others were cold.

[Mr. Shellshear hands in memorandum, showing that he had examined forty-nine cocks altogether, and forty-four of the handles were in a forward direction, towards the buffer beam, and five towards the centre of the carriage.]

Edward Andrew Laughrey called in and examined:—

E. A. Laughrey.

The Chairman.] What position do you hold? Travelling locomotive inspector.

You were at the scene of the accident on Tuesday? Yes, Sir.

What time did you arrive there? About half-past 6 o'clock in the evening.

You were there amongst the first? Amongst the first from Sydney,

How were you engaged while there? I took particular notice when there as to the position of the brakes, and the extent of the damage done to the rolling stock.

e { What did you find with regard to the brake? I found that, commencing at the rear of the train the hose-pipes all coupled up to between the second and third carriage from the engine.

Mr. Midelton.] That is, between 47 and 73? Yes; those two were coupled up there.

And everything was right from 45 to 47? No answer.

The Chairman.] Go on. The tap at the rear end of car 69 was closed—the tap in the main pipe. The others were all open. The tap on the rear end of the car next the engine I did not notice that day, as I could not get at it. On the following day I noticed that the tap was closed. The tap on the leading end of the front carriage had been broken off, and we have been since unable to find it. The tap at the leading end of the engine we found open.

Did you take notice of the brake-blocks? Yes, sir. There were brake-blocks on all the wheels of the first five carriages.

a { *Mr. Midelton.*] That is up to the closed cock of car 69? Yes, sir. The brake blocks of No. 73 were not in use. Communication had been shut off between the main pipe and the reservoir owing to some previous accident. The small pipe leading from the main pipe to the reservoir was broken off, and communication shut off.

The Chairman.] How was it shut off? There was a small tap in the pipe; that tap was closed. I tested the brake on the third and fourth carriages from the engine, and found the brakes on those carriages all right. The brakes on the first and second carriages were all broken up. That is the condition they were in.

Has the engine been recovered? No, not at that time.

Were you able to make any examination of the engine? Yes, as far as was possible, I examined the engine. A considerable portion of the engine is in the water still; but I could see that she was in full forward gear, which would represent that she was reversed against the train at the time of the accident.

Did you observe anything else about the engine? I observed that the sand valves were both open, and that sand was in both boxes. The engine hand-brake was also hard on. I found that the screw had been broken off, and was right down in the nut. The tender hand-brake was off, and would indicate that the air-brake had been in use.

Did you notice the guage closed? Yes; the pressures were down.

Were they readable? No; I think not. The effect of the accident upon the pressure in the air-guage was that it would fall to zero.

When the accident happened that would be the result? Yes.

That is on account of the severance of the connections? Yes; and allowing the pressure to escape.

The air-guage indicates a pressure in the service-pipe, and not in the reservoir? Yes; in the service-pipe.

The service-pipe would necessarily be fractured? Yes, sir; it would be broken.

Did you notice how the driver's valve stood? It was in a feeding position, with the brakes off.

Consequently that would imply that the air in the reservoir had escaped after the severance of the connections? No; that would—no doubt it got into that position by the engine turning over. It was worked freely, and was not in a position to be interfered in the engine tumbling over.

But when you say that it was in a feeding position, I understand you to mean that it was so placed as to feed the service-pipe with air? Yes.

Being in that position, and the service-pipe becoming broken, the reservoir naturally must empty itself, and the air would take a free way of escape? Yes, sir.

Therefore, even had the air-gauge indicated anything, such indication would be meaningless under those circumstances? Yes; it would be meaningless.

Are you acquainted with the engine which Wilson took out on that day? Yes, sir; I know the engine.

How would you describe that engine—what class was it? The engine was known as the 79 class. She was 18 by 24 in the cylinder, a 5-ft.-6 engine-wheels, outside cylinders four wheels coupled, and four-wheel bogie.

What was she used for? She has been used for passenger service.

How many of these engines have we at present?

Mr. Midelton.] About fifty?

Witness.] I can't tell you from memory; but we have a considerable number of them.

About how many? I should say about fifty.

The Chairman: They are in fact regular passenger engines? Yes, sir.

And constitute the majority of our regular passenger engines? Yes, sir.

They are used for passenger service on all lines, I presume? On all lines.

I do not think you have given us the weight of the engine? The weight of the engine separate from the tender?

Let

E. A. Laughrey.

Let us have the weight complete? The weight of the engine alone is 37 tons 11 cwt. 3 qrs. The weight of the tender is 21 tons 13 cwt. 3 qrs. Total, 59 tons 5 cwt. 2 qrs. The weight on the driving wheels would be about 25 tons.

Can you give us any information as to the tractive power of that engine—say upon a gradient of 1 in 40? The tractive power of that engine, taking the average pressure as being equal to 73 lb., would amount to 11,298 lb., and on a gradient of 1 in 40 she would be capable of hauling 89 tons. That is exclusive of the engine's own weight? Yes, of the engine's own weight and of the weight of the tender.

Mr. Midelton: Of course you assume the engine to be in good order? Yes; I assume that she was in good order.

And of course the power of an engine will vary with her condition? Yes.

Were there blocks fitted to the last four cars of the train, or were there only pipes? No brake blocks. Consequently, that cock on No. 69 car was closed and was properly working? Yes.

It ought to have been closed? It was in the proper position.

Unless that were explained it would appear that those four cars were cut off, so that five cars had the brake from the engine? Yes; they had the blocks.

From your examination of the train, was there any evidence to lead you to judge whether the brakes had been used in going down the incline? The only evidence that I could find was the cock on the front of the engine being open, and the tender hand-brake off.

Did you see No. 114 car the first from the engine the day after the accident—did you see the brake gear and piping, and so forth, of that car? Yes, the brake gear was considerably broken up. I could find all the parts, except the cock at the leading end with a part of the pipe.

Was the cock at the trailing end of the car in a like position? I found that closed.

Could you tell the pipe again if you saw it—that pipe and cock? Well, I do not think I could; I might do so.

Would you kindly look at this one and see if it is the same? (Cock inspected by witness) I believe that is the same. I noticed this screw as having been recently made.

Was the handle standing as it is now, or has it been changed? It was standing lengthwise with the pipe. It was in the same position as it is now. The handle was towards the centre of the car.

Would that be the usual position that you would expect it to be in if it had been shut off by a railway man? Well, I think it would be more convenient to turn it the other way, but it is possible for a man to turn it in the position in which it now is.

What is your opinion as to the cock coming into that position? How do you think it came like that?

When I noticed it in that position, and from the position of the carriage I was inclined to think that the cock had been closed by the force of the collision, as the floor of No. 114 carriage skidded along on top of the floor of No. 47 carriage, for a distance of about 20 ft., and there were marks on the underneath side of the buffer head stock of car No. 114, to indicate that when she mounted the floor of car 47 they were closely together. In fact I do not think it was possible for the cock to be open when that carriage came to rest.

Not that it had been opened in a working position? No, the two floors were like this. (Witness placing two pieces of paper one over the other) one on top of the other. I speak now of that cock with the lever hanging down. The chances are that it would strike as it works freely. A very slight tap would throw it in line with the pipe.

Mr. Read.] Did you move the tap before it was taken off the carriage? I did.

Did anyone else move it? I did not see any one else near it. I believe I was the first to find it in that position. I had considerable difficulty to get at it.

Mr. Thompson.] Do you know about what time in the day it was when you found this? I cannot now say.

Mr. Midelton.] Did you see the debris cleared away from it, and were you the first to then see that it could be handled? I believe I was the first, because I had to crawl under, along, and over the debris in order to get at it.

Did Mr. Shellshear see it before you left? I do not know that any one had seen it.

Mr. Thompson.] Was it before or after the members of this Board came up that you saw it? I could not say now, I am sure. I think it was after the train had arrived there which brought the members of the Board.

The Chairman.] After the train had arrived and before we left? Yes, that is what I mean.

Mr. Thompson.] Have you seen the wheels of No. 114? No, I have not; I believe they are in the yard, but I have not examined them.

The Chairman.] Then will you be good enough to see the wheels the first thing this afternoon, and have them ready so as to show them to us by half-past three o'clock.

The Chairman here intimated that Mr. Shellshear handed in memorandum, showing that he had examined 49 closed cocks altogether, 44 of which had their handles closed in a forward direction towards the buffer beams, and five towards the centre of the carriages.

Mr. Shellshear added at the same moment, I examined pretty well all that are in the yard; of course I did not go over the whole of them.

John Cobb called in and examined:—

The Chairman.] What is your position, Mr. Cobb? I am running foreman in the Sydney Locomotive Department.

J. Cobb.

You supply the engines for taking out trains, do you not? Well, I may tell you this, sir, that for the last three years or more the whole duties of the running arrangements of Sydney have been carried out by Mr. Privet, the Inspector, and he arranges to supply the whole of the engine drivers and firemen, and gives each man his work for the day.

Then he would be a better one to get the information from? He can give all the information that may be required. I cannot. As a matter of fact, I know nothing as to what engine or what man had been sent out with this train until after the accident.

Mr. Midelton.] Do I understand you to say that you hold Mr. Privet responsible, or are you held responsible yourself? Well, I hold him responsible. I have other duties to attend to. My time is taken up fully

- J. Cobb. fully by office work for the last three or four years, and the whole arrangements have been left to him and Mr. Farquahar of Eveleigh—each one in their respective sheds.
But you are the responsible man; you are the running foreman according to your title; do you delegate your powers to Mr. Privet, or are you held responsible yourself? I do not know how that is, but it is quite impossible for me to carry out two or three men's duties.
But are you, or are you not, responsible for Mr. Privet's acts? No, certainly not.
And yet he is your subordinate? Yes.
But you are responsible, are you not, as his superior officer? But if he does a wrong thing, I don't see that I should be blamed for it.
There is no question of a wrong thing having been done.
The Chairman.] Apart from the direct responsibility of Mr. Privet, he is the person who can give us information, so that it would perhaps be a saving of time on this particular head if we left it and called Mr. Privet.
Is there no other subject that you can inquire about—for instance about the driver.
Witness: It might also be advisable to get Mr. Farquahar, who is in charge of Eveleigh. He can give some information as to the changing of the men, and of the engines the night before.
h { *Mr. Midelton.*] We have had evidence from the witness that I want corroborated by this book or in some other way. (*At Mr. Midelton's request Mr. Cobb hands in a running repair book.*)
Witness: All repairs are entered in that book, and the person who carries out the job initials it?
Mr. Midelton.] What engine did driver Wilson take out on Monday last? It was engine 176.
But you cannot tell us without looking at the book? No, I would not know otherwise; I cannot tell of my own knowledge what engine he took out.
Mr. Thompson.] As a matter of fact I think Mr. Farquahar would be the proper man to call.
Witness: Well, yes; because Wilson was stationed at Eveleigh and not at Sydney.
Mr. Midelton.] No. 178 was the engine in question—the one that is off the road now? Yes.
Well, evidence has been given about that engine. I want to see if anything has been put in the book about it; to see whether the book and the evidence agree or does not agree. There ought to be evidence here of what Cartwright said. Is it justifiable to tell Mr. Cobb the evidence that has been given?
The Chairman.] I think so.
• { *Mr. Midelton.*] It has been given in evidence here, Mr. Cobb, that engine No. 178 was in very bad order, and that she was taken off the job previously and put on this by mistake or in some way? I do not know, sir.
But I want to see whether you can upset this or not? I cannot tell you, sir, because I don't know of my own knowledge.
The Chairman.] Well, is it possible to obtain the information?
h { *Mr. Midelton, examining the book.*] Perhaps I can get the information from the book myself? *Witness:* If there was any report about it, it would be booked by another man, and not by Cartwright.
Mr. Midelton.] There does not seem to be any report about the defective condition of this engine?
Witness: With regard to the state of the engine, the Inspector's sheet would be able to throw some light on it.
The Chairman.] What is his name? William Farquahar.
The Chairman directed that William Farquahar should be summoned to attend at 2.15 p.m. on the same day, and adjourned the inquiry accordingly.

George Stead examined:—

- G. Stead. { *The Chairman.*] What position do you hold? I am a shunter in the Railway Department, but at present I am officer in charge at Hornsby station in place of Mr. Cavanaugh.
Were you in charge of Hornsby on Tuesday last? Yes.
You remember Guard Clissold's train leaving your station? Yes.
Will you tell us all that took place at your station in connection with that train? The train was parted at Beecroft.
c { *The Chairman.*] That was not at your station. We want to know what you saw yourself? *Witness.*] A part of this train arrived at Hornsby at 1.15 p.m. I put the train in the loop, and the engine went back to fetch up two more carriages. When they came back the porter turned them in to connect them with the carriages in the loop. The guard (Clissold) put them up. When the first part of the train came up, I cut the engine off the carriages; I turned the air off and left it on the train. After the engine went away to fetch up the other carriages, I saw that the brake blocks on the train were all right, for I turned the cock and put the brake on before the driver came up with the other carriages. I noticed one thing that day when this train was disconnected; the air did not give as sharp a report as it does when the full pressure is on; so I did not think there could have been a very heavy pressure on. When the brake-pipe was being re-coupled, I fetched the coupling myself from the end of the train, and gave it to guard Clissold to make good. I came back on the opposite side of the points. I remember saying to Clissold, "Have you opened the taps," and he said, "Yes." I saw him turn one down, and I saw that the other was turned down as I had left it.
The Chairman.] You opened the tap of the first division of the train which arrived? Yes.
And you left the brake on? Yes.
In recoupling you asked Clissold if the taps were open? Yes, I saw him open one, and that the other was open as I had left it.
He did not interfere with the one you had turned down? No.
Mr. Midelton.] Who coupled the engines to the train? That I could not say, but I know if the air was left on the train as I left it, they could not have turned the brakes off.
Did the train start easily away? Yes.
Did you notice whether any of the brakes were rubbing on the wheels as the train moved away? Yes, they were rubbing but not much; one I think was rubbing slightly.
Which was that? I think it was the composite Redfern.
The Chairman.] You think the brakes were rubbing? Yes, but not much. That might show that there was not the required pressure to take the brake off. You

You mean that on this particular carriage the brake-blocks were not quite clear of the wheels? Yes, but they were all right on the other carriages. J. Cobb.

Mr. Midelton.] Whose duty is it to couple the engine to the train? The guards.

Did the guard do it on this occasion? I did not see him.

Did you notice the driver applying the Westinghouse brake in stopping the train? I did not notice him. He ran past the points, and then backed in, on to the train.

Where was the guard left when the train divided? He was left back with the train.

The Chairman.] Do you remember examining or noticing the connections of the train as it left your station? No, sir, I did not; I was over at the points.

Mr. Midelton.] Was that where you noticed the brake rubbing on the wheels of one of the carriages? Yes; it was while I was at the points.

Mr. Read.] Was it rubbing on one wheel, or were all the blocks of the car rubbing? I think all were rubbing.

Mr. Midelton.] Did you see where the train stopped to make the division before getting up to Hornsby? Yes.

It is a good distance away? Yes, 2 miles 10 chains.

The Chairman.] Who told you that? The guard.

Mr. Read.] You are quite certain that the brakes were on at your station? Yes.

The Chairman.] You are not in a position to speak of the taps between the engine and the two first carriages? No, I did not notice the second batch of carriages which came up.

Third Day—Saturday, 25 June, 1887.

Jacob Garrard, M.P., called in and examined:—

Chairman.] You were in the excursion train on Tuesday last that went to the Hawkesbury? Yes. J. Garrard, Esq., M.P.

Will you be kind enough to give us in your own words an account of the trip, as far as you remember, particularly as affecting the progress of the train? Yes. We were late in starting. I occupied the last carriage in starting away. I was sitting about the middle of the carriage on the left-hand side. Everything seemed to go alright until we got beyond Ryde. Then about a mile on the other side of Ryde we stuck. We made two or three ineffectual attempts to get over the pinch, and then the train ran right back to Ryde Station—in fact, our carriage went a little beyond the platform. By that time we got more steam on, and the driver put her to it, and overcame the pinch. I may say that I am surprised at the train sticking up there, for having been in five or six trains on the line, I have never yet been stuck up at that particular point at all events. We then went on to Eastwood, and on the other side of Eastwood we stuck again. I am not quite sure, but I think the driver again went back a little bit. He overcame that difficulty, and then at Beecroft he began to pull up again. The driver did not stop at Beecroft platform, for I remember that Mr. Barling was unable to get out, and I recollect Mr. Barling getting out in the cutting beyond the platform. The driver went on a few yards and stopped again. They then disconnected the two last carriages—the Yankee in which I was, and the other first-class carriage, and the engine went on with the other carriages, as I understood, to Hornsby, coming back in about thirty minutes after that. The engine then took our two carriages up to Hornsby, of course without any difficulty at all. We were again connected with the other carriages, making the carriage I was in the second carriage from the engine. Shall I give you my own impression of what did occur?

Chairman.] That is just what we want.

Witness.] I am doubtful —

Chairman.] Bear in mind, we do not want you to suggest any theories? Well, I will not theorise; I will confine myself to actual facts. We then started again, and went along pretty well until we reached Belmont, or what is called Coolah, about 2 miles from Hornsby. Then, to my surprise, she stuck up there again, as I had never seen a train stick there before. The driver ran back, and that is where my attention was first drawn to what I considered the recklessness of the driver, or the inefficiency of the brakes. He went back too fast for backing the train. Altogether, he went back a mile, or a mile and a quarter; and I supposed during that time he got up steam to put her at it again, and then overcame that difficulty. No further difficulty followed. At some places he went at very great speed; I presume to make up for lost time. It was not until we were in the first tunnel that I felt sure that he was going too fast; but having my wife in the train I did not say anything, as I did not wish to alarm her. Going through the second tunnel I was sure that the train had run away. My first idea was to get up and go to the end of the carriage to use the hand-brake; but I thought that would have very little effect, and would only alarm the passengers, so I kept my seat. The train rushed down at an enormous speed, and I may say that I do not think the brakes could have been acting properly throughout the train. I felt the jerking of the brake on the wheels of the carriage I was in. It was a jerking and spasmodic feeling, so that I did not think that the wheels of our carriage were properly braked.

I want you to remember the actual facts;—you have some knowledge of the Westinghouse brake? Yes. Can you remember the working of the brake in any degree after leaving Hornsby? Decidedly I can.

Will you cast your mind back, and tell us what you recollect of the application of the brake between the time of leaving Hornsby and that of the accident? I believe it was applied to the carriage I was in. From the feeling I had I believe the brake was applied.

You are quite clear that you remember the application of the brake, as far as your carriage was concerned, between Hornsby and the scene of the accident? Certainly.

Do you remember its being applied more than once? I remember it was applied when we were running back from Belmont.

J. Garrard,
Esq., M.P.

Do you remember whether there was an application made after you passed through the second tunnel? I believe there was, and that was, I think, the time that she gripped the most, and when I was made most sensible of the action of the brake. At this time I was fully persuaded that she had run away. I have been in trains going 60 miles an hour, and I am perfectly certain that I am within the mark that this train was going at that speed. Indeed, the wonder is that we did not go over the banks; but I suppose the train being heavily loaded served to keep her on the road. But the jerking was quite sufficient to greatly alarm the people. I noticed the people standing on the platform as we rushed past the station, and then came the crash; our carriage going into the other first-class carriage, and sweeping the people in different directions and on to us. Fortunately, as the end of the other carriage reached us she began to turn over, and we were saved by this means. I managed to open the window and get Mrs. Garrard clear, and I afterwards wrenched myself clear through the top of the carriage, which, of course, had previously been the side. After taking Mrs. Garrard to the hotel, I came down and went into the carriage, and observed the wreckage. I did not make particular observations, as I was suffering too acutely from an injury to my leg to take at that time any particular notice of the brake, or anything of the sort.

The carriage you were in was the rear carriage when the train left Sydney? Yes, the last carriage, and I was sitting in the middle of it on the left-hand side.

Have you any recollection of the working of the brake between Sydney and Ryde, or between Strathfield and Ryde? The train went exceedingly slow at these places, and I may say that I did not take particular notice. I had no reason to do so, but I think I felt the application of the brakes between these places, and I have no hesitation in saying that my belief is the brakes were applied occasionally.

Did you see the two portions of the train coupled together at Hornsby? Yes.

You remember seeing them coupled? Yes.

But you happened to take no particular notice of the process of coupling the train? We came on the main line and were shunted on to the other. The coupling was done remarkably quick, but I thought it was done to make up for lost time. I noticed that it was very quickly done. That we were coupled, however, was shown by the fact that the whole of the train proceeded onwards.

Do you remember the train stopping more than once between Hornsby and Peat's Ferry? Not stopping. Once we went very slow at Belmont.

And on that occasion you went back? Yes, a mile or a mile and a half.

At a great speed? Yes.

Apart from that, do you remember anything else approaching a stoppage? Well, yes; there was very nearly a stoppage beyond Belmont.

Was there a stoppage between Hornsby and Belmont? Not a stoppage, but certainly the train went very slow, showing that the driver was negotiating the incline.

Do you not remember seeing the guard after leaving Hornsby? Not after leaving Hornsby. The last time I saw the guard was just before the coupling process had taken place, and I also saw him when the engine came down to take up the two carriages. I don't distinctly remember whether I saw him again when the carriages were being coupled up at Hornsby.

Mr. Midelton.] You stated that you had an idea of going back to the hand-brake at the end of the car? Yes.

Did you notice anybody do so? I am almost certain that nobody applied the hand-brake in our car. My thought was to go there under the supposition that the brake was there, but I would not like to say whether it was there or not.

Mr. Thompson.] You say you felt the brakes being applied in your car. Are you positive whether it was the hand-brake or the Westinghouse? It was the Westinghouse brake that I felt.

Are you sure? I feel certain of that. The hand-brake would never jerk the carriage in the distinct spasmodic way which I felt it. I think the guard was on our carriage when we were at the tail end of the train as far as Beecroft, where the train was divided.

The Chairman.] But you do not remember seeing him after leaving Hornsby? No.

Were you looking about? No, not very much.

You did not stir off your seat? No, except to look out of the window when we got to Hornsby, when the coupling was taking place.

You know that these hand-brakes have a powerful effect upon these cars? Yes, but not powerful enough to give the jerking that I felt.

It was the suddenness of its action which impressed you with the fact that it was the Westinghouse? Quite so.

Mr. Midelton.] Was that after passing through the second tunnel? Yes.

When the train had evidently got away? Yes. I am inclined to think that I felt the brake just as we were going into the first tunnel.

Mr. Read.] What we want to know particularly is whether the air-brakes were acting? I think they were acting after we left Hornsby.

Mr. Midelton.] You have no doubt that they were working after leaving Hornsby? Yes; that it was working I feel perfectly satisfied.

Would you be surprised to hear that the guard rode on the platform of your car, and that he worked the hand-brake and hung on to it after leaving Hornsby right up to the time of the accident? I should be very much surprised to hear that the guard was on our carriage between Hornsby and the Hawkesbury.

Mr. Midelton.] Do you think there was anybody in the car that could positively say that the guard was not there? There was nobody in the car that I knew personally except my wife.

Do you know anybody who would know what part of the train the guard occupied? There was a man in our carriage who was moving about a good bit. He ought to know whether the guard was there or not. He was with two ladies, but I do not know who he was. I am sure, from the position which he occupied, that he would know whether the guard was on the platform of the car or not.

Chairman.] Do you happen to know any passenger who occupied a carriage beyond the one in which you were riding? Yes. I think Mr. Read, a plasterer, of Balmain, was travelling in one of the carriages at the rear of ours.

Is he a man likely to be able to give us any valuable information? I think that it is quite possible; he is an intelligent young fellow, and a master plasterer.

Do you know who coupled the train when the carriages were put together at Hornsby? I cannot say. I only know that it was done very quickly. Can

Can you remember who coupled the engine to the two carriages that were left at Beecroft? I think the guard did. During the time that the first part of the train was away I got out of the carriage and went for a walk, and when I heard the engine coming back I returned, and as she came in sight I went into our carriage, and the coupling was done whilst I was in there. I cannot say positively whether the guard actually did couple them or not.

J. Garrard,
Esq., M.P.

George Stead recalled:—

The Chairman.] You wish to add some statement to your previous evidence? Yes, about the taps. I said that I saw the guard turn one tap. I did not see him turn the two, but I saw his arms spread in an opposite direction as he would do in turning them both down, and I feel confident that both taps were turned.

G. Stead.

Mr. Midelton.] Did you know they were opened? Yes.

William Farquhar examined:—

The Chairman.] What is your position in the service? Shed-inspector at Eveleigh.
What is the nature of your duties? I inspect and see all engines out and in, and to see that all engines are in working order and the men in their places, and everything in connection with the running department.

W. Farquhar.

And you have to see that engines are supplied to take the trains out? Yes.

You remember the train that left Redfern on Tuesday morning at 10:30 for the Hawkesbury? I do.

Do you remember the engine that was sent up? Yes, 178.

Who was the driver? Thomas Wilson.

Are you aware what load the engine took out? She took fourteen.

What do you mean by fourteen? Equal to fourteen, counting the cars two and a half.

Do you consider that the engine was equal to the load? I consider that the engine would be equal to twelve on a bank of one in forty.

That is ascending the banks? Yes.

With plenty of brake power it would be equal to anything going down I suppose? Yes; three or four times that number, as long as there was brake power. When I speak of banks I assume them to be a mile or two in length at one in forty.

What would the engine be equal to in short banks? If there were only short banks then she could get up with fourteen.

Was the engine in good working order? She was in very fair working order.

How long have you been in the service? Thirty-one years last November.

How long Shed-inspector? Since the 27th of May, 1885.

How many years driving? Twenty-four.

Have you used this description of engine? Oh, yes.

For years? Yes.

So that you are thoroughly acquainted with what the engine could do? Yes, and with all classes of engines. With the exception of those which came out lately, I am fully acquainted with all of them.

What experience had the late driver Wilson? He had experience on goods and passenger trains, and he was firing on through trains before driving, and has been on passenger as well as goods trains since he became a driver.

What line has he been running on more particularly? The Western principally, as far as Penrith, and with a goods sometimes beyond Penrith.

Has he driven passenger trains beyond Penrith over the mountains? I do not think he has; but he has been firing beyond Penrith on passenger-trains.

How far has he gone with passenger-trains on the south? To Picton.

Ever beyond Picton? Only firing. I cannot remember his driving beyond Picton.

Has he ever driven goods-trains beyond Penrith? No, I do not think so.

What class driver was he? I believe he was in the second class. I believe he had been six years driving.

Has he been accustomed to the Westinghouse brake? All his driving career. He has been accustomed to its use on all the passenger-trains he has been driving.

Have you ever had any complaints against the particular engine that he was driving on the day of the accident? There was a complaint sent from Cartwright about the engine knocking about the road, and with respect to the brass and side rods. We examined all these and found his statement to be wrong. The brasses could not be better fitted than they were.

Mr. Midelton.] Did Wilson drive 178 on this day only, or was it his regular engine? No; he had it on that day only.

What had he the day before? 176.

Who had 178 previous to Wilson? Fairgrieve had her the day previous.

Has he reported any defect the engine, more particularly with regard to the air-brake? None whatever. I asked him for a report on the air-brake, and he supplied me with one.

Chairman.] What was the nature of his report? That he could drive a train with the engine with perfect safety.

Mr. Midelton.] How came he to make this report? I asked him for a report of the condition of the air-brake; it was after the accident that he was called upon for the report, and he spoke about the engine.

Was she in good order, engine and brake, the day before the accident? Yes, in thorough good order. I make it a rule to get steam up and try everything in the engine before going out.

Did you have any conversation with Wilson? In passing me he said, "I do not think I will be able to get this load out of the hole." I suppose he meant that he would not be able to get up the bank from the river. He gave me no idea by his remark of not being to take the train down.

Does

W. Farquhar.

h { Does the duty fall upon you to select the drivers, or does Mr. Cobb give you instructions? I also do so on these special days, when I make out a list of runs, and I pick the engines able to do the work. As the men go out they are generally put down for their next day's work. We generally select good men who know the roads, especially at night-time. For daylight we are not quite so particular. Wilson was an old driver, and it was daytime. We have sixty odd men to make up, and you cannot pick them for every job. I principally look out for good engines able to do the work required of them.

sg { The Board inspected the wheels of the carriage 114, next to the engine, with the object of seeing whether there were any perceptible traces of the continued use of the brake blocks, with the result that no traces whatever of anything like excessive skidding or braking were perceptible.

The Chairman informed the Board that he had made arrangements with a Locomotive Engineer to have an engine, tender, and four vehicles ready by 9.30 the following morning, fitted with a Westinghouse brake, so as to afford the Board an opportunity of making certain tests in connection with the working of the brake.

The Board were engaged for some time on Saturday morning, June 25th, in making some tests with the Westinghouse brake, with a view of ascertaining the time in which the carriage reservoirs might be emptied by the unskilful use of the appliances or driver's brake valve.

sg { On Monday afternoon, June 27th, the brake-gear of carriages Nos. 69 and 70 were examined by the Board, with a view of ascertaining whether the brakes required "taking up" or not, and they were found to be in an efficient working order, one carriage having a piston-stroke of 3 in., and the other 2½ inches.

George Stead re-called and examined:—

G. Stead.

Chairman.] You are the officer-in-charge at Hornsby? Yes.

c { I want you to go over again as precisely and minutely as you can all that you saw and did in connection with the excursion train on Tuesday last? Well, the first part of the train arrived at Hornsby Station at 1.15 p.m. I cut the engine off the carriages myself. At the same time I turned the tap on the engine and left the tap open on the train. When I cut air off I noticed that the pressure was not so great as it usually was; the report it made was not so loud. After sending the driver back I went over and got a sprag, and I jammed the sprag against the wheel-block to see if it was on. I then put it into the wheel and left it there. I then went back to my office to look after my instrument, and the remaining portion of the train arrived at 1.45. I told the porter to turn the second portion of the train into the loop. I put the signals up and I went and fetched the coupling from the tail end of the train. At the same time that I was fetching the coupling, Guard Clissold was between the two parts of the train. I left the coupling with him. I then went to the driver and gave him a staff and took the other staff from him. I crossed over the car to the platform and went to the points. I turned the train out of the loop on to the main line. Where Clissold was coupling up, I may mention, was right opposite to where I was standing at the points to turn the train from the loop on to the main line. I said to Clissold, "Do not forget the taps," and with that he put up his hand to turn down the tap. I told him right away, when he was right. At the same time I was holding the points to turn him out of the loop on to the main line.

Did you say that you saw Clissold put up his hand or put out his hand? I saw him put up his hand to turn the tap down.

In what position was he—was he standing, kneeling, or stooping? At that time he was standing, and he knelt down to put his hand on the pipe.

Did the train get away immediately Clissold gave the signal? Yes.

Did you see what became of Clissold as soon as he gave the signal? No; he was on the off side.

Did you notice whether the brakes were clear of the wheels as the train was leaving? I noticed on one of the carriages that the blocks were rubbing a little, but it was very little. I do not know which carriage it was; whether it was the Yankee carriage or the other; but it was one of the two.

How were the others? All off as far as I could see.

Do you remember noticing the blocks? I remember noticing this, one rubbing slightly.

If the others had been rubbing, would you have noticed it? Yes.

Are you perfectly satisfied that the brakes were hard on upon the first lot of carriages when they were left at the Hornsby Station? They were hard on the first carriage that came up next to the engine. I can speak positively only as to the first carriage; that is the one I tested.

Did you see any brake blocks relieved by the guard or any one else at your station? None whatever.

Mr. Midelton.] I think you said you saw the guard couple up the two cars that had been brought from the main road to your station? Yes.

That is, Nos. 114 and 47—what did you see him do with regard to the cocks? I saw him put his hand up and turn them down.

Did you see him turn both? I could not say that he turned both.

Which carriage was it? The American car.

You are sure you saw him turn that cock? Yes, I am sure.

But you cannot answer for the other? I would not swear with regard to the other. But porter Rice was standing on the opposite side from me, and he could see Clissold handle both taps.

The man you speak of can testify to that fact? Yes.

Mr. Thomson.] You say that you tested the brakes on the first car of the first lot that came up. Can you remember the car? No, I cannot.

Was it a common second class? I believe it was a second class four-wheeler.

Mr. Midelton.] You had no occasion to go between Nos. 114 and 47 vehicles? No.

Did you see anybody else go in there? No, I did not.

Chairman.] Who unhooked the first part of the train at Hornsby? I did.

Where were the driver and fireman at the time? On the engine.

Did either of them get off the engine? No. The only remark that Wilson made was, that he was doing well, and that he wanted the staff to go back again.

Guard Clissold further examined by the Board of Inquiry on June 25th, 1887:—

Mr. Vernon.] Upon which American car, Clissold, were you standing at the time of the accident? On the one nearest the engine (or the second vehicle from the engine) that turned over on its side at the river bank.

Guard
Clissold.

You are satisfied about that? I am perfectly satisfied.

Do you distinctly remember its going over? I felt it going over, and I got out on the top side.

You have no doubt about that? I have no doubt about it.

Did you see any of the passengers in the car in which you were riding? I did, and assisted them out.

Could you tell me any of their names? There were several ladies, and one young man about 20 years of age, who was dead.

Do you know Mr. Garrard, the Member, when you see him? I did not know him until he was pointed out to me on the journey. It was at Beecroft that he was pointed out to me; and he was standing on the railway line.

I understand you are not personally acquainted with any of the passengers that you assisted out of the car after the accident? No, not one, although I rendered all the assistance I could to get them out.

I want you to go back to Hornsby. After leaving Hornsby, from your last evidence, I understand that the train came to a stand? Yes.

How far was that from Hornsby? From half a mile to three-quarters of a mile on the bank—about the middle of the bank.

Did the train come to an absolute stand do you remember? Yes, quite.

Did it run back? I did not notice it running back.

Do you remember its coming to an absolute stand about half a mile or three-quarters of a mile beyond Hornsby? Yes.

And it was on that occasion that you went forward and released the air brakes of one of the carriages? Yes.

Can you recall to mind which carriage it was? I could not say positively.

Do you remember Belmont or Colah? I am not acquainted with the stations, as I was never on the road before.

This is a place about two and a half miles beyond Hornsby? I do not know it.

Do you remember the train coming to a stand soon after you left Hornsby—say perhaps a couple of miles after you got beyond Hornsby, and running back for a mile before it started again? No, sir, it did not. I can distinctly remember coming back after we left Ryde, and that is the only occasion on which we ran back; but I am quite clear that the train did not come to a stand, and have to run back between Hornsby and Peat's Perry.

Come back to Beecroft. Who coupled the engine on to the two carriages that were left there when it came back for them? I did.

Do you remember opening the taps between the engine and the Redfern car? Yes.

You remember coupling them together? Yes.

And do you remember as clearly opening the taps? Yes, I remember opening the taps.

Mr. Midelton.] Did you couple the two cars that had been brought from Beecroft on to the others that had been left at Hornsby? Yes, I did in the presence of the young man who was stationed there.

How did you operate the break gear when you coupled the two cars up,—what did you do? I turned the taps downwards, and the young man that was there remarked, did you turn the taps; and he looked underneath himself and saw that I turned them down. I think that he had the staff in his hand at the same time.

Are you quite positive that you turned both taps down? I am quite positive. I do not know whether it is necessary to mention that, when we got to the river the accident occurred; the engine driver that was there (I do not know his name, he was here yesterday speaking about the engine) said that he had reported the same engine before, about the same thing, through the donkey not acting. He was in charge of No. 81 engine. I should know the man if I saw him again. Neale was the fireman.

Mr. Vernon.] You say, Clissold, that you are quite clear that you opened the taps at Hornsby, after coupling up the two portions of the train? Quite clear, sir.

Did you and the driver test the connection before you started, by putting on the brakes and having them taken off again? The driver never came forward and said anything at all about it, and it was not tested.

Do you remember whether the brakes were on or off on the carriages that were first taken up to Hornsby, and to which you coupled the other two? I could not say for certain. On account of losing time and the way that we were bothered, and the passengers chiding me at not getting along, I was anxious to get away, and immediately the young man said get away, I gave the signal to start.

Do you remember whether your train had any difficulty in starting from Hornsby? The driver had no difficulty in starting from Hornsby.

John Pye examined at his residence by Chairman:—

The Chairman.] Do you find that you can recollect the facts and circumstances of your journey? Yes.

J. Pye.

Would it be too much for you to give me an account of the trip from Sydney. I mean just what you can remember of it? Well, we were about four or five minutes in leaving Sydney, and we had to stop everywhere until we got to Strathfield. We started away and got on right enough until we got to Ryde. We were a few minutes behind time there. Soon after leaving Ryde we came to a bank and we got stuck up there. After putting the engine to it we found her power not sufficient to get the load up; we set back to get a run at it, and I think we stuck at it again; the next time, the second or third attempt—I don't know which—we managed to get over. Previous to this Mr. Rennie got on the engine. I did not know him then.

That was near Ryde? Yes. We went on until we got just the other side of Beecroft where we stuck fast again. Mr. Rennie advised my mate, the driver of the train, to half the train and run on to Thornleigh, where he said there was a siding, and where he thought we could put in and come back for the other part of the train. He reckoned it to be about two miles. When we got there we found the siding full up,

- J. Pve. up, and there was not sufficient room for us to put in. Wilson asked someone there how far it was to Hornsby and was told that it was about two and a half miles. We went on, and the porter in charge of Thornleigh came on to Hornsby with us. We left the first part of the train at Hornsby, came back and got the other portion of the train, which we also brought up to Hornsby. We got coupled up then, and started away. After leaving Hornsby we stuck again.
- How far was that from Hornsby? I have no idea of the distance.
- But you distinctly remember sticking? Yes. Mr. Rennie said it was the last bit of 1 in 40 that we had to go up, and that after that we would have no hard pulling, and my mate proposed to have another try at it. Did you have to go back? Yes, we had to set back some distance.
- How far? I do not think it was quite half a mile. Mr. Rennie thought we would have to go back to a crossing where there is a bit of a level run. We got over the pinch, and there was no more up-hill to speak about, except one small hill of 1 in 50, and we managed that right enough. It was all down-hill after that, for I recollect Mr. Rennie saying to Wilson, "It is all down-hill after this." While we were going down the driver was working his air-brake off and on at times, and I recollect seeing him put her on when she was running around a curve, and it reduced the speed of the train. We then got into the first tunnel. We then went on, and passed through the second tunnel at the water tanks, where the driver put on his air-brake full. It did not seem to have the slightest effect. Wilson looked at me and said, "The train has got away from us." He kept the air-brake still on, but it seemed to make no effect. for it did not reduce the speed in any way. All the time after leaving this hill-top I had the engine brake on, and of course I tried to give it a touch to make it tighter. The driver reversed the engine, and there and then the engine brakes started the wheels to skid. Then I had to ease the engine brake off to free them. The train then seemed to gain on us in speed.
- And from that time? The driver then whistled to the guard to put on his brake, and kept whistling all the time afterwards.
- Have you any idea where that was? It was $\frac{1}{2}$ or $\frac{2}{3}$ of a mile from the water-tanks, and he kept the whistle on until we got down to the station. I may mention that I remember stepping across to Mr. Rennie and asking him how far it was to the station. It was at that time he said to me, "I think I will jump off here." I told him, "You will be bound to be killed if you jump off at this place, and you might escape somehow if you stop where you are."
- h { I want to ask you a question or two here. You say you got on all right to Ryde; you stopped at all stations. Do you remember any complaints being made about the working of the air-brake? No sir; but our air-pumps stopped at Ryde, and I gave it a lubrication of tallow, and it started off all right again. Did it appear to work all right from that time? It appeared to work all right from that time. You found no difficulty in pulling up at Newtown and other intermediate stations? Oh no! You remember taking up the first portion of the train to Hornsby? Yes. Do you remember who uncoupled the carriages from the engine? No; I could not say. Do you remember whether you took the guard up with you? The guard and Mr. Rennie stopped behind with the other portion of the train. The porter at Thornleigh came on with us to Hornsby, and came back with us for the latter portion of the train. When you got up to Hornsby with the second portion of the train, do you remember who coupled the two portions together? No; I did not see who it was.
- c { Do you remember getting the signal to start from Hornsby? The driver got the signal. You had no difficulty in getting away from Hornsby when you got the signal? No. Did you only stick up once after leaving Hornsby? That is all. Guard Clissold says that about half a mile on the other side of Hornsby he had to go forward to release the blocks off a particular carriage—do you remember that; and he says that as soon as he did it you started away again? We did not start ahead for we had to get back. You don't remember any other stopping beyond Hornsby but the one when you had to set back? That is all. Do you remember a place called Belmont, where there is a big advertising placard set up, about 2 miles beyond Hornsby, Coolah I think it is called in our tables? No. Do you remember whether the brake connections were tested before you started from Hornsby? I could not say that, for this reason: we had a big tender of coal, and I was cracking lumps and shovelling the best part of the way after we left Ryde station. I could not say whether they were tested or not. They may have been tested, but I could not say whether they were actually or not. At that time I was too busily engaged attending to my work. You remember leaving Hornsby, at any rate? Yes. You remember the air-brake being worked between Hornsby and Peat's Ferry, more or less? Yes. Did you happen to see Clissold anywhere between Hornsby and Peat's Ferry? I don't recollect. I may have seen him, but I did not take much notice. Of course we did not know that anything of this kind was going to happen, and before the train got away from us we had no reason to take particular notice of everything. Do you remember the driver releasing his brakes before starting from Hornsby. I ask the question because Stead, the porter at Hornsby, says that when you brought up the first portion of the carriages he uncoupled them; that he turned the taps right, and that he opened the taps of the carriages you left to turn the brakes on; that you then left to bring up the second portion, and that Clissold coupled them up. He states also that he saw Clissold open the taps properly, and that he asked Clissold whether he had opened the taps as well as seeing him doing so, and then you got away quickly, consequently the brakes which were on must have been released from the engine? I don't recollect noticing their being released. You don't remember anything as to what pressure the gauges showed at any time during the journey, do you? Yes, I do; they were showing about 85lb. pressure on leaving Hornsby. Was that the air-gauge? Oh, yes. We had 140lb. in the steam-gauge and about 85lb. in the air-gauge when we were leaving Hornsby. After leaving Hornsby the air-gauge ran up to 90lbs., and driver Wilson eased the air-pump off. Did he use the brake pretty frequently between Hornsby and the first tunnel? He would not want to use it except on the down grades. The places I most noticed him using it were on the bits of curves after leaving Hornsby. And there it had a perceptible effect? Yes. Of course it would have more effect on the curves, the engine brake being on as well.

Do you remember the driver testing the brakes before leaving Sydney? I could not say; he might do so without my knowledge.

It is customary? Yes, it is customary.

Have you been firing long with Wilson? 12 months last December, or about a year and six months altogether.

Where has he been driving principally? To and from Penrith, and he has been on suburban trains as well.

Have you been with him all this time? Yes; the time I mentioned.

Did you hear him make any complaints about the engine he had on Tuesday, the day of the accident? No. } h

Did you run short of water on the journey before you got to Hornsby? We took some in at the tank; above Ryde. There is only one tank between Ryde and Hornsby, and we took water at that tank.

Do you remember Wilson making any complaint about running short of water? No.

You are quite sure of sticking up once after leaving Hornsby and that you had to run back? Yes.

And that is the only time you were stuck up after leaving Hornsby? That was the only time.

Do you remember at any time, during the journey between Sydney and Hornsby, the train stopping and Clissold coming forward and taking the brakes off a carriage? That was where we divided the train.

You don't remember anywhere else? That was the only place. I have no recollection whatever of his coming forward and releasing the blocks from a carriage. If he did so it must have been when we were running back, for if it had been when we were going forward he would have had no difficulty in getting on the last vehicle. That is what I think about it.

Fourth Day—Monday, 27 June, 1887.

PRESENT:—

Mr. VERNON,
Mr. MIDELTON,

Mr. READ,
Mr. THOMPSON.

James Lawson called in and examined:—

The Chairman.] You were a passenger by the excursion train on Tuesday? Ycs.

Which carriage were you riding in? The first carriage.

Will you tell us in your own words what you remember of the trip? I was riding first-class with my three sons; but they were in the second compartment of the first carriage. We left Newtown about 20 minutes to 11 o'clock. I know that, because I looked at the clock just as the train came in. We got on all right as far as Ryde, and then we made a start from Ryde to go to the next station—Eastwood. Before making Eastwood the engine stuck up, and we ran back to the level again, and gained the station. Of course we went down at a fair speed to Ryde. We went back at a fair speed, not one to cause me to take much notice of. After leaving Eastwood we got past the Field of Mars; but on rising the hill between the Field of Mars and Beecroft, we got stuck up again. The engine was again reversed, and we ran back to the level, and made another start, and then we went 50 yards beyond the Beecroft platform, and there we stuck. A strange gentleman then came on the scene. He was dressed in light clothing. I afterwards found out that the name of this gentleman was Rennie. He made his appearance on the scene, and entered into conversation with the engine-driver and stoker, and guard. Presently the guard walked from the engine past our carriage. We were then in the second last carriage from the end. He walked around the other side, and on coming around, I asked the guard, "Are we going to get to the Hawkesbury to-day," and he expressed his doubts as to whether we would or not, and said, "I don't think we are." Presently those two last carriages were disconnected, and uncoupled. In disconnecting the pipe I could see that it was being disconnected almost below me. I suppose within 20 feet it was disconnected. And when it was disconnected I suppose that it was the compressed air which was flying out of the pipe that made the great hissing noise. } c

Will you tell us exactly what you heard, and what you saw? I do not want to say anything to implicate anybody beyond the point to which I am entitled to go. A very great noise was made when the disconnection took place.

Mr. Midelton.] Might I ask was it a continuous noise? Yes, for about half a minute, or a little more. The wheels of the back carriages were blocked with a piece of fire wood which was passed through the wheels, and the engine took on all the carriages, until they came to ours up to Hornsby. Mr. Reid and myself got out of the carriage, and walked around Beecroft until the engine returned. As soon as the engine returned our carriage was coupled on. It was the engine that coupled on, and not the tender, because the tender was in front. We then made Hornsby station.

The Chairman.] Did you see the coupling done? Yes. I saw the man do it, but I did not take any particular notice. I saw the stoker and fireman and guard there, but I did not see them coupling. I am speaking now with reference to the coupling at Beecroft. We got to Hornsby Station, and no time was lost in getting the American carriage, which was the second carriage from us attached to those that were taken up first. Very little time was lost. We then started, and we rode nearly to the place where I saw a placard up showing land for sale at Belmont. We did not quite reach that board. The engine was labouring very hard in going up, until at last we came to a complete standstill, and the engine refused to go any further. The engine was again reversed, and we ran at a very great speed right down to the iron sheds at Hornsby. In fact I made the same remark to a passenger in the fourth compartment adjoining me—I was in the third compartment furthest from the train, and I made the remark to him, "What a great speed we were going down the hill," and he said, "I wish we were going the other way." I found out since that his name is Hargraves. We ran down at a very high rate of speed right to the iron sheds at Hornsby. We started again from Hornsby, and got past, with some little difficulty, the point where we stuck up before. We then proceeded on our way. We got to the first tunnel; we got through the first and the second tunnels, and went through them at a fair speed, but nothing to excite any alarm. On leaving the second tunnel we commenced to run much faster, and on through the third tunnel. I still kept looking out of the window.

J. Pyc.

J. Lawson.

J. Lawson. window as we passed, and I felt myself once or twice jostled. Going through the third tunnel, and the fourth and fifth tunnels, I was still looking out of the window, and I remained looking out till we got down to within a few yards of where the smash took place. I was looking out as far as the station. I saw the stoker and whom I took to be the engine-driver making signs. I did not understand that they were making signs for relief, or anything of that kind. I did not know what they were doing. All this time the whistle was at its highest pitch, as loud, I fancied, as the steam would allow it. Then came the crash. I heard a very great noise, and saw the tender of the engine first go over the embankment. I could just see it from underneath. Our windows were then about 2 feet from the ground. I saw a great flash of flame pass along our carriage just for the moment. I thought it must have been the fire from the boiler of the engine, and it went around the carriage for a second, not more. The second carriage then drove in the compartment of the fourth compartment, and the partition that divides the fourth from the third came right on top of me, and then I endeavoured to work my way up through the *debris* and broken timber, and got up the top of the broken carriage. I got to the side, which was then exactly on top. At that time the other passengers had made their escape, and I was the last in the carriage. I then got out of the window next to the ground. I think that is all that I can remember that took place. I do not know that there is anything further that I can explain except you ask me questions.

Mr. Midelton.] What side of the train were you when you passed the Hawkesbury Station? I was on the right hand side, that is to say, towards the Brooklyn Hotel. I saw the Brooklyn Hotel as I passed.

Was that the side of the train you saw the man standing on the footplate? Yes, they were all on that side, I can swear to two. I saw three altogether, I think, but I won't swear that all three were there.

Have you any idea who it was? No; because the excitement was so great at the time, I can't swear to whether the three were there or not.

Was it the fireman, or the engine-driver, or Mr. Rennie? No answer.

Did you see two people there? Yes; there were about that, because I was leaning out of the window and saw what was going on.

Mr. Thomson.] Have you any recollection of going down from Hornsby? Do you remember feeling that the brakes were applied to your carriage or not? No.

I suppose there was some excitement then? No excitement then. I could not swear that I felt the brakes working from leaving Hornsby.

Supposing the brake was applied, would you know it? Certainly I should know.

You would know if the brake was applied to the carriage? Yes; because it makes a peculiar noise. When the brake is applied to a carriage it brings the train to a standstill almost at once. At other places I have been almost pitched from my feet by the brakes causing the train to come to a standstill.

But do you remember the application of the brakes between Hornsby and the Hawkesbury? No; I can't say that I do. In fact, if I did feel it, I should not have taken any notice of it.

After the train pulled up at Hornsby, did you notice whether the brakes were connected or not? No; I was in the carriage, and I did not pay much attention.

You know you feel it when the air of the engine is connected with the train? Our carriage was connected at Hornsby, after being first connected at Beecroft.

You did not hear any noise, or feel the air brake? No; it was on a carriage astern of us.

Mr. Midelton.] Which was the rear end of the carriage, next to you? No answer.

Witness.] When the brake was disconnected from our carriage, then this noise was distinctly heard not only by me, but by the people in our carriage who were looking out at the time. I made the remark to somebody that a rush of air was coming out. I presume it was air.

You are well acquainted with the hissing noise that the train makes sometimes on the suburban lines when pulled up? Yes; but I did not notice that when going down the incline, on account of the noise that the train made and the whistling going on.

You are quite sure that you never heard the air work at all? No; I distinctly swear that I did not.

Mr. Thomson.] You did not notice that the carriages were skidding, or taking short jumps? Yes; I noticed that. In my carriage I noticed that distinctly. I noticed that the wheels were taking short jumps. I had no reason at the time to think the matter over, but I have done so since, and I can remember it distinctly now. I put it down after I got home. It was not a complete rush on, but a number of jerks occasionally.

Was that after leaving the first tunnel? We got through the first and second tunnels first rate, and it was after that when we heard these things. When we made the second tunnel we were not running at a very high speed, but it increased and increased until we got to a very high speed.

When you observed this jumping motion you were not running at a very high speed! Oh yes; we were then between the fourth and fifth tunnels.

And the jumping continued longer than that? I distinctly felt the jerking; I am positive on that point.

After leaving Beecroft did you notice which carriage the guard was on? He was on the second carriage at the rear end.

On the one next behind? Yes; I told you why I said so. I was looking out of the window and saw him removing the blocks. They had to pull up a little to get the wheels released, and I saw him and a young man take this block out. I did not see him come back or pass our carriage on the other side, and therefore I came to the conclusion that he must be on the platform of the second carriage.

The Chairman.] Where was this? At Beecroft.

But did you see anything of the guard after leaving Hornsby? Yes; I believe I saw him again, but I would not be sure on that point. I saw somebody pass our carriage where the connections were made, but I do not remember whether it was the guard or the stoker.

But after leaving Hornsby? I did not see him again to my knowledge. Of course I saw him at Belmont. He then passed our carriage; that is where the engine was reversed to go back again to Hornsby. He was then standing on the ground. He was going towards the engine past our carriage. The engine was almost alongside of us.

But did your train stick up more than once after leaving Hornsby? No; only once.

Did you notice any stoppage except the one you have spoken of? No, except where the engine was stuck up at Belmont. The engine was reversed and we went back at a very great speed.

There was no other stoppage? No other stoppage.

Long or short? No; no stoppage long or short. I made a memorandum of the stations after I came home.

Mr.

Mr. Read.] Can you say how long you stopped at Belmont? No; but it was not more than a minute. Did you see the guard then? Yes; I saw him on the footboard. I really think he was on the tender. I saw him go up to the engine, and I am almost satisfied that I saw him on the footboard.

J. Lawson,

Did you see him on the ground at all? I saw him on the ground going up towards the engine. I saw the stoker, and I believe that the guard was on the footboard of the engine going back again to Hornsby; in fact I will swear it, because I am satisfied that I saw him there.

The Chairman.] Did you have no recollection of the train stopping just for a short time, and then backing after leaving Hornsby? No; she did not stop at all. When she did stop, she stopped until the engine was reversed and the train sent back again. Of course we went up very slowly to this point.

Mr. Read.] Did you notice the application of the brake in the way you describe before you ran back from Belmont to Hornsby? No; I did not. I never felt anything. I described it that she made a straight run down, and remarked to Mr. Hargraves the high speed at which she ran back. In fact I had come to the conclusion that the engine-driver was going back for assistance to Sydney, because we went right down to the sheds.

Mr. Middleton.] Did you hear any conversation between any men connected with the train? No; the only conversation I had was between the guard and myself. I made the remark which I have already stated, and he expressed his doubts as to getting to Hawkesbury that day.

The Chairman.] Do you happen to know any passenger who was riding in one of the rear carriages? I did know one gentleman, who came to see me the following morning.

Do you know his name? No; he called on me the next day for the purpose of expressing very great satisfaction at our fortunate escape. He was in one of the two carriages immediately behind me, and right at the end. He was at the rear end, and could see whether the guard was on the foot board or not.

Mr. Middleton.] Well, that is the evidence we want.

The Chairman.] I want to know whether you know any one who was riding in carriages five or six from the engine? No, sir, I do not. I don't know who were riding in these carriages.

Mr. Middleton.] Will you try to remember whether in running down from Hornsby to the first tunnel you noticed any application of the brakes, or heard any air escape? No; I can't say anything on that point, because I was paying particular attention to the scenery of the country all the way along. I went on the journey for the express purpose of seeing the country. Reid was at one window and I at the other. There was nothing at all surprising that we should take notice of. The train went at a fair speed, and we all seemed to be very jolly until we got to the second tunnel.

And the speed increased there? Yes. I have travelled 60 miles an hour in the Continental trains carrying the mails from Vienna to Paris, but I am quite satisfied that we ran at a much higher rate of speed than that, and I went from Dover to London at a similar speed, and I am satisfied that this speed was greater if the wheels would admit of it.

Benjamin Bragg called in and examined :—

The Chairman.] What are you? I am assistant-guard.

B. Bragg.

Did you see the accident at this place on Tuesday? I saw it just as the engine went over. I did not see her coming down from the tank.

What do you mean by that? I was just behind the flat rock. We were on the spot in about 4 minutes after at the least.

What did you do when you got to the scene of the accident? I went into the first-class car and assisted the people out. There were a lot of people there—women and children.

Did you do anything else? Yes; I went into the first car from the engine and looked at the taps.

What did you see? I saw that they were all right.

How many did you look at? I think I was looking at three taps.

On which carriages? On the car and then the second-class carriage and the next two. I did not look at the back ones.

Mr. Thomson.] By the car, what you mean is the American first-class carriage? Yes; I think it was the second from the engine.

Did you notice anything else? No, sir, because, Mr. Cavanagh came down and asked me to go away at once for medical assistance.

Did you notice the brake blocks? No, sir.

You merely looked at these taps? Yes; I looked underneath, because I heard that Clissold was underneath, and it was said the wonder was that he had not been killed. This was the first-class car. I think it was the first from the engine.

You know the first two carriages next to the engine were telescoped? I did not see them at all.

Then the car that you were speaking of as having examined the taps of is the car where you were informed Clissold was standing—was that the car that was overturned or telescoped? No; it was first lying on its side on the bank, and we went inside to get the people out.

But it had not been telescoped? No; it was on one end, and slightly injured. Directly we got the woman out who was injured, I went away with her to the public-house, and put her on a palliass.

Was that a complete first-class car? It was first-class right through, sir. It was not divided in any way, nor was there a smoking-car attached to it.

That was the one which telescoped? I don't know; but all the seats were all right, and everything was right inside. Of course we picked up a lot of rubbish off the woman who was lying in the corner. When we got the woman out we went towards the station.

Mr. Read.] There were wounded people in this carriage? Yes, sir. The woman I refer to was the last one we got out, and she was then dead.

The Chairman.] The first thing you did was to assist to take out one of the ladies? Yes, sir.

That was the young lady? Yes, sir; she had light brown clothes on.

And it was the taps on that car that you looked at? Yes, sir; I looked at the taps on the Sydney end.

And all of them on the next one to it? Yes, sir. I did not see the last one, because I had not time.

You remember the sort of carriage it was? Second-class; one of the closed seconds. There were a large number of portmanteaus and umbrellas there, and I locked up the compartment so that nobody could get in to take them out.

Mr.

B. Bragg. *Mr. Midelton.*] Was that a 4-wheeled or an 8-wheeled carriage? A 4-wheeled.
 Are you certain? No. I am not positive.
 But you thought it was a closed second? Yes; because I locked up the doors, and told the porter to watch the carriage, to let no one take anything away. There was a good deal of confusion, and there was a danger that the things might be taken away.
 You say that you saw that the cocks were all right? That they were all right—that is, if they were connected with the engine they would be all right.
 How were the handles hanging? They were hanging down. I went to see if I could find Wilson, the driver.
 What was your object in going to look at the cocks—was it the fact that the accident had taken place? No. They spoke of Clissold as having been down there upon that car. That was the reason.
Mr. Thomson.] You did not try the common brake on that car at all? No, sir; I did not try it.

E. A. Laughley recalled :—

E. A. Laughley. *Mr. Midelton.*] Will you again refer to your notes about the examination of the train at the Hawkesbury River, particularly with regard to No. 73 car, a 4-wheeler. What was the condition of that car when you examined it at the river, and was it the third from the engine? I made two examinations. On the Tuesday night or evening I found the pipes had both ends united with the adjoining cars. The four cocks were open. On the following day I made a further examination. I had an engine coupled to the carriage, and instructed the driver to charge the vehicle with air.
Mr. Read.] The one vehicle? No; two vehicles, 70 and 73. When he had done so we examined the pipes carefully, to discover any leak, as there was a chalk-mark on one side of the vehicle.
Mr. Midelton.] Which vehicle? 73—To say “Air escaping.” At first I did not detect a leak. I then asked the driver to apply the brake. He did so, but I noticed that the brake did not go on this particular vehicle. On further examination I found that the connection between the main pipe and the reservoir was closed.
 That was the day after the accident? Yes; the day after.
 Was that cock closed on the day of the accident? I think not; for on examining the blocks I found grease and little spots of mud on the face of the blocks, which would indicate that they had not been in contact with the wheel for some time previous. I think I may qualify my answer by saying that I think it was closed previous to the day of the accident, as the faces of the blocks bore evidence of their not being in contact with the wheels for some time.
 Did the blocks hang any distance from the wheels on the first or second examination that you made? They hung about an inch and a-half from the wheel.
 Have you any idea who closed that cock, or who wrote on the car “air leaking”? I have not. I have made inquiries, but I have not been able to find out who it was that closed the cock.
 Or who wrote the notice “air leaking”? No.
 Did you see that notice? Yes; it was written in two places.
 Was there any evidence of the brake having been applied on the day of the accident to composite car No. 70? No evidence, except that the cocks at the end of the pipes were open.
 Your examination of the brake-gear of that car lead you to what conclusion? That the brake was in good working order.
 What about No. 69? Also in good working order.
The Chairman.] When you say there was no evidence of the blocks having been used, beyond the fact that the air-cocks were open, what evidence was missing? Well, if the pistons had been tight, I should have expected to find the brake on when I got there. I mean on these two vehicles. It was some four hours after the accident that we arrived there.
Mr. Midelton.] Did you notice any damage to the small brake-pipe of No. 73 car? It was broken off at one end.
 Which pipe was it? The small pipe leading from the main pipe into the triple valve. That would account for the chalk-mark on the outside, “air escaping.” No doubt the person who closed the cock wrote the notice on the side of the vehicle.
Mr. Read.] The notice has been removed since? Yes; it has been replaced by “not to go out.”
 Could you recognise the writing? No; I could not recognise the writing.
The Chairman.] Are you thoroughly acquainted with the working of the Westinghouse brake? I think so. Is it possible for an unskilful driver to exhaust the air from his carriage reservoir? It is possible for him to exhaust it to such an extent as to have insufficient pressure to control his train at a steep incline.
 Have you ever had reason to remonstrate with any driver upon the injudicious use of his air? Yes, I have. On one occasion, two or three months ago, when descending the same incline I was riding in the train, I noticed particularly that the driver applied his brake very frequently, and no sooner did he have it on than he would release it again. When we arrived at the foot of the incline I went on to the engine and remarked to the driver about his unskilful handling of the brake. He then replied, complaining of the pump not being able to keep up the maximum pressure. I told him that it was not the fault of the pump. The pump appeared to be working splendidly, but it was the unskilled manner in which he had manipulated the brake that used the extra air, or in other words, that reduced the pressure unnecessarily.
 Who was that driver? Driver Cartwright. I then gave him instructions how the brake should be handled, so as to use the air sparingly, and yet to have a more beneficial result from the brake.
Mr. Midelton.] You were appointed in April, 1883, on my recommendation? Yes; in April, 1883.
 Would you mind repeating the instructions I gave you as to the duties you would have to perform—the nature of your duties as expressly laid down? They were in writing, and I have not them with me.
 Well, as near as you can, remember them. To travel over all the lines, and whenever a want of uniformity in the system of working came under my notice, to bring the same under the notice of my superiors; to instruct district inspectors, drivers, and firemen, where the want of such instruction came under my notice. I think I gave you special instructions about the jerking of trains on the suburban lines; what was the result of that; I am alluding to the latter end of 1883? I remember something about it. I used to travel with suburban drivers, and instruct them with the use of the brake where I found it was necessary.

That

That was done? It was done.

Did you find any difficulty with the men in the discharge of your duties? I have, on several occasions.

What was the nature of it. Did they take kindly to any suggestions you made, or receive your instructions kindly, or did they think you were interfering with their liberties? Many of the men were very glad to take instructions, and others did not want them; in fact would tell me that they knew all about it.

You have continued that system of giving instruction, where necessary, ever since? Yes.

Do you take a great deal of trouble in instructing drivers in the use of the brake? Yes; I have taken considerable trouble in giving instruction to drivers, relating to the handling of this brake.

Have you continued to do so up to the present time? Yes; I have continued to do so where the want of such instruction comes under my notice.

Have you ever had to come into contact with driver Wilson on this subject? Not that I remember.

Are you one of the board of examiners of drivers? Yes; for the position of first-class driver only.

Have you particularly noticed No. 178 engine with regard to the driver's valve and pressure gauge? Yes.

Did you notice where the pressure gauge was fastened? On the cab of the engine.

Mr. Read.] Fixed on the main pipe, or against the reservoir? On the main pipe.

Mr. Midelton.] Have you ever seen the gauge fastened to anything but the main pipe? No.

The Chairman.] So that the gauge indicates the amount of pressure in the service pipe? Yes; many drivers are guided by the movement of the hand on the gauge in applying the brakes.

The gauge would not necessarily indicate the pressure in the engine reservoir? No; that pressure is from 8 to 10 lbs. higher than the pressure in the main pipe.

When the driver is taking his brakes off the gauge would show the pressure in the reservoir as well as in the service pipe? If he throws the handle all the way round to the stop it would, but he only leaves it in that position for a few seconds.

Have you ever had brought under your notice any instance of the injudicious use or failure from the injudicious use, or handling, of the Westinghouse brake, on account of the gradients on the Western Mountains? Yes. I will refer you to the accident which occurred about twelve months ago on the Zig Zag, when the train run into the buffer stops. That is one case. I could refer you to another case in which I was riding on the up passenger train. After leaving Wentworth Falls, in fact while pulling up at Wentworth Falls, the driver overran the platform. At the next stopping, he again overran the platform, and this time reversed the engine against the train running at high speed. I then went on to the engine. The driver complained of having but a small percentage of his train fitted with the brake, and on examining the train I found it was the fact. Nevertheless, I considered what he had was sufficient to control the train if the brake was handled properly. He then asked me to take hold of the brake. I refused, telling him that that was not my business and that he should control his own train, but I said that he should handle the brake and do as I told him. At the next stoppage, I particularly instructed him to apply his brake in time, which he did. The train was coming to a stand just about the proper place, but, for what reason I don't know, he released the brake, which of course allowed the train to overrun the platform as in the two last cases. I then told him that I should bring the matter under the notice of the Locomotive Engineer, and after that, at all other stations until he arrived at Penrith, he stopped at the platforms with the use of the air brake alone. I did bring the matter under the notice of the Locomotive Engineer, and I believe the case was also brought before the Traffic Manager. In this case I think there were only two vehicles out of twelve fitted with the brake. Which, in your opinion, and as a matter of fact was ample to control the train? Was ample to control the train.

The driver would have to be extraordinarily careful in the use of the air? Yes.

Mr. Midelton.] Have you given special attention to the manipulation of the Westinghouse brake since you have been in the Government employ? I believe I have given more instruction on that point than on any other.

To drivers of course? To drivers.

Thomas Evans examined:—

The Chairman.] You are a carriage examiner? Yes.

Mr. Midelton.] Did you examine the train for the Hawkesbury River on Tuesday last before starting? No; I did not examine the train any further than passing her before she started.

Who did examine it? A man named Joe Butler.

Did you write anything on any of the cars previous to leaving Sydney? No.

Did you know of anybody else writing anything? No.

Have you written anything since on any of the carriages of that train? I did, at the Hawkesbury River on Tuesday night.

What did you write? I wrote on one car "Not to go out."

What car? No. 70. A composite Redfern car. I also wrote it on another; I did not notice the number. I believe it was on another train.

Never mind the other train. You wrote it on No. 70? Yes.

Did you write anything on any other car of that train? No.

Are you sure? Yes, I am sure.

You are quite sure that you only wrote on one car? Yes. They took five carriages, and that being the next one I was afraid they might take it away as well and put it into traffic; that is the reason why I marked it.

Mr. Read.] Did you notice No. 73, a four-wheeled carriage, at the Hawkesbury River that night? Yes, I did.

Did you notice anything written on that carriage then? No.

Have you noticed anything since? Only what I put on since it returned to Sydney.

What did you put on? Not to go out.

Why did you put that on? Because I got instructions that the carriages would be required to be placed together, so that the Board and Jury might see them; that is the reason why I marked it.

When you went to mark it not to go out, did you notice anything else written on it? No.

Did you know of anything the matter with this carriage 73? I noticed that one end was knocked in.

Did

T. Evans'

b

T. Evans. Did you know of anything the matter with the air brake gear? No; I was not aware that anything was the matter with the brake gear. When it came back I noticed how the air gear was, but I did not notice it before.

The Chairman.] Whose business is it to see that the carriages, before they go out, are perfectly fitted with the air brakes. Whose business is it to see that the air-brake fittings are in proper order before the carriages go out? Mr. Tempest, or whoever he appoints to do it of course. My men assist him when necessary.

Mr. Midelton.] You assist one another in fact? Yes, we assist one another.

Your special duties apply to the cars, exclusive of the brake? Yes, to the running part of the vehicles.

Mr. Tempest's men look to the brakes? Yes.

Butler you say examined that train in the morning? Yes.

J. Butler.

Joseph Butler examined:—

Chairman.] What position do you hold? I am with Mr. Evans in looking after the trains.

Mr. Midelton.] Did you examine the train which was wrecked at the Hawkesbury River previous to leaving Sydney? Yes.

On Tuesday morning? Yes.

What was the result of your examination? I found everything in working order.

How long have you been employed here? About three years.

On the same work all the time? No, I was twelve months in the carriage shop; but I have been two years with Mr. Evans.

You found nothing at all wrong with the train? Nothing at all wrong.

Chairman.] Is it a part of your duty to examine the brake appliances? Yes; to see that they go on all right, and to see that there is nothing that wants screwing up.

Did you examine every carriage on this train? Yes, from one end to another.

Can you tell us what carriages were fitted and what not fitted with brakes, and how they were fitted?

They were all fitted with air-pipes, and the brakes were tried on by Mr. Werricks, who found that all of them held tight.

Did you see Werrick try them? Yes.

Were all the vehicles fitted with brake appliances? All but the second class open carriages.

Do you remember that there was a close second class carriage on the train? Yes.

Was that fitted with a brake? There were no brakes on the open second class carriages.

But there was a closed second class 73, was that fitted with brake appliances? I could not say exactly.

Mr. Midelton.] Was the carriage next to the engine fitted, and were the brake appliances in good order? I was not in all of them when I examined the brakes, but I went through all of them to see if anything wanted screwing up.

Screwing up of what? All the bolts on the bogies.

Mr. Read.] Did you notice anything written in chalk on any of the carriages? I did not.

If the words, "Air leaking" were written in chalk, would you have noticed it? Yes, if it was on my side.

We always go up the side where there is no platform, so as to be better able to examine the train. I went up the left-hand side, and if it had been written on that side, I should have seen it.

Where did the train start from? From the far side of the wooden platform.

And you are sure that there was nothing written on the side you went along? I did not see anything.

Would you have seen it if there had been anything written there? I think so, if it had been written on that side.

Mr. Thompson.] Suppose it was written on the footboard, would you have seen it there? Yes, I would have seen it there.

The Board then adjourned.

Fifth Day—Tuesday, 28 June, 1887.

James Tempest examined:—

J. Tempest. *Chairman.*] What are your duties? I am in charge of the Westinghouse brake, under Mr. Braid.

How many men are there under you? Twelve.

And you are supposed to see that the Westinghouse break fittings of the carriage are all in good order before they go out? Yes.

Have you seen closed second-class carriage No. 73? Yes.

Have you examined it? Yes.

What did you find? I found a copper pipe broken. A supplementary pipe that leads from the main pipe to the triple valve.

Which side of the triple valve? The underside.

Did you notice anything else about the fittings; did you look at the blocks? The blocks were all right.

The tap was shut off to disconnect that vehicle from the main pipe.

Did you examine the break-blocks at all, to see whether they bore any trace of recent usage? I did not examine them for that.

Have you any idea when that pipe was broken? The carriage was examined on the 18th of June by one of my men, called John Elmsworth. As he examines them, he enters them on a slate, and I copied them in a book. It was all right then.

What did you say the man's name was who examined the carriage on the 18th? John Elmsworth.

What was the result of his examination? Nothing reported as to the carriage.

Could the pipe have been broken on the 18th? Yes?

Previous to Elmsworth's examination, could that pipe have been broken? It could have been.

And

And he would not report it? Oh yes; he would report it.

Then might we not infer that it was not broken when he examined it? Yes; that is the inference I would draw from it.

As a matter of fact, he entered nothing against the carriage on the 18th! Nothing.

Is that the last date you have any record of its being examined? Yes.

Do you know that the words "air leaking" were written on the carriage? Yes; I saw it at the Hawkesbury on Thursday. I did not get there till then.

Have you any idea who wrote the words on it? I have not. I don't know the hand-writing. I know the hand-writing of all my men, but I cannot find out who did it.

Have you tried? Yes; I have tried in the yard.

Where were the words written? On the sole bar and on the step.

Which side, as the carriage left Sydney? On the left-hand side going out of the yard.

Which side was it at the Hawkesbury supposing you were looking to the river? On the left-hand side.

When you examined the broken pipe, did it appear to be a recent break? It seemed to be recent. We often have them break. The copper gets brittle from being exposed to the air.

But it requires a jar to break them? Yes.

Can you account in any way for that breakage? It might have been broken by the accident. It must have been done with a jar, or the vibration of the carriage

Mr. Midelton.] What would be the effect of a pipe breaking on the road? The brakes would go on.

On the whole train or on one car? Throughout the train, the tender as well.

Chairman.] What is the diameter of the broken pipe? Three-eighths of an inch.

Assuming that pipe to be broken while on the train, you say it would put the brakes on? Yes.

That is, assuming that there was any air in the reservoirs? Yes.

We will suppose that the pipe broke, and that the brakes went on, how far would that broken pipe interfere with the driver taking his brakes off again by recharging? It would all depend upon the quantity of air that the driver had. If he had sufficient air to overcome the air he could take the brakes off.

With your experience of the brake would that be feasible? No; not with the way in which that pipe was broken; it was clean broken through.

But could not the driver work against such a leak as that? No; he could not.

Could he keep up sufficient pressure in his own gauge? No.

Mr. Midelton.] He could keep up pressure in the receiver under the footplate, but he could not pump into the train pipe? If he had a brake on position he could pump into his main reservoir; but it would not show on the gauge.

Chairman.] So if the gauge showed from 50 to 70 lbs. of pressure he could not have been working against a broken pipe of that sort? No.

So it could not have been broken, or, if so, it must have been shut off? Yes.

Mr. Midelton.] Do you know whether that No. 73 carriage was in good order when it left? I could not say. The man that was there could say.

Can he say whether the brake gear was in good working order or not? I don't think he is positive about No. 73.

Mr. Thompson.] At what time after the accident did you examine the car? On the Thursday.

While it was standing at the Hawkesbury River? Yes; but it might have been put in any position before I got there.

Do you know the spot where the train ran away? Yes.

Supposing that pipe was broken by a jar just as the train was running down that hill into the ferry, what would be the result, as far as the driver's experience is concerned? The brakes would go on, and if the driver did not assist with the brake-valve, and put the handle of his brake in position, it would empty his main reservoir.

But what would be his experience if he kept working his brake on and off with that pipe open? The tendency would be to lose air, but still the brake would be on.

Mr. Midelton.] Whatever he did, the brake would go on. Yes; and he could not take it off 73.

Chairman.] When you say that the breakage in that pipe must have resulted in the going on of the brakes, you are assuming that there was some air preserved in the carriage reservoirs? Certainly.

If empty, the breakage of the pipe would be neither here nor there? Quite so; evidently the man who shut that cock off knew his duty; he found the leak there, and he shut the cock off to enable the carriage to go out.

Mr. Thompson mentioned that when first seen by him the break was half-way or three-quarters around the pipe; since then it had been completely broken, showing of course the remainder of the pipe with a fresh fracture.

Witness.] They frequently break half way round.

Chairman.] What is the custom, then? "Air-leaking" is written on the card, and any one that comes across it shuts the brake off that carriage.

In the same way as was done in this particular case by someone or other? Yes.

You say you are acquainted with the hand-writing of all your men? Yes, I can pretty well tell those who brand the carriages.

And you cannot recognise this handwriting at all? I cannot.

Did it appear to be freshly written? Yes; it was very legible when I saw it; I see it has been rubbed off now; it may have been washed off with the rain.

Thomas Evans examined:—

Chairman.] You were a passenger in the excursion train to the Hawkesbury on Tuesday last? Yes.

Which carriage did you ride in? I rode in two cars; I rode in one which was, I think, third from the engine going up; and afterwards I rode in a carriage that was, I believe, the fourth from the engine

What kind of carriage was the first one? It was a second-class carriage.

Was this second-class carriage closed or open at the sides? It was closed.

With doors and windows? With doors, windows, and blinds.

T. Evans.

And

- T. Erans. And you were riding in that carriage? Yes.
- Did you ride on that carriage all the way to the Hawkesbury? No; I changed carriages at Hornsby.
- What carriage did you get into then? A similar carriage. The one I rode in first was close to the second-class smoking compartment in the American car. I went into it, and as I object to smoking I got out, and went into the next carriage. That was at Strathfield.
- Which carriage did you change into? It was the second or third carriage before the train divided, and when we were connected together again, it was No. 4.
- You changed carriages at Hornsby? Yes.
- Did you get into the carriage adjoining the one that you were in? I got into the second.
- Was it next to the first one that you were in? I think it was the next one; I am not certain.
- When you left Sydney, or when you got in at Strathfield rather, how was this second-class carriage situated, was it next to the engine? Not when I got into it. It was adjoining the second-class compartment of the American smoking carriage. It might be three or four from the engine.
- Are you satisfied that it was not next to the engine? Quite satisfied that it was not.
- When you changed carriages at Hornsby, what sort of carriage did you get into? A similar carriage, with closed sides and doors.
- How far was that from the engine as you left Hornsby? That was then No. 4.
- Was the carriage in which you finished your journey the fourth from the engine? Yes.
- Are you sure? I am positive.
- What sort of carriage was in front of you? Something of the same kind.
- Mr. Midelton.*] Was it a long car or a short four-wheeler which you got into? I could not say.
- You remember the train stopping at Beecroft? Yes.
- Did your carriage go up with the first lot? Yes.
- (After a consultation, it was made clear that the carriage the witness occupied at the time of the accident was No. 70, the fourth from the engine.)
- The Chairman.*] You remember leaving Hornsby? Yes.
- Will you tell us what you remember of the journey from the moment you left Hornsby till the accident happened? We started away from Hornsby at twenty minutes past 1 o'clock, and we went along for a little distance without anything particular occurring, except a slight hitch here and there. The engine seemed to travel very reluctantly up the hills on one occasion. I think we stopped, and had to go back again. I recollect it was near an orange orchard that we passed on the left-hand side. We went on again, and the next thing I noticed was the 29 miles 60 chains mark on the side of the road, and where we got some views of the valley beneath it. About another 20 chains beyond that we saw what we took to be the Hawkesbury River on the right hand side. Going down a little further we saw the river again on the right hand side.
- Tell us about the train? After passing the 9 miles 60 chains mark I thought we were going at a fair rate of speed, I think about 38 miles an hour, and I thought the engine-driver was putting on a spurt, and that he was making up for lost time. As we got to the first tunnel I noticed that the speed got what I call a little stiff, and that the train oscillated, pitching us backwards and forwards, and as soon as we got one jerk we would get another immediately afterwards. At that time a lady was being shaken in the train, and I got hold of her hand and we held together, and we did not feel the jerking so much. When we were passing through the second tunnel we began to realise that we were in some danger. The train was skidding in the front, and sometimes grating along the rails, and at others we could hear the train jump.
- Mr. Midelton.*] Were the brakes "on" in your carriage? No, I could not tell whether the brakes were on or not.
- None of the way down? No.
- Don't you remember their being used after leaving Hornsby? No, not on that carriage. I also saw Clissold get into the second carriage from the engine.
- The Chairman.*] When? After leaving Hornsby he was in with us till we got up to Hornsby.
- Mr. Midelton.*] Did he remain in that carriage after you passed Hornsby? Yes, all the way through.
- Did you see him afterwards? Yes, I saw him, and have known him for eighteen years.
- The Chairman.*] Are you quite clear that you saw him get on that second car at Hornsby? Yes.
- And you know he remained on it till the accident? Yes.
- You remember sticking up after leaving Hornsby? Yes.
- Do you remember seeing the guard at the time you stuck up? No, I do not.
- You did not see him after that occurred? No.
- Would you be likely to have seen him if he walked by your carriage? I am sure that I would. I was sitting close to the window, and I know him so well that I could not mistake him.
- Did you see any of the coupling preparations at Hornsby? I do not think so; passengers do not generally look for that.
- Did you notice the officer in charge at Hornsby? Yes.
- Did you see him do anything with the train? He was with Clissold.
- You left Clissold behind in the first instance? Yes.
- Did you see the officer at Hornsby before Clissold came up? Yes.
- Did you see him do anything? Only assisting the driver to get the train on the siding, off the main line.
- Anything else? I heard him say, "Where is your guard?"
- Did you happen to see what he did in the way of uncoupling? No, I did not notice anything particularly.
- You did not notice him pick up a sprag and put it into a wheel? No; I think I would have noticed that, as I was looking up and down the carriages. I am sure that I did not see any sprag. I was on the line myself for some time, on the railway lines, and I would notice what other gentlemen would not. I think I am a born detective in this case.
- You do not remember seeing anything? No.
- You did not see a young man uncoupling the engine? No.
- Nor anybody coupling it up again? No, I did not.
- Mr. Thompson.*] Which side of the train were you sitting on? On the right hand side facing the engine.
- Mr. Midelton.*] Did you look out of the window in going down from the first tunnel? I could not get a chance to do that, because at intervals we were in complete darkness in going through the tunnels.

Are

Are you acquainted with the noise the brakes make? Yes, with the hissing noise they make.

Did you hear that at all going down the hill? No, I cannot say that I did. It may have made the hissing noise; but I did not hear it. When we got through the tunnel the first thing I dreaded was a wheel breaking off the axle, and about this time a woman with a baby in her arms fainted.

Did you notice anybody shut off any of the cocks of the car in front of you at Hornsby before you left? I did not.

When you got into 70 car at Hornsby, there was another car in front of you. Did you notice anybody doing anything to that carriage? No, I did not.

Mr. Read.] Did you notice the brakes of the carriage which you got into at Hornsby? I could not say anything about them.

Mr. Middleton.] Did the train "jerk" backwards and forwards. I do not mean side oscillation. Did you feel yourselves being thrown backwards and forwards? Yes, occasionally; but there was very little rebound when we got to the end. We found ourselves thrown straight up, and we walked out of the carriage.

The Chairman.] Do you remember sticking up between Strathfield and Hornsby? Yes.

Do you remember seeing guard Clissold on the road when you stuck up at any time? I do not.

Did you speak to guard Clissold between the time of leaving Strathfield and arriving at Beecroft? I did not see him at all till I arrived at the Hawkesbury.

T. Evans.

Thomas Grace examined:—

The Chairman.] You went to the Hawkesbury in the excursion train on Tuesday last? I picked up the train at Strathfield. T. Grace.

What sort of carriage did you get into? I got into the second-class smoking compartment of a long car.

Did you retain your seat in that carriage all through? No; I was standing out on the platform looking for a jump for about 3 miles.

What I mean is, did you remain in that carriage during the whole journey? Yes, till I thought the train was running away, and then I went on to the platform of the carriage.

When the train left Hornsby you remained in the same carriage? Yes; we got out while the engine went back, and afterwards went back into the carriage again. When the train divided we got shifted further back.

Did you know the guard of the train? No.

Did you have any conversation with him during the journey? No.

You remember sticking up between Ryde and Hornsby? Yes.

Did you see the guard on that occasion? There was a man passed me by before they divided the train, and I think he belonged to the train. I asked him, in a jesting way, "What are you going to do with us? This engine has to do one of two things—pull us up, or leave us; and I think she cannot pull us." The reply was, "They have stuck too many cars on to us, and we cannot go on."

That is the only conversation which took place between you and any railway official on the journey? That is all.

You remember the train being divided at Beecroft? Yes.

You went up with the first lot to Hornsby? Yes.

Did you take any notice of what was done at Hornsby in connection with uncoupling and re-coupling the trains? We were merely shunted off, and when the other part of the train came up I do not think there was a delay of more than a minute before we went on again together.

You remember leaving Hornsby? Yes.

Now give us your own account of what you remember of the journey after leaving Hornsby? We went on very successfully, as far as I could understand, for some distance. We went at a fair rate of speed until we got close to the first tunnel. There was a party in the train who was working about there, and I recollect remarking to him that we were going to make up for lost time; but as soon as the train got out of the first tunnel I said, "The train has run away." With that I stood up and went upon the platform of the car and remained there until we got to our destination. I was standing on the right hand side, and I saw that there was no hope left for me but to jump into the water when we came to it, and I was standing there waiting for the best chance of jumping. I do not recollect seeing the little township as we passed, and I did not see the platform at Hawkesbury. I don't know whether I jumped off or how I got out of it. I heard the crash, that is all.

After leaving Hornsby, do you remember sticking up before you came to the first tunnel? I do not.

Don't you remember the train stopping after leaving Hornsby? What, after she had been made up? Yes? I do not.

Do you know the working of the Westinghouse brake when you hear it or feel it? No; but I know this, that there was no brake on the wheels of the car between me and the engine.

What makes you think that? While I was standing on the platform I noticed the car used to ride on its springs, and I could almost see between the wheels, and I noticed these wheels spinning like a spinning-top. I never saw a spinning-top revolve faster.

You are not able to say anything about the brake gear of the train—you don't know whether it was used by the driver? I don't think the brake could have been used, because the train was gaining ground every moment.

Mr. Read.] Were you on the front or back platform of the car? On the front platform towards the engine.

Did you notice any application of the brake? I noticed nothing about the brakes. My opinion was that the engine had run away, and that in a few minutes we would be in eternity, and that there was nothing for us but death.

Thomas Evans, recalled:—

The Chairman.] Having had an opportunity of seeing the carriages which were on the train, have you come to the conclusion which one you rode in after the leaving Hornsby? Yes, it was No. 70, a Redfern composite carriage.

T. Evans.

Pierce

Pierce McEncroe examined :—

- P. McEncroe. *Chairman.*] You were in the excursion train to the Hawkesbury last Tuesday? Yes.
Which carriage were you in? I was in the first-class compartment of the smoking-car.
Where did you get in? At Redfern.
Do you know the guard of the train? No.
Are you acquainted with the Westinghouse brake;—can you recognise its action when in a train? I have seen the hose-pipe running from one carriage to another.
Have you travelled much in trains? Yes, pretty constantly during the last ten years.
Did you see the guard during any part of the journey? I do not remember seeing him.
At no time? Not that I can recollect; I saw the railway men at Hornsby running backwards and forwards, but I did not take particular notice of them.
You remember going up to Hornsby. You went up with the first lot of carriages, did you not? Yes.
Did you take any notice of the railway men as they uncoupled and coupled up? No; as the engine was coming along with the other two carriages, we go into our carriage again, before they coupled up.
Would you describe to us what you remember of the journey between Hornsby and the ferry? After leaving Hornsby the train seemed to go along at a fair pace for about half way. Then we noticed the train going very fast; and I recollect a friend said to me, "The engine is going very fast," and I replied that I thought the train was making up for lost time. I never had any idea that the train was running away, and as far as the rocking and jolting were concerned, I have felt it as bad on the mountains with the mail trains, except, of course, the last knock we got.
Did the train stick up for a short time after leaving Hornsby? The train at first stuck up a little beyond Ryde, and after running back we stuck up two or three times after that.
Do you remember sticking up at Beecroft? Yes.
Do you remember sticking up after leaving Hornsby? I do not recollect.
Mr. Midelton.] Did you ride through in the same car? Yes.
Where was the car when you got in at Redfern? I fancy it was the second from the engine, but I am not sure.
The Chairman.] You say you have travelled a good deal in railway trains? Yes.
Do you know what it is to feel the brake go on? Yes; you hear a grating noise.
Have you often noticed the use of the Westinghouse brake, and the hissing noise that you frequently get by its use? Yes. I have often noticed that.
Do you remember hearing or feeling any application of the brake after leaving Hornsby? No; I do not remember feeling it.
Were any of the passengers in your compartment alarmed? Not a bit. I do not think there was a person in the compartment who had any idea that the train was running away. We were reading and smoking; but I recollect my mate remarking that the train was running very fast, and I replied something to the effect that she was making up for lost time.
Mr. Midelton.] Did you feel yourself being jerked backwards and forwards; I do not mean sideways, recollect? No. The oscillation was simply sideways, and the last knock we got sent me from one side of the carriage to the other. I was not thrown forward at all. When we got the knock, the door of the second-class compartment and the passengers rushed in and told us to clear out, as the train was smashing up.

Harry Richardson, coaching superintendent, recalled :—

- H. Richardson. *The Chairman.*] Do you know porter Stead, the officer in charge at Hornsby? Yes.
Has he had any experience with the air brakes? Yes.
Where was he engaged prior to going to Hornsby? At Sutherland, where he had to cut off all the trains that went to the National Park and Sutherland. Prior to that he was at Parramatta for several months. As shunter there he had to attach and detach engines and vehicles of passenger trains, and they were all worked by the air brake.
C It was a particular part of his duty to look after the air cocks? Yes; both at Parramatta and Sutherland. I always found him a careful man, and a man with a good knowledge of the Westinghouse brake. By way of explanation, I may say that he has always mastered what he has had to do. For instance, when he went to Sutherland, he did not know how to send telegrams; but he had not been there a fortnight before he had sufficiently mastered the instrument as to send and receive telegrams. I found him a very intelligent man, and that is the reason I put him at Hornsby.
Do you know what means are taken in Sydney to prevent an engine going away with too heavy a load? No, not as far as the Locomotive Branch is concerned. We, in the Traffic Branch, make up the suburban loads up to fifteen, sixteen, or eighteen, as the case may be, and on the mountain line and going south we put on up to seventeen, eighteen, and nineteen, and in that case we advise Picton and Penrith.
So in the cases of Picton and Penrith these long trains are regulated from there? Yes.
What about trains going to the Hawkesbury, where there is no intermediate depot? I should regulate them from here.
Whose duty would it be? So far as the engines are concerned, the Locomotive Department; but from the Traffic Branch point of view fifteen would be the load. That would be the load on account of the couplings, but I could not say what an engine would pull.
So in your opinion the Locomotive Branch would be responsible for seeing that no engine was overloaded? Certainly.
Seeing that an overloaded engine would be likely to result in delay and inconvenience, don't you think that the principal officer at the station, such as the station-master, should also take some interest in such a matter, and see that the engine is not overloaded? Certainly he does that, and I do it in scores of instances. If I find that an engine is overloaded I draw the attention of the Superintendent of Locomotives to the fact, and ask him to put a heavier engine on.
I have done that in many instances, particularly on the Illawarra line.
Mr. Midelton.] The limit for the mountains is thirteen carriages? Yes.
What would be the limit then for a grade of 1 in 40? I am not prepared to say what it would be from a locomotive point of view.
But

But what would be your limit? About fifteen.

What is the limit you would send anywhere? Well, as to that, I could put thirty on between here and Penrith and Campbelltown, provided with proper brake power.

You do not think it would be unsafe to work thirty carriages between here and Campbelltown or Penrith? It depends upon the stoppages. If the train had to stop at all the stations going along, I certainly would not do it; but if I were running a special train with a large school party or a large excursion party, without stopping between here and Campbelltown, I could safely put thirty on.

But you would not exceed thirteen beyond Penrith? No, I would not.

The Chairman.] I think you have said that you have put fifteen on the Illawarra line? Yes; and in the case of the unemployed a little time back I put twenty on. I had to bring the unemployed into town, and I put twenty carriages on, with a large American engine. I held the train very easily, as there was plenty of brake-power and a heavy goods engine. I have also taken troops up to Loftus, when I have had equal to seventeen on.

In fact, you would regulate your load according to your engine-power and brake-power, and not by the work your train had to perform? Yes. I knew that in the case of the unemployed I wanted twenty carriages, and I saw that plenty brake and engine power was provided.

Mr. Midelton.] Was that train worked with the Westinghouse brake? No, it was not; it was worked with plenty of hand brakes all over the train.

Mr. Thompson.] What is the grade from Colo up to Sutherland? About 1 in 40.

Mr. Midelton.] Do you know what engine it was in that case? I do not.

The Chairman.] You know the train that went to the Hawkesbury River? I was not in Sydney when the train left.

Are you aware of the brake power attached to that train? Yes.

In the shape of hand-brakes alone? Yes.

Do you consider that the hand-brakes alone would have been sufficient alone to control that train to Peat's Ferry? Yes.

Quite sufficient, apart from the use of the Westinghouse brake? Yes; I have no hesitation in saying that I will take that train any day in the year with the use of the hand-brakes on the two American cars.

You consider, in fact, that the engine and tender brakes together with the hand-brakes of the two large American cars, would be more than ample to control that train to Peat's Ferry? Yes, I do.

Mr. Read.] In speaking of running these heavy trains between Sydney and Penrith, you refer to non-stopping trains? Yes.

Mr. Midelton.] Suppose an engine is powerful enough to take sixteen over the Mountains, would you put sixteen on? No, not over the Mountains. The Traffic Manager has ordered thirteen to be the limit, and I have not exceeded it; but I have known a case in which fourteen have been taken.

Mr. Read.] What is the heaviest load taken to the Hawkesbury River? Equal to fifteen vehicles.

William Farquhar, Shed Inspector, recalled:—

The Chairman.] You are acting under Mr. Cobb, who is the Running Foreman? Yes.

You know that the Hawkesbury line has been opened lately? Yes.

What class of engine have you been in the habit of sending with trains to the Hawkesbury River at holiday time? Bogie engines.

Have you ever sent any other? Yes; we had a special order for heavy engines on Sundays. That is the only day we picked a heavy engine for that road.

What class of engine have you sent on the road on Sunday with the heavy load? Either a 63-class or the American class of engine.

Is that what you call the 304 class? Yes.

If I understood you the last time you were giving your evidence, Driver Wilson had never taken charge of a train as driver on a line with grades of 1 in 40? No; not beyond Penrith or Picton.

Has he travelled beyond those points? Yes, as fireman.

Well, what was your reason for sending such a man as Wilson on the Hawkesbury line on this occasion? He was a second-class driver, and had been driving for five or six years. I looked at it in that light. I did not consider there was any difficulty in the road. It was daylight, and, from my experience, I have never found any difficulty on a new road in daylight.

Therefore, you would send a man in daylight on a road that you would not send him on at night-time? Yes, I would.

What other drivers were picked out for the Hawkesbury line, on Monday or Tuesday? Frame, Hume, Wilson, and the man who runs regularly on that road were picked out for those two days.

What engines were picked out for Frame and Hume? One had a big engine, and the other had a 60-class engine. We required all the engines we could possibly spare that day. We had no engines standing by. All the engines with air supplied were in use.

Mr. Midelton.] Were all the last new ones in use? Yes.

Where did they run? One was running to Bathurst, one was running to Waterfall, and the third is just newly out.

Were these drivers sent to learn the road before Monday or Tuesday? We have had no opportunity of sending men to learn the road, only on the Sunday or Saturday.

How do you make that out? There is only one engine that runs all the traffic on that road between Strathfield and the Hawkesbury.

But could not a driver go with that driver as fireman for a week to learn the road, rather than put him on driving at first? I daresay he could; but it has never been the practice to send men on new roads like that. Wilson was there the day previous.

That was the first time? Yes.

Did he express himself to you about being at all frightened? Never made any remark.

Not to you? No, not to me.

Did he to any one else to your knowledge? No, not that I am aware of.

The Chairman.] Do you know what load the engine took out with it? I counted fourteen, counting the American cars as two and a-half, and the Redfern type as two. } h Don't

W. Farquhar.

Don't you think that under the circumstances that that was somewhat an overload for that engine? Yes, it was, rather.

Mr. Midelton.] Could you have taken that load to the Hawkesbury? I do not know. I have never been up on that road. It depends on the length of the banks. If they were short banks, I could.

h { What would you call a long bank? Anything between half a mile and a mile long. Quarter of a mile banks would not be felt much.

An engine is not necessarily supposed to bring back the exact number of carriages which it takes away to a particular station? No; it does not always do so.

Mr. Midelton.] Do you think that 178 would do so? I do not think she would with that load, if she had to come back over a bank $4\frac{1}{2}$ miles long.

Then what provision had you made for working the balance home? I have been thinking the matter over since. The other train would have had to bring some of them back.

But Wilson went away last, did he not? Yes; but he was supposed to get there four hours before the other trains came away.

The Chairman.] Goods trains occasionally work carriages back? Yes; I believe they do bring back carriages left standing at the station.

Have you any locomotive men at Peat's Ferry? No; only the driver and fireman running the train there.

Mr. Midelton.] Do you know whether Wilson protested against taking the load before he left Sydney? Only what he said to me in passing.

Where was that? As he went out at the end of the platform.

What was his remark? "I shall never be able to bring this load out of that hole."

Did not that rather excite you, that he would not come back? That made me count his train. I should not have done so but for that remark. I then counted his train to see what he had on.

Then he understood that he would have to bring the same train back? Yes; but I thought he might put some of the carriages on the other train, because they had smaller loads.

How many had they? They had eight and a half or nine.

Yet one of their engines was bigger? Yes. Our idea was that most of the people would go out by the first train, instead of which, the last one was the heaviest.

Mr. Read.] What has been the experience of other days in the way of heaviest trains; what engine do you send out with the Hawkesbury train? The same class of engine.

On previous holidays, did the trains start at the same time? Yes; I think on Queen's Birthday they were the same.

Mr. Midelton.] Was the 60-class of engine fitted up with the Westinghouse brake especially for that purpose? When the heavy engines were asked for for the Illawarra and Hawkesbury road on Sundays, we were very short of engines at the time, and we thought it was a good plan to put brakes on these. We had others working with heavy trains. We had one going to Mount Victoria, and another with a heavy goods to Penrith, and another (63) going to the Hawkesbury.

How many of the 60-class are fitted with brakes? Two.

What are the numbers? 63 and 64.

Mr. Read.] Were any in use at the Hawkesbury that day? Yes, No. 63—the first train.

Mr. Midelton.] What did it take? Eight or nine.

And the other engine, (178) had what? Fourteen.

The Chairman.] When you allotted the engine, I understand you anticipated that the reverse would be the case—that the heavy load would go in the morning? Yes; that is the reason why the heavy engine (63) was put on at 8 o'clock, because we thought most of the people would go up early in the morning, and that many of them would come back by steamer.

When it had turned out a smaller load than you had anticipated, could you not have reversed the arrangement? No; we cannot say what the load is likely to be until the train is going out, particularly at that time in the morning, when we are very busy getting engines, and the trains fill very quickly.

How many engines had to be allotted and despatched that day altogether? Somewhere about seventy-five or seventy-six altogether.

Mr. Midelton.] What is the regular number on an ordinary working-day, or take Saturday, for instance? I could hardly tell just now. I know I made up seventy-five or seventy-six on that day.

The Chairman.] The traffic is more irregular on holidays? Yes; far more irregular.

Mr. Midelton.] If you know the number on an extraordinary day, you ought to know it on an ordinary day? Well, it is about sixty-four or sixty-five that go out on an ordinary day.

The excursion train was timed to leave at 10:25? Yes.

What time was it due back here? I don't remember what time it was due back.

Is that the greatest number of trains that have been used on that line on a holiday? Yes; I don't remember any more being on that line. Of course we run other trains as far as Ryde, and no further.

Do you remember the drivers you put on that road last holiday? I have a record of it in the office, but I don't remember who they were; but these three drivers ran there on the previous day.

The Chairman.] Had you another engine available at 10:30 that morning, of a more powerful character? We had not a large engine. They were all in use for the Illawarra line, the special south and west, one at Hawkesbury, and the others on the suburban line.

If, at the last moment, you had been asked for a more powerful engine, could you have supplied it? We had not one in the yard then.

Mr. Thompson.] Do you examine the new extensions before they are opened, for the purpose of determining what class of engine should be put on? No.

Is there any person who does so? I think Mr. Cobb does so.

Have you sections of the grades supplied in the office? I have seen them in the office, but I have not received them officially.

Who instructs you as to what class of engine you are to put on? Mr. Cobb. He would say what load ought to be put on an engine, and when the loads are known, he mentions the engines that are fit for them.

I understand that class of engine has been run on the line before? Yes.

Did Mr. Cobb instruct you to use that class of engine? Yes.

Did he give you any maximum load to put on? No.

He

He did not tell you what the maximum load should be? No.
 You have never been on the line yourself? No.
 Have you been on the Illawarra line? Yes, as far as Waterfall.
 Do you know the grades of that line? I only went as a passenger. That is all.

W. Farquhar.

William Rice examined:—

The Chairman.] What duties did you perform on Tuesday last? I was told off for Hornsby.
 What did you do? I went up with this train, 10:25; I think it was 10:29 when she left; after leaving Ryde we could not get up the incline; after running back twice we managed to get up; we then went on as far as Beecroft; we had to stop there, and we came back for some distance, and the driver took in water; after that we started on again, and just got beyond the platform at Beecroft; we were obliged to stop there again, and I saw the guard go on to the driver; the guard afterwards came back and uncoupled the train there, and the engine took half the train as far as Hornsby, after which the engine came back again.

W. Rice.

Did you go on with it in the first lot of carriages? No. When the engine came back, the guard who remained behind, coupled on the other two carriages, and the engine afterwards brought the other portion of the train on to Hornsby; backed into the siding, and all the other carriages were coupled on again.

Did you see the coupling and uncoupling at Beecroft? Yes.

Who did it? The guard.

Did you see the coupling up at Hornsby? Yes.

Who did it? The guard.

Did you notice him do it? Yes.

What did he do? There was no coupling on that end of the car when the engine came back, and the young man Stead, stationed at Hornsby, went and got the coupling from the end of the other carriage and gave it to the guard, who put the coupling on.

Did you see him do it? Yes.

Did you see him couple anything else but the screw coupling? Yes; I saw him couple the air pipes.

Did you see him work the taps? Yes.

You saw him turn the taps? Yes.

Did you see the train get away? Yes.

Did you notice whether the train got away without difficulty? The train had no difficulty in getting away from Hornsby.

Did you notice how the brakes on the first lot of carriages were when you went up with the second lot? I noticed after the guard coupled up that they were all right.

What do you mean by all right? I tried them myself; I gave one of them a kick, and I could see from that that they were acting very well.

You kicked a brake block? Yes.

That was after they coupled up? Yes.

Mr. Read.] Did you hear any air escape when the brake was being put on? Yes; I heard the air escape.

The Chairman.] Do you know whether the brakes were on or off the first lot of carriages when you arrived there with the second? They were off.

How do you know? Recollect I am referring to the first portion of the train.

When you got at Hornsby with the two carriages, did you notice how the brake blocks were on the other seven carriages before the coupling up took place? No, I did not notice them.

You only notice the blocks after they were coupled? Yes.

You saw the coupling take place? Yes.

When the coupling took place did you hear anything in the way of an escape of air in connection with the application of the brake? Yes, I did.

What did that lead you to think? I thought it was the engine-driver trying the brakes at the time.

Mr. Thompson.] Did you try the brake blocks of two cars, or only one? I tried two of them.

Do you know which two? I could not tell you the two I tried.

Mr. Read.] What induced you to try them? Just a matter of thought. I thought there might be something wrong with them, so I just gave them a kick.

Mr. Thompson.] Was it the first seven, or the second lot of carriages? I tried the first and second one.

And you found them loose? Yes; and I walked as far as the end of the train.

Mr. Midelton.] Were the blocks hanging close to the wheels, or a long way off? About $\frac{1}{2}$ an inch off, that is all.

The Chairman.] You say you walked to the end of the train? Yes.

Mr. Thompson.] Which way did you walk, backwards along the seven carriages? Yes.

Did you see the guard connect the hose to the engine when it came back to Beecroft to take the other two carriages? Yes.

Did you see him connect the air-pipe? Yes, I saw him do that.

Did you see him do anything to the tap? I saw him turn the tap.

How turn the tap? Downwards.

Did he do anything to the tap on the engine? I did not see him do anything with the engine tap.

Mr. Read.] Did you notice the air-brake working on these two carriages between Beecroft and Hornsby? I noticed it in coming in to Hornsby when the driver pulled up. We were coming pretty fast and he pulled up easily.

Where did you ride? In the back car.

And you state positively that you felt the break working on this car? Yes, I am positive.

Mr. Thompson.] Did the guard touch the hand break at all in going up from Beecroft to Hornsby? No, I did not see him.

Mr. Read.] You stopped at Hornsby that day? Yes.

Mr. Midelton.] Did you see the train start from Hornsby? Yes.

Did you notice any of the blocks on the cars? No, I did not.

He

- W. Rice. Do you know any body who turned the tap off the four-wheeler No. 73? No.
Mr. Read.] How long were both lots of carriages at Hornsby before the train started away? It could not have been more than a few minutes.
 Did you see Stead there? Yes. He made a remark to the guard. He asked him if he had all the taps turned or not. The guard said yes, and Stead said "Are you sure" and Clissold said "I am sure."
Mr. Midelton. You do not know who turned the tap on 73 car. That was the first car that stood towards the river when the first part of the train came up to Hornsby. Have you heard of any body who turned that tap? No.

George Galead examined:—

- G. Galead. *The Chairman.*] Were you engaged on the Hawkesbury line on Tuesday last? Yes; I was in charge of Thornleigh Station.
 Tell us all you saw? A train came into my station about 10 minutes past 1, and the driver when he came up said "I want to put these carriages into your siding." I replied "We have no room, the siding only holds fifteen trucks and there are twelve in it now." He then said "What are we to do?" and I replied "You had better take the train on to Hornsby." I asked him where his guard was, and he said he had no guard with him, that he had left the guard behind with the remainder of the train. Hearing that, I considered it my duty to go on with the train, as the rule says we are never to despatch a train without its being in charge of some one; I saw that the driver had his staff; I placed my danger signals up, locked the office, and took the train on to Hornsby.
 Tell us what took place at Hornsby? The station-master there took hold of the points and backed the train into a siding. He then got in between a second-class carriage and the engine and uncoupled them. Whether he turned any of the air taps or not I could not say. He gave the signal to the driver, and I got off to see that the points were held back. After putting the points back I proceeded back with the driver to Beecroft, where he had left two carriages. When I had arrived at Beecroft the guard coupled on the carriages and connected the two hose pipes. At that time he had a pole such as the fettlers use to ride on the rails between the two hind wheels of one of the carriages, and the pole was slack. He gave the signal to the driver, and the driver said the break was on; and with that I looked and saw the brakes were on the two carriages. The guard said, "Wait awhile," and at this time he pulled the pole out before he attempted to start. With that the guard went to the other side of the carriage, and afterwards the brakes were released. I put my hands on the blocks and I said, "The brakes are loose now."
 Who released the brakes? The guard; he went on the other side of the train, and released the brakes. I shook them, and saw that they were off. With that he gave the driver the signal, and I jumped on to the engine. When we arrived at Thornleigh I left the train there, and the train proceeded on its journey.
 One of these two cars was an American car? Yes, I think so.
 The other one was not an American? I don't think it was.
 When you say the guard released the brakes, are we to understand that he released the air-brake? Yes, he released the air-brake.
 He never touched the hand-brake? Never touched it at all.
Mr. Midelton.] How did he release the air-brake? I don't know; I concluded that he must have turned the taps to release them. After he connected the hose-pipes, he went around to the other side of the carriage to release the brakes. I am certain that the brakes were on before that, or the carriages would have run down the steep incline on which they were standing.
 Was the hand-brake on the car? I did not see him touch the hand-brake at all.
Mr. Thompson.] Where was the guard standing when he released the brake? He was the opposite side. The two cars stood in a cutting, and he went on the other side of the cutting. I don't know exactly where he was standing when he did it.
 Have you any idea why he released the brake instead of the engine-driver? I don't know, but I know that the engine-driver made no attempt to release them.
 You are clear that you saw the guard? Yes, I saw him go around the other side of the carriage, and after that they were released.
 Are you certain that the guard released them, or might it not have been done from the engine? It might have been done from the engine, but the engine-driver was talking at this time to Mr. Rennie. Of course the fireman can give you better information on that subject than I can.
 Which carriage was it? I believe it was the American car. The carriage, I think, stood in front of it.
The Chairman.] Were the brakes on both carriages? Yes.
 Did the guard release them on both? I could not say. He went round the other side of the car to release the brakes. Immediately afterwards the brakes were released from both carriages.
Mr. Midelton.] You were on one side and he on the other? Yes.
 Did you see him release the brakes? No, I could not see him on the other side.
 You cannot say whether he did it or the driver? No, not positively.
Mr. Read.] Did you hear the usual hissing noise? I could not say that.
The Chairman.] What makes you think the guard released the brakes? Because he went on the other side, and as he went there the brakes came off.
 Did the guard then give the signal to start? Yes, and I jumped on the engine.
 And you say the driver was talking to Mr. Rennie at the time? Yes.
Mr. Read.] Where did you ride on the return journey to Thornleigh? On the engine with Mr. Rennie, the driver, and the fireman.
Mr. Midelton.] Did you see the driver use his brake? When I first went on from Thornleigh, he put his brakes on, and the brake went on hard; that was a little distance beyond my station.
 Was it the Westinghouse brake? I could not say.
 Was it the usual screw, hand-brake, or the continuous-brake? I could not say; I only know that the brake was grinding when going down the short incline with the seven carriages.
The Chairman.] You say you distinctly remember the brakes being used on these seven carriages between Beecroft and Hornsby? Yes; but the driver had no necessity to use them all the time. The driver was complaining to me about losing time.
 Did he make any remark about the brake? No; he only said, in going back for the two carriages, "I will get into a devil of a row about being an hour late, as I was late last night."

Sixth Day—Wednesday, 29 June, 1887.

June 29th. Mr. Lutton, of the firm of Lutton and Sons, engineers, ironfounders, general blacksmiths and boiler-makers, Hay-street West, Sydney, called upon the Traffic Manager and stated that he was a passenger by the train which left Sydney at 10.25 a.m. on Tuesday, the 21st June, for the Hawkesbury River. All seemed to go well until reaching Ryde; there the engine seemed to be not powerful enough to draw the load up; the boiler seemed to be priming very much; it tried once to pull the load up, but was not successful; it took in water, and then hauled the load to Beecroft. We went on from Beecroft to Hornsby, leaving two carriages at Beecroft, and we remained at Hornsby for about half-an-hour while the engine was going down for the other two carriages; I was in the second carriage from the engine when we left Sydney, and the fourth from the engine when we left Hornsby; when we left Hornsby we had another trial—not being successful in getting away at first—and she seemed to return back very quick, as though she had been relieved from some difficulty; then we went at a very fast pace until near the first tunnel, when the pace seemed to increase; on entering the second tunnel she was going at a terrific pace. My opinion is that the donkey-pump did not act, so that it would not keep the supply in the reservoirs. *Mr. Read.]* Have you any recollection of the working of the brake in your carriage in any part of the road right from Sydney to the time of the train getting away in the first tunnel? I could not say; I would not like to answer that question. I do not remember it acting at all after we left Hornsby. Of course I would not like to say for certain; that is my opinion, as the train seemed to increase in speed from the time it left Hornsby until she got away in the tunnel. I am of opinion that the brakes did not act after entering the first tunnel, as I think the wheels were revolving on account of the axle-boxes of the second or third carriage from the engine being hot when I felt them a quarter of an hour after the accident.

Seventh Day—Thursday, 30 June, 1887.

PRESENT :—

DONALD VERNON, Esq., Chairman.

T. MIDELTON, Esq.,

| W. V. READ, Esq.,

MAX. THOMSON, Esq.

John Fell called in and examined :—

The Chairman.] What are you? I am a labourer.

Where are you employed? I am employed at Mr. Tempest's, in the air-brake shop.

Were you ever engaged in examining carriages and air-brakes? Sometimes I am; occasionally.

When you found anything wrong with the brake appliances what did you do? It is my duty to fetch Chambers and look at it, and he marks it.

Did you ever mark any yourself? No, sir.

You remember the day of the accident? Yes, sir.

Have you any knowledge of the carriages which went out on that day? Only one, that is 73, a closed second. I saw the mark on one side of it—"air escaping." I called Chambers, and he marked on the other side "copper-pipe."

Did you notice anything else? I noticed that the pipe was gone; it was cracked. The pipe I mean is that going to the triple-valve. It was disconnected with the triple-valve.

Did you notice the tap? No, I did not notice the tap.

Mr. Midelton.] Where was that pipe going from, did you say? It was closed from the through-pipe—in the reservoir—to the triple-valve.*The Chairman.]* Is that all you know about it? That is all.

Where did you see that carriage on the 21st June—on the Tuesday? The carriage was standing on the top of 4-shop row.

About what time? The time that I saw it would be between 9.30 and a quarter to 10.

And at what time did Chambers see it? I brought him straight to it as soon as I saw it myself.

Mr. Read.] You are sure it was No. 73 carriage? Yes, sir.

How did you tell it? Because I do not think there is another carriage in the yard painted in the same way. I have not seen it since.

How was it painted? It was painted a dirty yellow colour.

The Chairman.] That is near enough.

John Fell.

William Thomas Chambers called in and examined :—

The Chairman.] What is your position? I am repairing the Westinghouse air-brakes out in the yard only.

Is it part of your duty to examine the brake appliances underneath the car? Yes; the brake appliances of the express and the two mails in the morning, and to see that the mails are right going out at night.

Do you ever mark off carriages when its found that they want repairs? Yes, sir, that is my duty.

Do you remember marking off any carriage on the morning of the accident, or marking anything upon the carriage? Yes, I remember a closed second. I remember marking off that a copper pipe was broken.

You saw that it was broken yourself? Yes, sir.

Did you see that the tap was turned? I can't recollect that, sir. But if the pipe is broken they cannot use the carriages if the tap was not closed. It would rob the driver of all his air, or so much as he could not be able to keep it up.

What } b

W. T. Chambers.

W. F. Chambers.

What sort of a crack was it, do you remember? It was close to the triple valve; it was broken off so that you could feel the pipe with your nail. You could put your nail into it. It was a little short bend on to the triple valve.

You do not remember noticing the position of the little tap? No sir; I do not.

Mr. Midelton.] Did you find this out yourself? No sir; there was a mark upon the carriage on one side, and then I wrote upon the other side.

Did you find this out yourself? Yes, sir; I went to the carriage without anyone telling me.

And then what did you do? I found that there was a broken pipe.

And what did you do next? I wrote upon the carriage "copper-pipe" only.

What does that mean? It means that the man who is to go around is to put the pipe right again.

Would that car be likely to go out in a train? No; I should not think that it would be likely. It should not have gone. Cars go into that shed to have the necessary repairs made that are required

Do you know who shut off the cock in that pipe? No.

Do you know who first found out about the pipe having been broken before you had anything to do with it? Nobody ever mentioned it to me or anyone else, except the man who was coming up to do it.

Are you sure that nobody else called your attention to this thing before you went and found it out yourself? No, sir; I do not recollect.

The Chairman.] Did anyone call your attention to "air escaping" being written on the car. Did Fell call your attention to it? I do not recollect that he did.

Does not Fell do something in the way of examining the cars sometimes? No, but he does in the train. He only repairs underneath.

But this was a case of repairs underneath. Do you remember his calling your attention to this case of repairs being wanted underneath, or to the fact that anything had been written on the car? No; I do not recollect that he did.

Do you remember of his ever having done so on any occasion? Oh, yes; on many occasions.

Is it possible that he may have done so on this morning without you remembering it? Yes, sir. It is possible that he might have done so.

Mr. Midelton.] Did you do anything else after you had marked the car? Yes. I came over to the other side. The train was going out.

But you did nothing more to that car? No, sir; nothing more to that car.

The Chairman.] When the tap was properly turned there would be no reason why that car should not be made up in a train, so far as the brake connections are concerned? The brake connections would be right through the train if that tap was turned right.

And the carriage would be equivalent to one with the through connection underneath? Just so.

And so far as that is concerned that car was just as fitted to be made up in a train as any car with the through connection underneath? Yes, sir; and there are several of them running now.

John Hemsworth called in and examined:—

J. Hemsworth. *The Chairman.*] What is your work? I am an engine fitter.

Have you anything to do with examining the brake appliances of carriages? Yes sir, that is my business at present to examine all valves and pistons of carriages.

Do you remember examining any of the carriages recently? Yes sir.

And finding them defective? Yes sir. Every day we have some defective ones.

Every day you find some? Yes sir.

Would you remember any particular carriage if I asked you? Yes sir. I think I would.

Do you know the carriages that went out to the Hawkesbury on the day of the accident? Yes sir, but I only know one of them, the one that was leading carriage.

Do you remember finding anything the matter with that one? Yes sir. There was a copper pipe broken on it; it was broken on one end.

To what extent was the pipe broken? It was completely severed from the collar at one end.

What about the other? The other was held firmly in its place by means of the union.

What pipe did you refer to just now? The small copper pipe connecting the main pipe through the train with the triple valve.

Did you take any notice of the little tap that shuts it off? I looked to see whether it was open or shut but was unable to get underneath and could not see accurately.

You could not see accurately? No, Sir; I cannot positively say whether it was open or shut.

What time in the morning was it that you discovered this? Yesterday, I said to Mr. Downe that it was about a quarter to 8; but since then I have thought deeply on the subject, and I find that I am mistaken. It was about a quarter past 10. I mistook another carriage for this one on Monday morning—the morning before.

Mr. Midelton.] What would have been the effect if that car had gone off without the cock being shut off? It would have let all the air out.

The Chairman.] Would the driver have been able to put his brakes on throughout the train if the pipe had been left open like that? I fear not, Sir; it would —

Do you know who shut the cock off, or whether it was shut off at all? I know it was shut off before the train went out.

You know it was shut off? I do.

Mr. Midelton.] How do you know that? Because Mr. Chambers told me that it was shut off. He told me that the tap was shut off, and that she would be all right till she came back again. That was at the time that I went to take the pipe off to repair it.

The Chairman.] And you did not take it off? No, Sir.

Are you quite clear that Chambers made that remark to you when you came to repair the pipe? I am quite certain, Sir.

And that at that time the car was on the train? Yes, Sir. It was just a minute before it went out, and there was not sufficient time to allow me to get underneath.

William Farquhar recalled and re-examined:—

The Chairman.] I want to ask you another question or two with regard to the driver Wilson—with regard to his qualifications for the work which you allotted to him on the day of the accident at the Hawkesbury. What experience had Wilson of the working of the Westinghouse brake? He had experience by the running of passenger trains on holidays and Sundays.

For how long a period? Well, he has been doing that for five or six years, anyhow, I should think.

And using the brake all that time on and off? Yes, sir.

What are the names of the men who were appointed by you to do the work on the Hawkesbury line on Tuesday? William Frame, William Hume, and Thomas Wilson.

Had you any other men available at the time who had more experience of that road than these three men? No, sir; we had not. The men available of more experience were sent on to the south and west-lines—all grades.

But had they any more experience of the Hawkesbury line? No; no more than this man Wilson.

But you think they had more experience in the working of the brake? No, sir, in the driving over heavy grades.

And working the brake on heavy grades? No, sir; no more than Wilson. I meant experience in driving trains over heavy grades.

But if a driver has more experience than another in driving heavy loads over heavy grades, he must also have a larger experience in the working of the brake on heavy grades—necessarily this must be the case? Is not that so? Well, I think Wilson had sufficient experience on any grade, only that he had not been driving on the south or west.

Wilson had been acting as driver for five or six years? Yes, sir.

How much of that time has he been working the passenger-trains? For the time that I said—on Sundays and holidays. He has been working goods-trains for a considerable time to Penrith, and shunting at Darling Harbour, and he used to take his turn with extra trains on Sundays.

And you have been accustomed to use him for extra passenger-trains? Yes, sir.

I think you told us before that Wilson had not been accustomed to drive beyond Picton or Penrith, although he had been acting as fireman? Yes; but I think he was running trains previous to this on the Hurstville line—the Illawarra line.

Mr. Midelton.] How far? I think he went on to Sutherland.

But you can tell us exactly by looking at the sheets? Yes.

The Chairman.] Will you kindly obtain the sheets and ascertain? I will.

The Board then adjourned.

Government Railways, Locomotive Engineer's Branch,

Redfern Station, 30 June, 1887.

Sir,

On looking over the running sheets, I find that driver T. Wilson ran two trains to Loftus on Anniversary Day.

D. Vernon, Esq.

W. FARQUHAR.

[See Appendices A, B, C, D, E, F, and G.]

No. 5.

Memo. by The Secretary of Railways, accompanying above Evidence.

FOR the Commissioner's information and assistance, I beg to submit the following memorandum, from which he will gather without much difficulty a knowledge of the precise evidence which the Board relied on in arriving at the conclusions upon which their report was based.

It must also be borne in mind that, in addition to what was actually given in evidence, the members of the Board had the advantage and aid afforded by a personal inspection in some matters, and by their own knowledge and experience in railway business generally, in arriving at their verdict. D. V.

THE first conclusion of the Board was that the train was amply provided with brake power, and the evidence supporting this will be found on pages 14, 15, 18, 20, and 22, marked a, and in Appendix F.

The train was composed of—engine and tender, weighing 59 tons 5 cwt. 2 qrs.; nine carriages, weighing 90 tons 16 cwt. 1 qr.; total, eleven vehicles, 150 tons 1 cwt. 3 qrs. It comprised five 4-wheeled and four 8-wheeled vehicles. The engine, the tender, and four 8-wheeled carriages all had working brakes, or 123 tons 5 cwt. 3 qrs. out of the 150 tons 1 cwt. 3 qrs. was under efficient brake power, or six (all the heaviest) out of the eleven vehicles were provided with working brakes.

The nine carriages would reckon as fourteen ordinary 4-wheeled; with engine and tender this would make in all sixteen; say out of this number equivalent to eleven were braked.

Again, the weight of the loaded train may be regarded as 167 tons. The minimum amount of brake force necessary to control this weight on a grade of 1 in 40 may be said to be 21 tons. As a matter of fact the train possessed 65 tons.

Take it in another way. This 65 tons brake power represents 13 tons retarding power. The total weight of train represents $4\frac{1}{2}$ tons of downward gravitating force, so that we get 13 tons to hold only $4\frac{1}{2}$. Or, again, before the Westinghouse brake was introduced, and we had to depend upon the system of hand-brakes, an engine such as the one that went to the Hawkesbury River would bring a load down the Western Mountain grades of 1 in 30 and 1 in 33, equal to a weight of 64 tons, and of this $7\frac{1}{2}$ tons were furnished with brakes, or 12 per cent.

The load behind the engine of the Hawkesbury train weighed 90 tons 16 cwt., and 64 tons were under brakes, or 71 per cent.

The whole of the foregoing facts are disclosed in the evidence to which reference has been given.

The second conclusion of the Board was that the brake appliances were in complete and in good working order when the train left Sydney.

Evidence of Werrick, Derham, M'Carthy, Chambers, and Hemsworth proves conclusively that the train was regularly inspected and brakes tested prior to leaving, and tested, too, by driver Wilson, whose engine did not come on to train until the nine vehicles were together.

Second-

Second-class carriage No. 73 brake appliances were disconnected in the proper way, and by means provided for the purpose, so that it became equivalent to a carriage furnished with a through pipe only. It was in no sense a disabled carriage, or one that should "not have gone out." It was not marked as "not to go out" until it arrived in Sydney after the accident.

The evidence supporting this will be found on pages 15, 16, 17, 35, 36, 45, and 46, marked "b."

The third conclusion of the Board was that the brake appliances were in the same condition when the train, after having been divided and recoupled, left Hornsby Station.

We have already seen that the pipe connections between engine and rear vehicle were good throughout when the train left Sydney.

A careful consideration of the evidence on pages numbered 5, 6, 7, 24, 27, 28, 29, 30, 31, 40, 43, and 44, marked "c," will,—

- 1st. Conclusively show that at Beecroft the train was uncoupled between the seventh and eighth vehicles (from engine); that the engine took the seven to Hornsby, and that there they were uncoupled—that is, the engine was uncoupled from the first vehicle—by Porter Steed, who, after closing the engine-tap, opened that at the end of the first vehicle, thus putting the air-brakes on.
- 2nd. The two carriages that had been left at Beecroft both had their air-brakes on, and these were released before the carriages were taken away by the engine.
- 3rd. That the reuniting of the train was performed by guard Clissold at Hornsby; that porter Steed saw him in the act of doing it, spoke to him specially about his taps, and saw him in the act of attending to them. All this is confirmed by porter Rice, who both saw and heard what took place.
- 4th. That train, after the recoupling, went away quickly and without difficulty, brake-blocks on the first lot of carriages not being taken off except from the engine.

From all this evidence it is impossible to conclude otherwise than that the connection between engine and carriages was made good, and received proper attention from those who took part in it.

A reference to the evidence on pages numbered 6, 25, 26, 29, and 32, marked "d," will be sufficient to prove that between the time of leaving Hornsby and the time of the accident the air-brake was, up to a certain point, more or less used, and we have absolutely nothing to indicate otherwise than that the connections were all good.

From the evidence on pages numbered 11, 17, 22, and 33, marked "e," it will further appear that immediately after the accident all the taps and connections that could be examined were found to be correct.

We now come to that portion of the evidence which refers to a tap, and the only one, which was found closed after the accident (excepting of course the rear tap of No. 69, which was properly shut). This evidence will be found on pages numbered 17, 18, 19, 21, 22, and 23, marked "f." After giving this every consideration, and after having been on the spot and seen the carriages before they were moved for themselves, the members of the Board have no hesitation in deciding that this tap-handle was placed in the direction in which it was found by the telescoping of the two carriages.

Assuming this particular tap to have been open immediately prior to the collision (and all the evidence up to the time of its being found closed indicates that there is no room for any other assumption), most assuredly the telescoping could not have taken place in the manner it did without shutting it.

But, further, we have already seen that this tap, which was between the eighth and last vehicle of the train as it left Sydney, was certainly in its right position when the train started.

The uncoupling at Beecroft was between the seventh and eighth vehicles, consequently the tap was not concerned in that operation.

We have, further, the positive evidence that the blocks were put on the eighth and ninth vehicles, which were left for a time at Beecroft, consequently the tap could not possibly have been closed then.

In fact, from the commencement to the close of the journey, there was no occasion for any interference with this tap.

The proof that the train left Hornsby with good through connection from engine also proves that this tap must have been open then.

The evidence of what took place between Hornsby and the Ferry affords no indication of this tap having been closed, but rather to the contrary (see Mr. Garrard's evidence, and he was riding in the carriage to the rear of this tap).

The telescoping—when the floor of the carriage (from the bottom of which this tap-handle hung perpendicularly) skidded over the top of the car in its rear for 20 feet—must, under any circumstances, and notwithstanding Mr. Shellshear's opinion, have shut it, and there cannot be any doubt that it did so.

The fourth conclusion of the Board, viz., that the train was allowed to attain a high rate of speed, and for some reason or other was uncontrolled by the driver, will not be disputed, and I need not refer to the portions of evidence referring to it.

The next conclusion of the Board was that immediately after the accident the brake-blocks were found to be off all the wheels of the carriages, the tyres of the same were all cold, and the brake connections, excepting those only which the collision evidently smashed up, were found all correct.

The evidence in support of this will be found on pages numbered 8, 10, 11, 12, 13, 18, 20, 21, and 28, marked "g."

To anyone possessing a knowledge of the mechanism and action of the Westinghouse brake, the fact that no brake-blocks were found on the wheels immediately after the collision, notwithstanding the severance of the connections, which was effected by the collision between the first and second carriages from the engine, can only point to the conclusion that there was no air in the carriage reservoirs to put them on.

The portions of evidence to be found on pages numbered 5, 6, 20, 21, 24, 27, 28, 29, 30, 31, 34, 41, and 42, marked "h," will be found to refer to the engine and its condition.

A perusal of it will be sufficient to show that the engine was of the right description and in working order, but its load was slightly too heavy. Driver Cartwright's representations to the contrary are not borne out, but we consider them disproved. With regard to the overloading, it is a pity the driver did not give some intimation of the fact before leaving Sydney, when a vehicle might have been removed, or even at Ryde, where the same course might have been adopted.

No. 6.

Coroner's Inquiry.

PEAT'S FERRY RAILWAY ACCIDENT.

Verdict.

1st. We find that William Henry Hankin's death was caused from injuries received by jumping or falling from a runaway train on the 21st June, 1887, while passing Peat's Ferry Station, fearing danger of collision or accident, knowing the train was completely beyond control of the driver.

2nd. We attribute the accident to the great want of supervision on the part of the officials in the Railway Department in not carrying out the instructions laid down for their guidance, thereby endangering the safety of the railway-travelling public. We consider the driver did all in his power to control the excessive speed of the train.

3rd. We are of opinion that the engine was not sufficiently powerful to take that train safely to its destination.

4th. We are further of opinion that the train was not properly inspected before leaving Sydney.

5th. We are likewise of opinion that the train was not properly inspected leaving Hornsby.

6th. We are of opinion the air couplings and taps on leaving Hornsby were not complete.

7th. We are of opinion that the brake-power on that train was not sufficient.

Rider.

We earnestly request the Government, on behalf of the public generally, to appoint a Commission to inquire into the management of the different branches of the Railway Department, so that an organized and more complete system be adopted.

In witness whereof, as well as the said Coroner, the Jurors aforesaid have hereunto set their hands and seals, the day and year first above written,—

HENRY SHIELL, J.P., CORONER.

JOHN KING WEIR (Foreman).

JAMES E. AMBLER.

W. H. MOYSE.

RICHARD M'INTYRE.

MICHAEL FITZSIMMONS.

JONATHAN T. JEFFREYS.

ALBERT J. ASHDOWN.

THOS. HANLEY.

HARRY MILLER.

ALFRED TREMEN.

ROBERT MILTON.

JAMES M'SWEEN.

FRANCIS SHERIDAN.

JOHN L. BERGHOGLE.

New South Wales, }
to wit. }

INFORMATION of witnesses severally taken and acknowledged on behalf of Our Sovereign Lady the Queen, touching the death of William Henry Hankin, at the house of Michael O'Neill, known as the Assembly Hotel, and the Darlinghurst Court-house, in the City of Sydney, in the said Colony of New South Wales, on June 23rd, 24th, 27th, 28th, 29th, and 30th, and July 1st, 4th, 5th, 6th, 7th, 8th, 11th, 12th, 13th, and 14th, in the fifty-first year of the Reign of Our Sovereign Lady Queen Victoria, by the Grace of God, of the United Kingdom of Great Britain and Ireland, Queen, Defender of the Faith, and in the year of Our Lord one thousand eight hundred and eighty-seven, before Henry Shiell, Gentleman, Coroner for the District and City of Sydney, on an Inquisition then and there taken on view of the body of the said William Henry Hankin, lying dead at the Sydney Hospital, in the said City of Sydney, as follows:—

Mary Anne Hankin, on oath, states:—

I reside at Astolah, Grosvenor Terrace, Summer Hill; I am a married woman; the dead body just viewed by the Coroner and Jury, in my presence, at the dead-house of the Sydney Hospital, is that of my son, named William Henry Hankin, aged 17 years in October last, a native of Redfern, New South Wales; he was a clerk in the Railway Department, employed in the Railway Stores at Eveleigh; he left home on Tuesday morning last to catch the train at Summerhill, but did not say where he was going; I next saw him at the Sydney Hospital between 8 and 9 o'clock on the evening of the same day; I went there in consequence of something I heard, and saw him in an unconscious state, and shortly afterwards he died; I have no personal knowledge of the circumstances under which he received the injuries which resulted in his death.

The Jury decline to ask any questions of the witness.

Sworn and made before me, at Sydney, }
this 23rd day of June, 1887,— }

MARY ANNE HANKIN.

HENRY SHIELL, J.P., Coroner.

Walter Shoults, on oath, states:—

By the Coroner: I reside at 112, Kippax-street, and am a bricklayer; I know the deceased William Henry Hankin, well, and that was his body which was just viewed by the Coroner and Jury in my presence at the dead house of the Sydney Hospital. I saw him on Tuesday last; I met him at the Redfern Railway Station about half-past 9 o'clock on the morning of that day, and the two of us entered the same carriage of a train bound for Peat's Ferry. We left Redfern in that train about half-past 10. I think there were nine carriages attached to the engine, including two American cars; we left Sydney with the intention of going to Peat's Ferry; the carriage we were in was not very full of passengers, but I cannot speak as to the condition of the other carriages in that respect; the train was stuck up about five times going down to Peat's Ferry, and we had to run back some distance on each occasion; and the last time we were stuck up they took off the two back carriages, and left them behind, and took us on to the station next to that at Peat's Ferry; the engine then returned and brought on the two carriages that were left behind, and they were attached to the front of the train, which then started for Peat's Ferry, then

then distant, I believe, about 4 miles ; as we were proceeding from the station next Peat's Ferry towards that place, as the carriages rounded each curve they were rocking about in such a manner from side to side as to lead me to think they would capsize ; all of a sudden the deceased looked up and said to me, " My God, Gus ! the train has run away ! " and at that moment I became conscious that the train was going at a much greater speed ; the deceased picked his hat up, which was under the seat, and rushed and opened the door, put his foot on the footboard, and took hold of the handle at the side of the carriage, and almost immediately he either fell or jumped off the train ; the train at this time had not run into anything, but it ran into some carriages a few seconds after at Peat's Ferry Station ; I received no injuries whatever ; I was in about the fourth carriage from the engine ; it was not turned over ; it only bumped off the rails ; when the train stopped I got out and went back and found the deceased lying about forty yards behind the carriage in which he had been in, but not so far back as the end of the train ; he was lying on his left side, and said to me he thought his ribs were broken ; I went to Sydney with the deceased in the first train, and at the Redfern Railway Station he was taken charge of by a young man named Maloney, and I went to Summerhill to inform deceased's mother ; a young man named William Townsend was in the same carriage with us and attempted to jump off the train, but I pulled him back ; I remained in attendance on deceased till we reached Sydney.

By the Foreman : The deceased was quite well during the journey to Peat's Ferry up till the time he either jumped or fell off the train.

By Mr. Williamson, solicitor (on behalf of John Pye, the fireman, and the representatives of Thomas Wilson, deceased) : There were two Yankey cars attached to the engine ; I was in, I think, the fourth carriage from the engine, in the last compartment ; there were six people in it, but it would carry more ; the compartment next to the one I was in was full ; I entered the carriage from the side ; I cannot say that I noticed any open carriages attached to the engine—that is, the old third-class carriages.

Sworn and made before me, at Sydney, }
this 23rd June, 1887,—

WALTER SHOULTS.

H.S., Coroner.

Inquest adjourned till 10 o'clock in the forenoon of Friday, 24th June, 1887, to be resumed at No. 2 Police Station, George-street, and to proceed from thence to Peat's Ferry to view the scene of the accident.

H.S., Coroner.

Inquest resumed in pursuance of adjournment at 10 o'clock in the forenoon of Friday, the 24th June instant, when the Jury proceeded to Peat's Ferry and viewed the scene of the accident ; and, on their return to Sydney, the inquest was further adjourned till 10 o'clock in the forenoon of Monday, the 27th June instant, to be resumed at the Court-house at Darlinghurst.

H.S., Coroner.

Inquest resumed in pursuance of adjournment at 10 o'clock in the forenoon of Monday, the 27th day of June instant, at the Court-house at Darlinghurst.

H.S., Coroner.

Francis Cox Johnson, on oath, states :—

By the Coroner : I am station-master at Sydney ; I remember Tuesday, the 21st instant ; I dispatched an excursion train on that day to Peat's Ferry, on the Hawkesbury ; that train left Sydney at 10.25 a.m. ; it consisted of nine vehicles, drawn by one engine ; the weight of the train was about 90 tons, not including the passengers ; the train would carry about 400 passengers, and was not quite full ; a large engine was attached to the train, which was supplied with a Westinghouse brake ; I believe when the train left Sydney the brakes were in good order, but I did not myself inspect them ; it is customary to inspect a train on each occasion before it leaves the station to see if the brakes are in good order, and I believe this train was inspected in the usual way ; I have no personal knowledge, mine was a general supervision ; on a day like this I had trains coming in every few minutes at various intervals ; I might state, on this particular occasion, I was about 100 yards from the train in question and could see all that was going on ; I have no personal knowledge of the occurrence at Peat's Ferry ; I considered that the engine was competent for the work required of it on account of its being sent to the train ; on public holidays and other days, when the ordinary time-table is suspended for the occasion, it is the rule for the Locomotive Branch to supply engines capable of taking heavy loads down the branch lines ; it is an understood thing ; I never give any particular orders.

By Mr. Rogers (in the public interest) : There were nine carriages attached to the engine ; the dead weight of the carriages, exclusive of the passengers and engine, was about 90 tons ; the weight of the engine alone was 59 or 60 tons.

By Mr. Williamson, solicitor (on behalf of the fireman, John Pye) :—The carriages were attached to the engine as the train left Sydney, in the following order, viz. :—first, a small ordinary second-class four-wheeled carriage, commonly known as a close second ; second, a composite Redfern carriage ; third, a composite American car ; fourth, an ordinary open second ; fifth, another of the same kind ; sixth, another similar carriage ; seventh, another similar carriage ; eighth, a Redfern carriage, first class ; and ninth, an American car, first class ; the weight of the first carriage was 6 tons 8 cwt. ; second, 13 tons 8 cwt. 3 qrs. ; third, 16 tons 10 cwt. ; fourth, 5 tons 10 cwt. ; fifth, 4 tons 14 cwt. ; sixth, 5 tons 10 cwt. ; seventh, 4 tons 14 cwt. ; eighth, 17 tons 10 cwt. 3 qrs. ; and ninth, 16 tons 10 cwt. 3 qrs. ; no brake van was attached to the train because there were none available ; there were no brake blocks on fourth, fifth, sixth, and seventh carriages ; and on those four carriages there was no brake power, and that was the reason they were put in the centre of the train ; No. 3 carriage and No. 8, the Redfern car, were connected by a pipe running under the four carriages mentioned ; the whole of the train was under the control of the Westinghouse brake, with the exception of those four carriages in the centre, but the carriages in front of them and behind them were under the control of the Westinghouse brake, by the pipe running beneath

beneath them; the guard was supposed to be on the rear vehicle, the American car; there was no brake valve in that car that I am aware of, nor in any of the other carriages that I am aware of; I have had some experience in making-up trains; there is not always a brake valve in the guard's van; the use of the brake valve in the guard's van is to enable him to apply the brakes if necessary, and to assist the driver in keeping the train under control if necessary; there was no means of access for the guard from the rear to the front of this train; there were hand-brakes to the American cars; there was no hand-brake to No. 1, nor to Nos. 2, 4, 5, 6, 7, 8; 3 and 9 were the only cars that had hand-brakes; there was only one guard to the train; he had no assistant; the four cars, 4, 5, 6, and 7, were fairly filled with passengers; I never travelled the line from Hornsby to Peat's Ferry; it is only necessary to put on a brake-van when the train is not supplied with a Westinghouse brake; with the Westinghouse brake a brake-van is not necessary; the Westinghouse brake and gauge are fitted to most of the brake-vans; I have seen the Western train made up that goes over the mountains, a brake-van is always attached to that train, and that brake van under the control of the Westinghouse brake, and also under the control of the guard, so that he can help the driver to control the train if necessary.

By Mr. Rogers (in the public interest): The Western train has a brake-van besides the Westinghouse brake; the van is principally for carrying luggage; there was no luggage to this particular train; there was no brake-van available in this instance; I don't know if one would have been sent if available; I consider there was sufficient brake power on three and nine carriages; I determine the class of carriages to be sent out with a train; the making up of a train is under my supervision; the carriages to which the hand-brakes were supplied were three and nine, the 16 and 112 ton carriages; the weight of a brake van is about 16 tons; the ordinary brake-van weighs about 12 tons; if a brake-van was sent on this line, a heavy 16 ton one would be sent, but I considered numbers three and nine carriages to be as good as two brake-vans of that weight.

By Mr. Williamson, solicitor (on behalf of the fireman, John Pye): A train fitted with the Westinghouse-brake is not complete without a brake van, unless it has an American car as a substitute, that is our custom. A train having the Westinghouse-brake is not complete according to the rules of the Department without having a brake-van as a substitute attached to it; I am supplied with a copy of the rules for the working of the Westinghouse-brake; I received the copy when appointed station-master; I look at instructions to guards—[*copy read, marked, and put in*]—and I find that it is optional for me to dispense with a brake-van if I have a substitute, and I consider the American car in this instance was a substitute.

By the Coroner: I am not an engineer; I am not an expert; I have had eighteen or nineteen years' experience in the Department, and am fully conversant with the working of the Westinghouse-brake in theory and practice.

By the Foreman: If a driver or guard had any complaint to make of the working of the trains before leaving the station it would be made to me; no complaint was made to me by either the driver or guard of this train previous to its departure as to the insufficiency of the power of the engine; I was not aware that its power was insufficient to carry it to the end of the journey; if the train had been remade and the heaviest carriages placed behind the engine, I believe the power of the Westinghouse brake would be the same; I am not thoroughly acquainted with the gradients on this portion of the Northern line; if the heavy carriages were immediately behind the engine I believe it would have the same effect as if they were at the end of the train.

Sworn and made before me at Sydney, }
this 27th June, 1887,— }

F. C. JOHNSON.

HENRY SHIELL, J.P., Coroner.

William Rudolph Clay, on oath, states:—

By the Coroner.] I am a legally qualified medical practitioner and resident medical officer at the Sydney Hospital; at about 1 p.m. on June the 21st I admitted a young man to the Sydney Hospital; he was in a state of extreme collapse, and the only visible injuries were several superficial bruises, principally on the right side; he soon became unconscious, and died soon after 8 p.m. on the same evening; at 12 noon on June the 23rd, by direction of the City Coroner, I made a *post-mortem* examination of the body; I found several bruises on the right side of the body and on the limbs; I found a small rupture at the base of the right lung, with a little blood effused from it; there was a very large amount of blood effused into the cavity of the abdomen; this had principally come from the right kidney, which was very severely lacerated; the liver was ruptured in five places, each rupture varying in length from 1 to 3 inches; the cause of death was shock and collapse, due to the injuries mentioned; and the dead body of the young man viewed by the Coroner and Jury in my presence, at the dead house of the Sydney Hospital, on the 23rd instant, and identified as William Henry Hankin, is that of the one mentioned in my evidence.

Sworn and made before me, at Sydney, }
this 27th June, 1887,— }

W. R. CLAY.

HENRY SHIELL, J.P., Coroner.

Jacob Durham, on oath, states:—

By the Coroner: I am a shunter in the employ of the Railway Department; I remember the train which started for Peat's Ferry at 10.25 a.m. on Tuesday the 21st instant; I coupled the last two cars that were attached to it; they were placed next to the engine; the train consisted of nine carriages altogether; the brake at the rear of the train was coupled at the time I put those carriages on, and I coupled the brake on to them, making the brake complete throughout the train; four of the carriages were not under the influence of the brake-power; they were four open seconds, and they were in the centre of the train; I connected the two carriages at the rear of the train by means of the air-pipe running right through under those four carriages, and they were under the influence of the brake as well as the three carriages next the engine; the train was connected in that way when it left Redfern Station; there was no brake-van attached to the train, and I know nothing of it after it left the station.

By

By Mr. Williamson, Solicitor on behalf of the fireman, John Pye:—The Westinghouse brake-van is fitted with a through-pipe, and air gauge inside the van; there are also cocks on each end to turn the air off and on; luggage or goods brake-vans are not fitted in this manner, but the whole of the brake-vans are used for carrying passengers' luggage; the Westinghouse brake-van has a brake-valve close to the gauge; the gauge is for the purpose of showing the guard the pressure of air contained in the train, and it will indicate to the guard whether or not the brake is working between his van and the engine; if the gauge shows that there is no pressure, it proves that the pipes have not been properly coupled; the use of the brake-valve is to enable the guard to stop the train if anything occurs so that he cannot communicate with the driver; I believe the reason why a brake-van was not attached to this train was because they were all in use; I did not search to see if there were any brake-vans in the yards; the train was made up with two American cars, one at each end, as substitutes for brakes; neither of those two American cars had a pressure gauge on; I do not know that the valves sometimes stick; the only indication the guard would have of air pressure being on the train would be when the driver released the train after applying the brake when he would hear the air escaping under the carriages; he would have no indication as to the amount of pressure; I have on several occasions made up trains for Peat's Ferry since the line was opened; I mean I have coupled the carriages on to the engine; I have coupled seven carriages to the engine bound for Peat's Ferry as a rule, and there was usually a brake-van at the rear and most of them were fitted up with gauge and brake valves; if a brake-van was placed on to the train without being fitted in that manner it would be for the purpose of conveying luggage only; the guard would be in that van; there would only be one guard to the train; I have been employed a little over two years and a half on the railway; during that period I have been instructed by the head shunter as to the working of the Westinghouse-brake; I was not instructed that the Westinghouse-brake was not complete unless fitted with a brake-van, gauge, and brake-valve; Mr. Tempest is the officer in charge of the brakes; Mr. Weirrick was the officer who examined the brakes of this particular train; he was in charge of the brakes that day, but I did not actually see him examine this train; I do not know the number of the two American cars attached to this train; the last vehicle attached to the train was an American car; I did not see the brakes of that car examined, but I know of my own knowledge they were in working order, because I applied the air-brake as the train was being shunted, and brought it to a stand; it was going rather slow at the time; assuming that the brakes on the last car were not in working order, applying the brakes to the rest of the train would bring it to a stand.

By Dr. Sly (on behalf of the Commissioner for Railways): From what I did on that day, I can say that the brakes were in working order on all the cars; the man on the rear car who was breaking the train down with the hand-brake having applied his hand-brake, bringing the blocks in contact with the wheels as close as he was able; my applying the air from the other end caused the blocks to come still closer, and allowed the wheel of the hand-brake to fly round, and that showed me that the air was working from the front to the rear cars; I cannot say how many cars were put on the train for Peat's Ferry on the 24th of May last; the guard has no control whatever over the pressure, he can lower the pressure by letting the air out, but he cannot increase it; if the guard is on the rear car and there is no brake-van on the train, by turning the cock at the end of the last car he can let the air out and bring the train to a stand; by cutting the pipe in any way, and causing a leak, he can stop the train at any time, no matter where he is standing, that is, assuming the train is connected right through.

By Mr. Rodgers (in the public interest): If there was a brake-van properly connected right through the train, and the driver on any account were to lose control of it the guard could stop the train; from my experience I consider this train had sufficient brake-power; supposing there was a brake-van at the rear of the train, the guard could stop the train by turning a little handle at the end of the brake-van; the handle is alongside of him, there is also a tap under the platform at the end of the American car, which by stooping down and turning the train can be stopped.

By Mr. Williamson (on behalf of John Pye, fireman):—The width of the platform from the door of an American car to the end of the platform is about 2 ft., and the tap I have mentioned is just underneath it about 6 in. from the end of the platform; I will swear it is not from 16 to 18 in.; they are what we call coupling-cocks.

By the Coroner: The train would have been more under the command of the guard if a brake-van had been attached to it; but a brake-van would not have insured greater safety.

By the Foreman: My duties are to connect and shunt carriages at Redfern Station; I coupled the last two carriages on to this train by orders of the Station-master; neither of them were American cars; the last carriage of all had a brake on it; supposing the two last carriages were removed from their place and put next to the engine, the guard would have the same control over the train by the hand-brake; the reason why the two carriages I have mentioned were attached to the train by me at Redfern was to provide more accommodation; neither the guard or driver remonstrated against their being put on.

Sworn and made before me, at Sydney, }
this 27th June, 1887,— }

JACOB DERHAM.

HENRY SHELL, J.P., Coroner.

Francis Cox Johnson recalled, on oath, states:—

Examined by Dr. Sly (on behalf of the Commissioner for Railways): There were eleven carriages attached to the engine that went from Sydney to Peat's Ferry at the same hour on the 24th May last, and the engine was about the same size; there was no brake-van on that train; there was room for the passengers in the train that started on the 21st instant, it was not quite full when it started, and there was no luggage on that train; trains are often run without brake-van, suburban trains as a rule are; the effect of a brake-van on this train would have increased the weight without any necessity.

By the Coroner: There are no steep gradients on any of the suburban lines.

By Mr. Williamson, Solicitor (on behalf of John Pye): I do not know, as a matter of fact, that the driver of the trains that started with the trains at the same hour as this train on the 24th of May last; on

on arrival at Hornsby refused to take more than one half of the train at one time to Peat's Ferry; I never heard of it before; the driver of the train on the 24th May was named Sheehan; I believe the weight of that train would be 105 tons; I have never heard of a driver since the line was opened refusing to take a train of less than eleven carriages from Hornsby to Peat's Ferry; I did not see the guard's time-sheet on the 24th May last, it was sent into either the Superintendent or Traffic Manager; I don't know if the train had any difficulty in getting from Ryde to Hornsby on the 24th May last; I did see the train return on the 24th May; I have an idea where Eastwood is.

By Dr. Sly (on behalf of the Commissioner for Railways): Two of the carriages on the train on the 24th May had no brake blocks.

Sworn and made before me, at Sydney, }
this 27th June, 1887,— }

F. C. JOHNSON.

HENRY SHIELL, J.P., Coroner.

Inquest adjourned till 10 of the clock in the forenoon of Tuesday, the 23th June instant, at Darlinghurst Court-house, for the production of further evidence.

Sydney, 27th June, 1887.

H.S., Coroner.

Inquest resumed in pursuance of adjournment at 10 o'clock, on the forenoon of Tuesday, the 28th June instant, at Darlinghurst Court-house.

Sydney, 28th June, 1887.

H.S., Coroner.

Andrew Weirick, on oath, states:—

By the Coroner: I reside in Albert-street, Redfern; I am in the employ of the Railway Department as air-brake examiner; as soon as the train is at the platform ready to start it is my duty to examine every carriage to see that the brakes are tight on them; I remain at the end of the train till the engine comes up, and when it is coupled on to the train then the brake is released; after the engine is attached to the train and the air pipes coupled, and the air cocks put down the brake is released on the carriages, and they are held by the engine, that is to say, if there is sufficient air pressure on the engine; I have nothing to do with the coupling of carriages; I performed that duty on the morning of the 21st instant, on the train that left Sydney for Peat's Ferry at 10:25, but I did not inspect the whole of that train, simply because I had not sufficient time, and I am not therefore in a position to say that the whole of the brake-power of that train was in proper working order that morning; it being a public holiday I was very busy, and I was the only one to attend to that duty on that side of the station; I saw that train start, it was not overcrowded, it was just comfortable; I don't know what engine was drawing the train. } 8

By Dr. Sly (on behalf of the Commissioner for Railways): I examined seven of the vehicles on the morning in question on the train mentioned; the air was in the last vehicle of those seven, therefore the air must have been complete with the engine through those seven carriages; I saw the driver try the air power; I asked him to try his brake; I said, "Driver, try your air," and he did so, and I saw that the air pressure was complete throughout the whole nine vehicles of the train; that was immediately before the train started, and I saw it start.

By Mr. Nathan (for Mr. Williamson, on behalf of John Pye): I only had about four minutes altogether that morning to perform my duties in regard to this train; I have been brake examiner about eighteen months; I do not know what class of vehicle was at the rear of the train, but so far as I recollect it was an eight-wheeled vehicle; I think about five out of the nine carriages were connected with brake blocks; there were four four-wheeled carriages about the centre of the train which had no brake blocks on; those were four out of the seven which I examined; the two carriages next the engine had brake blocks on them; I did not examine them, but I saw the blocks as the carriages were being shunted down; when I was making my examination, and before I spoke to the driver, I did not find any carriage connected with the Westinghouse brake not in working order.

By the Foreman: I am examiner of the air-brakes; I am not thoroughly acquainted with the air-brake and its capabilities; the shoe of the block is made of cast-iron, not steel; I have frequently travelled by trains where the Westinghouse brake-power has frequently been brought into operation; I have never seen the blocks get heated to any great extent; I think the block would have greater resisting power in a cool state; it is the shunter's duty to couple the carriages.

By a Juror: There was no brake-power on the four carriages in the centre of the train.

By another Juror: I think it was safe for the train to go to Peat's Ferry without a brake-van, considering the number of carriages that had brakes on.

By Mr. Simpson (on behalf of the Westinghouse-brake Company): I could not express an opinion as to what brake-power would be sufficient for a train of the weight of this one; I said just now that I thought it was safe for that train to go to Peat's Ferry without a brake-van; I said so, because I had seen trains return from there safe before without one; but it would have been much safer if a brake-van had been attached; I do not know the gradients on this line.

By Mr. Nathan (for Mr. Williamson, on behalf of John Pye): If there is no brake-van attached to a train I don't think it is possible for a guard to stop the train whenever he likes.

By the Coroner: It could be stopped by him if he cut the pipe, or turned the cock at any time he likes.

By Mr. Nathan (for Mr. Williamson, on behalf of John Pye): The through cock, or coupling cock, on some of the carriages are 18 inches from the end of the carriage platforms, and some are less; I cannot say how far those cocks were from the end of the two carriages at the end of this train; I think about 12 inches; they vary from 6 to 18 inches.

By Mr. Williamson (on behalf of John Pye): If the train was travelling, and I was desirous of turning that cock, I would have to lie on my stomach and put my hand underneath; if a train was travelling at an ordinary rate of speed, it would be found difficult to turn it off; in some instances when I have been examining the carriages I have found the cock pretty stiff.

By Dr. Sly (on behalf of the Commissioner for Railways): If a train is fitted with a brake-van and the Westinghouse brake fitted throughout the guard can stop the train by turning a handle in the van and applying the air to the brakes, but if the driver had already applied the air brake from his engine

engine, the guard could only assist the driver by applying the hand brake; I think the hand brake would have some little effect, the same blocks are used by both the Westinghouse and hand brakes; I have had no experience as a guard on a train; I never tried to turn one of the cocks on an American car when a train was going at the rate of 20 miles an hour, my experience has been examining and repairing those brakes.

By Mr. Simpson (on behalf of Westinghouse Brake Company): If the driver was applying his brake the guard could only assist him by applying the hand brake; if I wanted to uncouple a carriage I would close the cock and keep the air in, and if I wanted to move the carriage I would let the air out. Supposing the two vehicles next an engine were connected with the Westinghouse brake and by any mistake the carriages behind were not connected, a brake van if properly connected throughout the train would greatly assist the guard to help the driver to control the train, the driver would only have control over the two vehicles next the engine, and the guard over the rest of the train.

By Mr. Williamson (on behalf of John Pye): The hand brake on an American car is connected with the air brake, and by applying that hand-brake it only draws the piston out about 4 inches from the brake-cylinder, whereas, if the air is applied it forces it out 8 inches; the hand-brake of an American car is simply a column of iron connected by chains and rods to the pistons; the ordinary hand-brake in a brake-van is a screw connected with a strong crank, but I cannot say it is a more powerful lever than the hand-brake on an American car; I have seen pretty near all the engines in use on the railways; the brake on the tender of the engine is similar to the one on the brake-vans; I do not know that directions are given that when the Westinghouse brake fails that the hand-brake on the tender is to be applied; I have had some little experience at the railway station, and I have had complaints that the valves of the Westinghouse had stuck; when they stick they do not work; I mean the triple valves; it is connected with the small reservoir containing the air.

By Dr. Sly (on behalf of the Commissioner for Railways): The mode of examining a train before it starts is for the examiner to walk the whole length of the train and see that all the blocks are hard down; if they are down that shows that the air pressure is fully on; I did not examine the two carriages next the engine on this train, but I know they must have been connected or the carriage at the end of the train would not have released; I do not thoroughly know the system of the working of the Westinghouse brake.

By Mr. Simpson (on behalf of Westinghouse Brake Company): If water gets into the triple-valve it would cause it to stick, and it would be neglect on the part of the fitter in not letting the water out; I never heard of a triple-valve getting stuck while the train was in transit.

By a Juror: I only had 4 minutes to examine this train; it was only alongside the platform that time, it was a little late.

By Dr. Sly (on behalf of Commissioner for Railways): I can examine a train of this length in that time.

By a Juror: The train was coupled, two more carriages put on, and was ready to start in 4 minutes.

Sworn and made before me, at Sydney, }
this 28th June, 1887,— }

ANDREW WEIRICK.

HENRY SHIELL, J.P., Coroner.

Alfred Clissold, on oath, states:—

By the Coroner: I reside at 16, Shepherd-street, Chippendale, and am a guard on the railway; I was employed in that capacity on a train which left Sydney, for Peat's Ferry, at 10:29 on the morning of Tuesday the 21st instant; the train was four minutes late; it consisted of nine vehicles, exclusive of the engine, and there was no brake-van attached to the train; I was on the rear of the last carriage leaving Sydney; it was a first-class American car; I only had control of the brake-power on the last carriage, the one I was on, but the whole of the train was under the control of the Westinghouse brake, from the engine, when leaving Sydney; we were timed to stop at all stations between Sydney and Ryde, and arrived at the latter at 11:23; we were late; after the few passengers got in at Ryde, a Mr. Rennie, to the best of my recollection, got on to the engine, where he remained; after the train got about half way between Ryde and Eastwood (I am a stranger to the line after I pass Ryde), the engine came to a stand; the wheels of the engine commenced to fly round, and it came to a stand; the driver backed right back to Ryde Station, and the stationmaster waved me back to the platform with, I believe, a white handkerchief, which he had in his hand; the driver started again and came to a stand at nearly the same spot as previous; I then went forward to the engine and spoke to the driver, and he told me he did not think he could lift them and said he thought he would run short of water; he then ran back to a temporary tank and took in water; he ran some little distance back towards Ryde, and started again and took a run up the hill and succeeded in getting over the first incline, and stopped, I think, at Thornleigh; it was Eastwood where we stopped, and a few passengers got out; we again started, and arrived at Beecroft, passed the platform, and pulled up in the cutting; I went forward to the engine to ask him (the driver) what he was going to do; he did not stop in the ordinary way; he was compelled to stop, as the engine could not pull the load up; before the driver started to run to take in water—when he ran back on the first occasion—the fireman said, in the presence of the driver, "I think the donkey will fail," and at the same time the fireman stepped on to the footboard of the engine and struck the side of the cylinder of the donkey with a spanner or some other iron instrument, and the piston of the donkey then commenced to move up and down; on stopping in the cutting beyond Beecroft, the driver again said he could not lift them from there; Mr. Rennie was then standing on the footplate of the engine, although there was plenty of room in the train for him; someone on the engine, either Mr. Rennie, the driver, or fireman suggested that the train should be parted; Mr. Rennie suggested that I should get a pole or sapling and put it through the wheels of the two last vehicles, and then got off the engine and stood on the bank opposite to me; I went up on to the bank to look for a suitable sapling or pole to put through the wheels, and finally I secured one, and put it through the wheels of the last vehicle; I then parted the train; I cut off the seven vehicles next the engine and sent them on to Hornsby in charge of Mr. Rennie, and I remained behind with the two hind carriages; Mr. Rennie offered to take the seven carriages

carriages on, and I allowed him to do so ; I said to Mr. Rennie, " Will you take those on," he said, " Yes," and I stayed behind ; after a time the engine came back and took on the two carriages that were left behind, and on reaching Hornsby I placed those two carriages on to the train at the end next the engine ; I shunted those two carriages on to the seven ; after coupling up at Hornsby, in the presence of a young man in charge, he said, " All right, get away ; " I then gave the signal to the driver and the train was started, and after proceeding some distance up the first incline, after leaving Hornsby, the engine came to a stand again ; I was going forward to the engine when I noticed one of the wheels of one of the carriages skidding ; I could see the brake was on, but I could not swear the wheel was skidding ; I released the air from the brake by the release tap at the side of the carriage ; I did not go on to the engine after that ; I got out at the right hand side of the train, and the driver then started away ; I got on to the car nearest the engine, and remained on the American first-class car, which was second from the engine, and we had no other stoppage after that, and all went on right till we got through No. 1 tunnel, and between there and No. 2 tunnel I found the speed of the train increasing slightly ; I then applied my hand-brake, and the driver began to whistle a continuous whistle, and continued whistling up till the time the accident happened at the river ; the speed of the train continued to increase, and kept becoming greater and greater notwithstanding the action of the hand-brake, and I kept hanging to the brake with all my might till the train ran past the station at Peat's Ferry and into some trucks standing on the river bank, when I found the carriage turning over and I got on to the upper side of it ; the first thing I saw after I recovered myself and got out of the car was the body of Mr. Rennie apparently dead on the embankment ; I then rendered all the assistance I could in getting the wounded out of the first-class car, through the windows and out at the end, and I saw the engine in the water ; I think it was about three miles from Peat's Ferry when I first noticed that the train had run away with us, and it was then my opinion that the brake had not the resisting power ; the train attained very great speed before it reached Peat's Ferry ; it had commenced going down the incline before I applied the brake, and the train had increased in speed before that was done ; the train had acquired such a momentum before I applied the hand brake that its application became useless ; I am of opinion that if both hand brakes had been applied as the train commenced to descend the incline and before the train acquired such a momentum that they would have been sufficient to keep the train under control, but I could not get to the other hand brake ; I know that it is a steep descent down to Peat's Ferry, and in my opinion the two hand brakes would have been sufficient to have kept the train of nine carriages under control ; I attribute the train running away to some failure in the air brake from the engine.

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By Mr. Rogers (in the public interests) : As soon as the fireman struck the cylinder at the side of the donkey-engine I saw the piston commence to work ; to the best of my belief it is the duty of the driver to attend to the donkey-engine, and to keep it properly lubricated, and I believe it was the duty of the driver of this engine to do so ; I could not say whether or not the piston was working before the fireman struck the cylinder of the donkey-engine, but I think he struck it to make it work ; after leaving Hornsby, and when ascending the incline, I saw the wheels of one of the carriages skidding, and I opened the release tap, and that allowed the brakes to go off ; the brake before I opened the tap was on one of the carriages ; what caused it to go on I know not ; when I opened the release tap the brake went off in a second or two, and that would show that the air was passing through the train as far as this particular carriage ; I believe it was a close carriage ; when we got between Nos. 1 and 2 tunnels, and when the train was gaining speed, I could not feel the air-brake on the train ; I believe it was on, but it was only on very slightly ; the incline approaching No. 1 tunnel is a very steep one, and the descent from No. 1 tunnel is also steep ; I do not know that the driver put on all steam when ascending the incline ; after I got on to the carriage platform the driver went on at a steady pace ; when he topped the hill I did not apply my hand-brake ; whatever brake power the train had then would be applied by the driver from the engine ; on going down the hill he would have had to steady the engine all the way down with the air-brake ; it was on the first incline after leaving Hornsby that I released the carriage wheel that I found skidding ; the air-brake is wrought on the engine by the driver ; there is a tap and gauge, but I do not know what way he works it ; if the driver had exhausted the greater part of his air on the first part of the descent, he would have very little to take him the rest of the way ; I do not know anything about the engine in use that day ; I never know what engines are,—I mean, as to their power ; when I released the air-brake, that showed the air was working as far as the carriage I was in ; I attribute the failure of air to the driver not attending to the supply of air, and letting too much of it off on the first part of the descent ; the two carriages which were the eighth and ninth leaving Sydney, became the first and second leaving Hornsby, and the four four-wheeled carriages, fourth, fifth, sixth, and seventh, became the last carriages of the train—those had no brakes ; I do not think that the changing of the carriages would make any difference where the brake power was applied ; I do not think the application of the brake is any more effective when in a concentrated form, than it is when spread throughout the train ; I believe the train could have been controlled by the two hand brakes if I could have got to them, even if the air-brakes had not been working ; there were only three men in charge of this train, viz. :—the driver, fireman, and myself ; it is not usual to send an excursion train without an assistant guard.

By Mr. Williamson (on behalf of John Pye) : I am under the control of the station-master ; when leaving Sydney station I have to obey his orders ; I am supplied with a book of the rules and regulations of the Department ; they are issued from the station-master's office ; I look at regulation 410, page 125, which reads as follows :—" Every person who goes in charge of a train as guard must be well acquainted with the road over which he has to travel ; " I knew that rule was there ; I did not tell the station-master that I was not acquainted with the road beyond Ryde ; there was no brake-van on the train ; I am supposed, before starting with a train of this kind, to see that I have all signal flags, a can of oil, a knife, &c., as set forth in rule 364, page 111 ; I did not have those articles on this day, as I had no brake-van to put them in ; the train, as a matter of fact, is under my control after leaving the Sydney station ; I look at regulation 377, page 114, and I have read that rule ; the brake-vans are not all fitted with sand boxes ; if a brake-van was next to the engine, fitted with a sand-box, with sand in it, and the sand were applied to the rails, it increases the effect of the brake ; I was never further than Ryde on that line till that day ; I never spoke to Mr. Rennie at Ryde station ; I did not speak to either the driver or fireman about Mr. Rennie being on the engine ; I did not ask him at Beecroft what he was doing there ;

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13 { I did not put the pole through the wheels of the carriage because the hand-brake was not effective, I simply did it because Mr. Rennie told me; I know the hand-brake was effective; I went and looked for a pole for about a couple of minutes, but not because the hand-brake was not effective, I know it was effective; I had not tried the hand-brake from the time I left Sydney till I reached Beecroft; I had no occasion to use it; I had the opportunity of applying the Westinghouse brake to the whole train from the engine before I put the pole in; I uncoupled the two cars from the seven carriages; I turned the taps off; I don't know who disconnected the seven carriages from the engine at Hornsby; I asked Mr. Rennie if he would go on with the front portion of the train; I did not ask him who he was nor what he was doing on the road; I did not place anyone in charge of the hand-brake; when the engine came back for the two carriages I coupled them and turned the taps on between the Redfern car and the engine; when we got to Hornsby I coupled the two carriages on to the seven, and I turned the cocks on; I heard the air go through when I turned the cocks, but only very faint; I look at rule 368, page 112, and read it; I did not try the brakes in accordance with that rule, as I was anxious to get away; I think I arrived at Hornsby at 1.45 p.m., and we departed about 1.49; I did not think it was necessary to put an American car at the end of the train before leaving Hornsby; I look at rule 379, page 115—that rule says I should be on the last car; after leaving Hornsby I was on the second car, and could render no assistance to the seven carriages behind, as a matter of fact I was unable from my position to comply with that rule; I did not ask the station-master at Hornsby what like the road was, nor did I ask Mr. Rennie; I knew that the driver had been on the same road the day before; I am not aware that the train was stuck-up on the previous day between Ryde and Peat's Ferry; neither the driver nor fireman told me they took Mr. Rennie with them to show them the road; I had an opportunity of judging what like the road was till No. 1 tunnel was reached; if I had had a brake-van fitted up with the Westinghouse brake and gauge-valve it would have been a great assistance to me on this day; I have travelled as far as Goulburn as a passenger in a train fitted with the Westinghouse brake and they always had a brake-van attached; if I had had a brake-valve with a brake-gauge on this day I could have assisted the driver going down the incline; I could have looked at the gauge and seen what pressure the driver had on his engine, and I could have then opened the tap; supposing the gauge had shown 50 pounds of air I would have opened the tap when going down the incline; I should think if the gauge showed 50 pounds pressure the driver should have control over his train; a brake-van fitted as stated would have been a great assistance on this occasion, and might have saved the train; supposing I had had an American car fitted with the Westinghouse brake, I would have had some difficulty in getting at the cock to turn it; I would have had to lie on my belly and stretch underneath the car; I had a knife with me that day, but I did not think of cutting the pipe, as I was afraid if I did so I would throw the carriages off the line; the station-master never told me to cut the pipe in cases of emergency; I have heard it spoken of, but never heard of its being done; I was never supplied with a book showing the working of the Westinghouse brake by drawings; I don't know if the directions were issued before January, 1886; I have been in the Railway Department for some time, but I never saw any order to the effect that the Westinghouse Brake Company supplies a brake-valve and gauge to every van, but as the old vans go in for repairs they come out fitted with a brake-valve and gauge; I think the driver commenced to whistle either in No. 1 or No. 2 tunnel, and kept whistling continuously till we reached Peat's Ferry; I did not feel the train jumping—I felt great oscillation; I did not see the driver, fireman, or Mr. Rennie; there was no communication between the driver and me only by means of his whistle; I don't know what a continuous whistle means, but if I had had an assistant guard I could have sent him to ascertain what was the matter, as I could not go myself—I was hanging on to the hand-brake; I look at rule 514, page 153, relating to passenger trains; I did not comply with that rule before leaving Hornsby; I look at rule 518 on same page; I was not supplied with sprags—all I had in accordance with the regulations were flags and lamps.

Sworn and made before me at Sydney, }
this 28th June, 1887:—

ALFRED CLISSOLD.

HENRY SHELL, J.P., Coroner.

Inquest adjourned till 10 o'clock on the forenoon of Wednesday, the 29th day of June instant, at Darlinghurst Court-house, for the production of further evidence.
Sydney, 28th June, 1887. H. S., Coroner.

Inquest resumed in pursuance of adjournment at 10 o'clock in the forenoon of Wednesday, the 29th day of June instant, at Darlinghurst Court-house.
Sydney, 29th June, 1887. H. S., Coroner.

Alfred Clissold recalled, on oath, states:—

By Dr. Sly (on behalf of Commissioner for Railways): As near as I can judge the last carriage of the train was about one carriage length past the Beecroft platform when the train pulled up in the cutting; I have been twenty-eight years in the service, and I have been a guard over twenty years, during that time I have been on the Southern line, and for the past seventeen or eighteen years I have been running between Sydney and Parramatta; I ran on the Southern line as far as Goulburn; on the Goulburn line just past Picton there is a gradient of one in thirty-three, and there is a descent right into Picton Station; I can't distinctly remember, but to the best of my belief, it was one of the two carriages that were left behind that I released the air from as I have previously mentioned; Mr. Rennie, the driver, and fireman, went on with the seven carriages to Hornsby after the train was disconnected; a porter who was on the train going for duty at Hornsby remained behind with me; I am positive when the train was coupled up again at Hornsby that I made the connections complete so as to let the air pass through to the seven carriages behind; I coupled them myself in the presence of the young man in charge at Hornsby; the four carriages behind had no brake blocks but the air pipes passed right under them, the five next the engine were under the influence of the air brake; to the best of my opinion all the carriages had brake blocks only the four carriages already mentioned; after leaving Hornsby I was on the last American car, the fifth carriage

carriage from the engine; I got there so as to be as far back on the train as possible, and to be near the hand-brake power; after the train pulled up some distance past Hornsby I got off the train and went towards the engine, but before I reached it, and after I released the air, it started again; I got on to the second carriage from the engine; a large brake-van I think would be almost as heavy as an American car, but a light brake-van would only I think be about one-third of the weight; during my experience I have never stopped the train myself by the aid of the Westinghouse brake; I have never heard of any of the guards having stopped the train on any of our lines by means of the air-brake; if there had been a brake-van fitted up on this occasion and attached to the train I could have assisted the driver to stop the train by opening the air-valve a little and shutting it again; if the driver was using the brake from the engine and the current of air right through I could have assisted the driver in stopping the train; it would not be a waste of air; it would have the effect of putting the blocks on the wheels; if the connection was complete the driver could put the blocks on the wheels himself.

By the Coroner : I do not thoroughly know the working of the Westinghouse brake.

By Dr. Sly (on behalf of the Commissioner for Railways) : I am expressing an opinion about a thing I have never done myself in practice, nor did I ever hear of its being done; the instructions as to the working of the Westinghouse brake are issued in what is called the Appendix to the Working Time Table; the instructions mentioned were first issued to me about July, 1880; if I had had oil and spragg they would not have assisted to prevent this occurrence.

By Dr. Sly (on behalf of the Commissioner for Railways) : I understand the method of application of the Westinghouse brake, but not the principle.

By Mr. Nathan (on behalf of the relatives of Mr. Rennie) : I have never to my knowledge been instructed in the theoretical working of the Westinghouse brake by anyone in the Department; supposing the driver were using the brake he has power to work it by degrees; supposing I saw there was necessity, I could apply the brake from the brake-van in the same manner, and the brake would therefore be applied with greater force; I could stop the train myself if I saw any necessity without consulting the driver, by means of the air-brake, and he could stop the train in the same manner without consulting me; the porter who went out with me was not on duty on the train; the air-tap which I released a little past Hornsby was on the right hand side of the carriage; I released it from the side of the road; I had not to get under the carriage to do so; I did not afterwards get on to that carriage; I could not say whether I got on to the train in front or in rear of that carriage; the gradient on the Goulburn line is one in thirty-three; the ground at the bottom is level; there is no terminus at the bottom, and the trains could run straight on; if a train was to run away there the train, I think, could run straight on without any danger; I was directed by my superior officer to take charge of this train; he did not ask me if I knew the road; I simply saw my name stuck up for this train, and I had to go; that is the custom; I saw Mr. Rennie get on to the engine when we reached Ryde; I was led to believe that he was connected with the line; someone told me so; I had never been beyond Ryde before; I heard at Ryde that the driver was unacquainted with the road; someone told me so; I did not interfere with Mr. Rennie because I thought he was connected with the line; he had something to do with the construction of the line.

By Mr. Simpson (on behalf of Westinghouse Brake Company) : Everything went on all right after I released the taps on the carriage; I am not certain which carriage it was; the application of the brake to Nos. 1 and 2 carriages would extend to all the carriages on the train which had brakes upon them if the taps were open and the connection complete; I cannot say whether the third carriage from the engine, after coupling the train at Hornsby, had brake-blocks on it or not; I did not disconnect the seven carriages from the engine at Hornsby; when I coupled up at Hornsby I put on the screw-coupling between the second and third carriages; I then coupled the air-pipes and put the two handles down; I then gave the signal "all right," and started; there was one duty I omitted—I neglected to try the brake; I should have got the driver to test the brake before starting; I have not seen a book called "The Westinghouse Automatic Brake, described and illustrated for the New South Wales Government Railways, 1886" (fourth edition), but I am aware of the rules regarding it notwithstanding; I know the rule by which I ought, after adding to a train on its journey (where the guard ought to), have tried the brakes on (his) van, and seen that they were released from the engine; I did not know that there was a rule to the effect that if the van was not the last vehicle a test should be made by opening the cock in the brake-pipe of the last vehicle connected; I did not make any such test; there was no brake-van, no gauge, no valve, and therefore I did not examine the pressure on the gauge nor turn the handle of the valve as required by the regulation just read; I started the train from Hornsby without ascertaining whether the air-brakes were in proper working order and without applying the test which I ought to have applied; I did so because I was so hurried and jeered at; the whole thing occurred through the train being sent away with an engine too light to perform the work required of it; according to the rules supplied by the Westinghouse Brake Company to the Government the necessity of attaching a brake-van is imperatively pointed out, and I think one should be attached to all trains; I know that in case of emergency the guard, in his brake-van, according to the regulations, should apply his brake to assist the driver; I know that if I had the brake-van and air-gauge, with air in it, I could have brought the train to a stand; I know that according to the regulations a guard is supposed to stop his train in case of emergency when necessary; I am required by the regulations to open the tap and let the air out and bring the train to a stand; I would open the tap by degrees in a case of emergency, otherwise I might throw the train off the line; it would not have been any use my putting my knife into the pipe if the connection was not complete, and the reason why I did not put my knife into the pipe was for fear I would throw the train off the line; I do not know what is meant by the term slip-stop; it would, in my opinion, be dangerous to stop a train suddenly when going down a straight incline for fear of breaking the couplings; as a ground for that opinion I never knew or heard of any accident occurring through a train being stopped suddenly when going down a steep incline; I believe there was a Westinghouse brake in this engine; I have never noticed that in starting trains heavy vehicles are generally placed behind; I have generally run American cars; I think it would have been safer to place the four carriages without brake-blocks in the centre of the train; I cannot say whether the donkey wrought all right after the fireman tapped the cylinder; I heard it was found working when the engine was in the river.

By Mr. Rogers (in the public interest) : Going up the first incline past Hornsby I got off the last American car, I believe No. 5 on the train, and found one of the wheels skidding; I believe it was a small carriage;

carriage, but I cannot say what its position was; the blocks were on on all the wheels of that carriage; I saw them on and I released them by the tap at the side, and that satisfied me that the air connection was complete as far as that carriage; supposing I had had a brake-van at the end of this train all properly connected, and I in the van, and the driver had used up too much air at first, I could have assisted the driver to stop the train by opening the valve.

By Mr. Williamson (on behalf of John Pye): I look at rule book, rule 189, page 65, and read that rule, and I am not aware that either the Station-master at Sydney or Hornsby asked me to carry out the regulations, nor asked me if I had done so; I look at rule 238, page 77; I cannot say whether the Station-master at Sydney or any Station-master on the journey performed that duty on this day.

By Dr. Sly (on behalf of the Commissioner for Railways): I neglected at Hornsby to test the brake, but on connecting the brakes I heard the air rush through, but very faintly, and that showed me that the air was complete between where I was and the engine—the greater the pressure the greater the noise.

By the Foreman: I had no doubt when I saw the wheels skidding but that the air connection so far as that carriage, was complete; I cannot account for the blocks getting on to the wheels while ascending an incline.

By Mr. Rogers (in the public interests): The blocks often catch going up hill when the driver does not properly release the brakes from the engine.

By the Coroner: When I said the whole thing occurred through the train being sent away with an engine too light to perform the work required of it, I mean the engine was too light to take the load, and there was not sufficient brake-power available for me to handle to take the train down the incline.

By Mr. Simpson (on behalf of Westinghouse Brake Company): If the connections on one and two carriages were complete with the engine, and the driver had applied the brake, there would be no reason for my applying the hand-brake.

By a Juror: If the connection was not complete then the hand-brake would have been of some use.

By Mr. Simpson (on behalf of Westinghouse Brake Company): If the tap was closed on No. 2 carriage the connection would not be complete from the engine; I cannot say positively whether there were brake-blocks on No. 3 carriage as the train left Hornsby.

By Mr. Williamson (on behalf of John Pye): When I applied the hand-brake going down the hill I found it operating.

By Mr. Simpson (on behalf of Westinghouse Brake Company): If there were brake-blocks on the carriage which left Hornsby as No. 3, and if the half-inch cock on that carriage leading from the main brake-pipe of the train to the triple-valve of the carriage No. 3 had been closed, the brake would have had no power on that carriage.

Sworn and made before me, at Sydney, }
this 29th June, 1887,— }

ALFRED CLISSOLD.

HENRY SHIELL, J.P., Coroner.

Charles Henry Bennett, on oath, states:—

By the Coroner: I reside at Ryde, and am a clerk in the Department of Mines; I remember Tuesday, the 21st instant; I was at Peat's Ferry that day; I was also there on Monday, the 20th, and left at 6 o'clock in the evening with a view of returning to Ryde; I think the train by which I was returning consisted of eight carriages, and got as far as the tunnel known as No. 3 on the line, where it stopped, and the engine made several ineffectual attempts to get the train on, but after wasting half-an-hour in attempts to get on, the train had to run back to Peat's Ferry, where I remained for the night; I was at Peat's Ferry at the time of the accident on the next day, and I saw the train approaching the station as far as it could be seen, and I saw it run into some stationary trucks on the siding beyond the station; I noticed the engine of that train, and it appeared to me to be the same one we had on the previous day, or one exactly similar; I was on the balcony of the Brooklyn Hotel, and had a good view of the train, and it appeared to me from the noise that some of the brakes were acting; the train on Monday evening waited the arrival at Peat's Ferry of a train from Sydney, when the engine of that train was put on behind, and assisted it up the gradients, and the engine of the train from Sydney returned again to Peat's Ferry by itself; I am a judge of railway pace, and I think the train on Tuesday ran past the station at Peat's Ferry at a pace not exceeding about 40 miles an hour.

By Mr. Williamson (on behalf of John Pye, fireman): Monday was not my first trip to Peat's Ferry; I was there once before in the Government train—on a Sunday; I did not hear the whistle of the train on Tuesday before she came into sight; that would be about a quarter of a mile before she reached the station; the whistle was a continuous one; my idea as to the brakes being on was taken from the sound of the train; I noticed the train oscillating before she reached the station, but I did not see her jumping; I went up to the train after the collision and looked at the carriages; I did not see an examination made of the air-pipes, nor did I examine the brakes; the down gradient commences a little beyond No. 1 tunnel on the Sydney side, and continues right down to the station at Peat's Ferry, a distance of about 5 miles.

By the Foreman: I did not see the engine-driver of the train on Monday.

Sworn and made before me, at Sydney, }
this 29th June, 1887,— }

CHAS. H. BENNETT.

HENRY SHIELL, J.P., Coroner.

George Stead, on oath, states:—

16 { *By the Coroner*: I reside at Hornsby, and am acting officer-in-charge at Hornsby Railway Station; on Tuesday, the 21st instant, I was in charge of that station, and at 11:22 a.m. I received the signal from Ryde that a train was leaving there for Hornsby; Ryde is 9 miles distant from Hornsby, and Hornsby is 21 miles from Sydney; about 1:14 p.m. the train, of which I had been notified of from Ryde, arrived at Hornsby with seven carriages, and the driver, Wilson, said he wanted to put those seven carriages on the siding till he went back and brought on a portion of his train which he had left between there and Ryde; I put his train on the up loop-line and cut the engine off, and the driver then started back to bring on the remainder of his train; I left the brakes on the carriages that had blocks on when they were on the loop-line; I then went and got a spragg and put it in the wheels of one carriage.

carriage, first having tapped one of the blocks to see if the brake was acting, and found it was, and put the spragg in for greater safety; about 1.47 p.m. the second portion of this train arrived, and was backed in to the first portion, standing on the up loop-line; the second portion consisted of an American car and a carriage; guard Clissold coupled them; I took the couplings to him from the end carriage of the seven, and gave them to him, and he coupled them; after handing the couplings to Clissold, I went to the engine and exchanged the staff with the driver, went back and crossed over the platform of the second car from the engine on to the off side, and held the points; opposite to where I was holding the points, guard Clissold was making the air communications good; when I returned from handing the staff to the driver, I said to him, "Clissold, don't forget the tap," and with that I saw him put his hand up on the car and turn the tap down, and put his hand up on to the other carriage on to the pipe; I then told the guard, "Right away, when you are ready," and I held the points to let the train out. } 16

By Mr. Rogers (in the public interests): As far as I know, the air connection, as far as the Westinghouse-brake extended throughout the train, was all right; when the train left Hornsby, Clissold would know more about that than I, I left it to him; when the train was made up at Hornsby, I think five out the nine carriages had brake-blocks; the four at the rear had not brake-blocks. } 17

By Mr. Williamson (on behalf of John Pye): I have been stationed at Hornsby about six or seven months; I am acting station-master; I do not recollect anything occurring at Hornsby with a driver in April last; I don't know that a driver refused to take on one occasion to Peat's Ferry, from Hornsby, eleven and a half carriages; the guard cut off two; he did not tell me why, nor did I ask; I forget if there were any passengers in those two cars—there were none left behind; I don't know if they got out and went into other carriages and went on with the train; I do not recollect a driver in April last arriving at Hornsby with a heavy American engine and heavy train, and him refusing to take the train down unless some of it was uncoupled; I told Clissold to not forget to turn on the cock; it is a way I have got; I was coupling at Parramatta before; I am supplied with a book of rules; I looked at page 70, rules 213 and 284; I looked at the couplings in accordance with 213; I walked along the loop-line and looked at them; there is no examiner of carriages at Hornsby; I had something else to do besides examine the carriages on that day; I had the telegraph to attend to; it was not on that account that I did not make an examination; I walked along the carriages, and they seemed to me to be all right; the wheels were not tapped; I know what the examination of a train is, and I have seen one examined in Sydney; the examiner taps the wheels, examines the brakes, and should see that the blocks are all correct; I cannot say if he examines the hand-brake; I suppose he would examine the Westinghouse-brake if attached to the train; I cannot say if the guard examined the train before it left Hornsby; I walked along it, and saw that the couplings and air-connections were all right, but I did not examine the taps; I looked at rule 238, page 77—I obeyed that regulation; I saw enough to satisfy myself that the train was leaving Hornsby all right, although I did not examine the taps; there was no tap in the end of the ninth vehicle when the train left Hornsby; I did not observe whether there was a tap between the fifth and sixth vehicles; I could not see if the guard examined the tap between those vehicles; I could not see him from where I was holding the points; I left the tap open on the train when I cut the seven carriages off from the engine, but I can't say if I turned it again; I saw Clissold between the second and third carriages before the train left Hornsby, and saw him turn a tap on, but whether he turned the tap on the third carriage I can't say; I saw driver Wilson on that road the day before; I believe he had some difficulty in reaching Hornsby that day from the Hawkesbury; I can't say if he had any difficulty in reaching Hornsby from the Sydney side; the train was not uncoupled before reaching Hornsby on Monday; it came in all together; I have not had frequent complaints about the trains sticking up between Ryde and Hornsby; the ordinary train that runs to Peat's Ferry always has a brake-van; that train generally consists of equal to five carriages, the brake-van always has a gauge; the ordinary train never runs the American cars, generally the Redfern carriages; I have a little practical experience of the Westinghouse-brake; I have been attached to a train with it; some trains have brake-vans, some have not; I have been in the van fitted up with a gauge and brake-valve; I have worked that brake-valve to stop the train in shunting; if the driver had his brake hard on, the trap in the brake-van would be useless, but supposing he only had the pressure slightly on, then the guard in the brake-van could be of some service to him; the object of the gauge is to indicate the state of the pressure to the guard; I know there is a heavy gradient down to Peat's Ferry, and considering the number of carriages attached to this train, I consider it was safe for it to travel down without a brake-van; I have travelled down there in a brake-van fitted with the Westinghouse-brake, and the guard did not work the air-valve; I travelled once in a train down there with two carriages equal to four and a brake-van, the train going down on the 21st was equal to fourteen.

Sworn and made before me at Sydney, }
this 29th June, 1887,—

G. STEAD.

HENRY SHIELL, J.P., Coroner.

Inquest adjourned till 10 o'clock in the forenoon of Thursday the 30th day of June instant, at the Darlinghurst Court-house, for the production of further evidence.
Sydney, 29th June, 1887.

H.S., C.

Inquest resumed in pursuance of adjournment at 10 of the clock in the forenoon of Thursday the 30th June instant, at the Court-house at Darlinghurst.
Sydney, 30th June, 1887.

H.S., C.

George Stead recalled, on oath, states:—

By Dr. Sly (on behalf of the Commissioner for Railways): I have had eight and a half years railway experience; first of all I started as a number taker on the London and North-western Railway, England; then shunter in Abergaraney, Wales; that was a busy place, it is on the borders of England and Wales; I was then assistant guard at the same place, on the Merthia Widville section; the Westinghouse-brake was not in use on that line; I was five years in England; I had two years experience in New Zealand, at Tameroo and Fairy Creek; I was twelve months in the traffic as porter, and twelve months in the locomotive branch as cleaner; I then came to Sydney where I have had close on two years railway experience; I started as porter at Darling Harbour, then as shunter at the same place; I then went to Parramatta as shunter,

shunter, and was there about seven months ; it is a busy place, being the terminus for the Sydney trains ; it was my duty at Parramatta, when a train came in, to uncouple the engine, take it round to the other end, and couple it up again, including the Westinghouse brake ; I went from Parramatta to Waterfall, on the Illawarra line as shunter ; that was then the terminus, and my duties were similar to what they were at Parramatta ; I then went to National Park as signal man, and to Sutherland as porter, and I there made myself efficient in the telegraph, not being instructed by the Department to do so ; I went from Sutherland to Hornsby as shunter ; it was then the terminus, and my duties were then the same as at Parramatta, only I had the telegraph ; I was appointed officer-in-charge at Hornsby, when the line was opened through to Peat's Ferry ; I remember when the first seven carriages of the train in question reached Hornsby ; after shunting, the brakes were on three carriages out of the seven ; when I disconnected I cannot swear whether I left the tap open or not, but the brakes were on ; when Clissold (when he) coupled up the train again and made the connection, if he had not opened the tap, the brakes would have remained on, and he must have seen them ; the train would not have moved if he had not opened the tap ; I am confident, therefore, in my own mind, that he did make the connections ; although I did not examine every carriage, I examined the train to that extent that I was satisfied that the train was leaving all right ; the wheels of carriages are only tapped at Sydney, or after a long run.

By Mr. Nathan (on behalf of relatives of John Rennie) : When I uncoupled the train at Hornsby, I believe it was a small second that I unhooked from the engine ; I cannot swear the brake was on that vehicle, but the brake was either on the first or second vehicle ; I put the spragg in the wheel of the carriage after the engine had gone back on to the main line to bring on the remainder of the train, and after I had put the brakes on ; the brakes were working properly, and I put the spragg in for precaution ; it was part of my duty at Parramatta to uncouple the engine and bring it round and connect it at the other end of the train ; I don't know that it is the usual practice to have brake-vans to suburban trains.

By Dr. Sly (on behalf of the Commissioner for Railways) : If a brake-van were behind a train going to Parramatta it would be next the engine coming back, and whatever vehicle was next the engine going out would be last coming in.

By Mr. Nathan (on behalf of the relatives of Mr. Rennie) : I have seen a train with two brake-vans—one next the engine and one behind.

By the Foreman : I have been in charge at Hornsby since the 7th of April last ; I was on duty there on Monday, the 20th instant ; I knew the late driver Wilson personally ; I saw him that day driving an engine, but I don't know its number ; all are numbered ; I did not have any conversation with him on that day ; I spoke to the fireman ; he asked me, when going to Peat's Ferry, how far it was to the top of the bank, and I told him ; I saw driver Wilson on the following day ; he was the driver of the train in question ; I saw Wilson returning to Sydney on Monday evening, but not on the same engine as he went out on ; I saw Wilson on engine 178 on Tuesday ; that was not the engine he took down on Monday ; Wilson said to me on Tuesday, "Oh, I am doing well, George—I don't know when I will get to the Ferry," or something like that ; he was then about an hour and forty minutes late ; neither the fireman or guard made any complaint to me on Tuesday ; I saw the train leave Hornsby at 1.49 p.m., apparently all right, with the driver, fireman, and guard.

By a Juror : I took the spragg out of the wheel of the carriage when I took the couplings off the last carriage ; I think it is safe to go down from Hornsby to Peat's Ferry, without a brake-van ; that is my opinion.

By another Juror : To the best of my belief, Wilson was on the same engine on Tuesday as he came up in from Peat's Ferry on Monday, but I don't think it was the same engine as he went down to Peat's Ferry on Monday ; neither Wilson or the fireman said anything to me on Monday night ; they were timed at 6.55 p.m., and they arrived about 9 ; I did not ask them the reason why they were late ; I did not ask the guard why he was late ; I was asked from Peat's Ferry to cancel the train due at Hornsby at 6.55 p.m., and give the line clear ; that was the reason why I did not ask why the train was late, because I knew the Sydney train had to run down ; I have seen similar carriages to the four that was on this train on this day at Hornsby before.

By the Foreman : I do not know that Wilson had to get assistance from another engine to get his train up the gradient from Peat's Ferry on Monday evening.

By Dr. Sly (on behalf of the Commissioner for Railways) : I heard that Wilson exchanged engines at Peat's Ferry on Monday, but I don't know it of my own knowledge.

GEO. STEAD.

Sworn and made before me at Sydney, }
this 30th June, 1887,—

HENRY SHIELL, J.P., Coroner.

Thomas Cavanaugh, on oath, states :—

By the Coroner : I am station-master at Peat's Ferry, and have been there since the 7th of April last, when the line first opened ; I remember Tuesday, 21st instant ; about 2.25 p.m. that day I was on the platform at Peat's Ferry, when I heard a whistle, and on looking I saw a train running in towards the station at a rapid rate ; I then called to Pointsman Proctor, who was then at the points, to stick to them ; I knew it was the excursion train from Sydney that was approaching ; she was then a little over two hours late ; the train ran in past the station at the same rate of speed, Proctor still sticking to the points ; I think she must have been going at the rate of from 50 to 60 miles an hour ; I did not see the carriages oscillating ; she dashed past the station, and into some trucks standing on the siding ; I did not notice anyone on the engine as she passed me ; I stood back just in front of my office door while she passed ; I heard the whistle continuously from the time I first heard it till the engine dashed into the trucks ; I could form no opinion, from anything I heard or saw as the train passed me, whether any of the brakes were acting or not ; I saw the dead body of the driver taken out of the water, and recognized him to be the same man who was at Peat's Ferry in charge of an excursion train on the previous day ; he left the Peat's Ferry station for Sydney at 6 o'clock on Monday evening, and returned at 7, when the guard informed me he could not get the train up the hill ; I then telegraphed to Hornsby to send the ordinary train on—that the line was clear, and after its arrival I started the excursion train again, and got the driver of the ordinary train to put his engine behind the excursion train and shove her up the hill ; he did so, and returned again the driver of the excursion train on Monday left Peat's Ferry for Sydney on the

the same engine as he arrived at the Ferry on; I cannot say if it was the same engine he had on Tuesday, but it was one of the same class.

By Mr. Rogers (in the public interest): I called to Proctor to stick to the points, as he was a stranger to me, and I was not aware whether he was acquainted with the points; supposing nothing was the matter with approaching train, it was Proctor's duty to open the points and let the train run into the same siding, otherwise she would have run into a train of passengers ready to start for Sydney; the number of the engine in the water is 178; I saw it in the water immediately after she dashed into the trucks; the engine was in the water on the right hand side of the embankment; I saw the donkey working while the engine was in the water; I know a little about the Westinghouse brake; the donkey supplies the air to it; portions of two carriages were in the water; they telescoped into one another, and lay on the bank partly in the water; that was the first and second carriages of the train.

By Dr. Sly (on behalf of the Commissioner for Railways): The carriage next the engine telescoped into the second carriage from the engine—the American car.

By Mr. Nathan (on behalf of relatives of Mr. Rennie): The train arrived at Peat's Ferry on Monday considerably late; she should have arrived at 12:20 p.m.; I did not see Mr. Rennie on the engine; I will not swear he did not come down on the engine with Wilson on Monday; Wilson did not tell me on Monday that it was his first time down that line; I had never seen him before to my knowledge; since I have been at Peat's Ferry it has been unusual to have brake-vans on the trains running there, but I cannot swear that those vans were all fitted with the Westinghouse brake.

By Mr. Rogers (in the public interest): I believe there was a brake-van on the excursion train on Monday; I don't know if that van had the Westinghouse appliances.

By Mr. Williamson (on behalf of John Pye): I did not make an examination of the taps after the accident; I don't recollect any examination being made; I saw one end of the engine out of the water; I could see the front portion of it; I did not notice the fore part of the engine next the buffers; the engine came down tender first; I recollect the 9th and 11th of April last; I recollect a driver Weir on one of those days, on arrival at Peat's Ferry, informing me he had left a portion of his train behind; he said it was too much to take up the hill again; he did not say that it was in consequence of having too much weight behind him coming down the hill.

By a Juror: I have never had occasion to put the distance signal against the down train since I have been at Peat's Ferry; I don't know if there would be difficulty in stopping a train beyond it.

By Mr. Williamson (on behalf of John Pye): I have never found the trains run past the platform till this train on Tuesday.

By a Juror: I think it is as safe for a train to come down the gradient without a brake-van as with one if she has the Westinghouse brakes working on her.

Sworn and made before me, at Sydney, }
this 30th June, 1887,—

THOS. CAVANOUGH.

HENRY SHIELL, J.P., Coroner.

Patrick Proctor, on oath, states:—

By the Coroner: I am a porter in the Railway Department; I was stationed at Peat's Ferry on the 21st instant; about half-past 2 o'clock on the afternoon of that day I was at the points and signal-gear, when I heard the whistle of an approaching train; when the station-master called out points I was there at the time, and when I saw her coming I opened the points and stuck to them till she passed me, which she did at great speed; I opened the points to let the approaching train run into the siding, and to get there she had to pass the platform; I could form no opinion, as the train flashed past me, whether or not any of the brakes were working or not; I had to keep my head back as the train passed me for fear of her striking my head; the wind from the train took the cap off my head in passing me; I should think the train was a mile away when I first heard her whistle; I could not see her then.

By Mr. Rogers (in the public interest): When I shifted the points I just held on to them as I would have done had the train come in an ordinary way; two trains of passengers were standing on the main line; I could not say when the train rushed past me, when I had my head thrown back, if any of the brakes were acting; I cannot say how fast the train passed, but I thought she would run past the platform, but I did not think she was running away; but I knew, from her continuous whistle, that there was danger—that there was something wrong; I never got my cap blown off my head when holding the points before; I think the train passed me at a distance of about 2½ feet; I stood outside the line.

By Mr. Williamson (on behalf of John Pye): The handle of the points is parallel with the line, and I was facing the approaching train; the distance from the points to the opening of the first cutting is about 500 or 600 yards; the train continued to whistle till she passed me; I did not see anyone on the engine—she passed me like a shot; I did not hear anyone on the approaching train calling out; I did not see her jumping; I did not detect any peculiar smell from the wheels as the train passed me; I have but very little experience in shunting; when the train came in contact with the trucks I ran down and went to the assistance of the passengers; I did not examine either the brakes or taps, nor did I see any examination made of either; I saw the engine in the water and the steam escaping, but I did not notice the donkey working.

By a Juror: The signals were clear for the trains to come in.

P. PROCTER.

Sworn and made before me, at Sydney, }
this 30th June, 1887,—

HENRY SHIELL, J.P., Coroner.

Henry George Perkins, on oath, states:—

By the Coroner: I reside at Peat's Ferry, and am a locomotive engine-driver, in the employ of Amos Brothers; I remember Tuesday, the 21st instant; I was at Peat's Ferry that day, and witnessed the occurrence; when I first saw the train it was about half a mile from the platform at Peat's Ferry; my attention was first attracted to it by the continuous blowing of the whistle; I was then about a chain distant from the platform—on the Sydney side—between the points and platform; the whistle caused me to look round, and I saw the train approaching at an extraordinary speed; I saw by its speed that it was from under control; I thought I saw some one waving their hands on the engine, but I did not hear any shouting

shouting from the engine; the engine passed me and immediately after I heard a crash and she collided, and I saw fragments lying about; I then went to render assistance, and did so for some time; I had seen the fireman of a train at Peat's Ferry on the previous day, and I recognised the fireman of this train to be the same; I assisted him up the bank out of the water and assisted him to the hotel, where I had a conversation with him; I asked him, referring to the train, "Where did she get away from you?" he said, about the tanks (the tanks are about 3 chains from No. 2 tunnel, and about $3\frac{1}{4}$ miles from Peat's Ferry); I did not ask him how she got away, nor did he tell me; I then went to the engine of the train and found her in the water; I found the engine reversed in forward gear and the regulator was partly open; I also found the lever of air-valve partly open, it was about half open, it did not show full on; I found the donkey working and I shut the steam off; I looked at one of the carriages, I think the third from the engine, and found two pairs of the blocks hanging loose off the wheels; I am certain it was not the first or second carriage, but I believe it was the third; my examination of the engine lead me to the conclusion that the driver had done all he could to stop the train; I did not examine the couplings; I do not know the working of the Westinghouse properly; I only found the air-valve on the engine partly open.

By Mr. Rogers (in the public interests): As the engine approached me I saw a person waving; I fancied so; I could not see the brakes of the engine while she was in the water; I cannot say from what I saw as to the condition of the brakes on the engine; the valve on the engine was partly open, showing that the air had been applied; I knew the driver Wilson from the previous day; I have heard him spoken of since as a careful good driver; I know this line from end to end; I have run over every inch of it; from the gradients there I know that we always got on better with a brake-van than without it; I don't consider the line dangerous if one has plenty of brake power; I saw the carriages attached to this train, but I did not take particular notice of them; I also saw the engine, and I think the number of carriages were too many for an engine of her class to take down there; I used to take my heavy loads down to Peat's Ferry with the hand-brake; I would have preferred blocks on the four small carriage of this train; the carriage next the engine was knocked inside the second carriage; I did not look at the air-taps on either of those carriages.

By Mr. Williamson (on behalf of John Pye): I have driven an engine a little over six years for various contractors; it is a little over ten years since I first started with a locomotive; I saw Wilson on the previous Monday night; I asked him what he thought of the road; he made some reply which I did not catch; at this time he had been up the bank with his train and had to come back; I don't know how many carriages constituted that train; I asked how he could not get up the bank; he said, "He could not get up for the slipping of the engine" (he was running tender first); I said, did you use all your sand; he said yes; I said if you put back a bit you can get a fresh supply; he told me if he had had his engine the other way instead of tender first, he thought he might have got up the hill—that he would sooner a £5-note than it should have happened; he said that he was booked to come up the following day, and was anxious to come, but on account of running so late he might be taken off the road; there is no turn-table at Peat's Ferry, and if an engine is to be taken up the bank engine first she must come down tender first, and that is the way the engine was coming down on the 21st; after the road was opened the Government supplied us with a brake-van; I found it of considerable assistance coming down the incline; all our trucks had hand-brakes; coming down the incline we had a stopping place, and we used to stop and put them down; they work with a lever; our first stopping place was on the summit on the Peat's Ferry side of Berowra, and we again stopped on the 1 in 50 to pin our brakes, that is, before you enter No. 1 tunnel; notwithstanding the hand-brakes on the trucks I found the brake-van of great assistance, and we did not require to have the brake power throughout the train; it helped the trucks considerably from getting away; some say the brake-van might hold better at the tail of the train, the drag is more, and our guard always preferred it at the tail of the train; I have come down with about 100 tons behind me, exclusive of the weight of the trucks; the total weight would be about 150 tons; every truck was under brake power as well as the brake-van; I have seen the engine that took down this train and my own engine—mine is the most powerful one, it is supposed to be a goods engine; the engine of this train is supposed to have the most resisting power with the brake; I think if a brake-van had been attached to this train, and if the Westinghouse brake was not working, it would have been of great assistance if the hand-brake only had been on the second American car; a van would have been of great assistance at the rear of the train; I did not find stopping at the present platform very easy after descending the incline; I cannot say the class of carriage I saw the blocks loose on; the whole of the blocks on one side of that carriage were loose; I did not look at the blocks on one and two carriages; I did not notice the pressure on the brake-gauge; the steam-gauge was broken; the gear of the engine was reversed; the air-valve was partly open, pulled to the driver's side, and pointing towards the tender; I don't know if that was sufficient to put the Westinghouse brake on but I think so.

By Dr. Sly (on behalf of the Commissioner for Railways): We got the brake-van from the Government after the line was opened to Hornsby; we did not find it necessary to put the brakes so hard on to trucks as we did without it, and it was in that way I found it of assistance; assuming that the driver was to put on the Westinghouse brake on all the carriages, a brake behind would be of little or no service; when a train was coming down this hill with the Westinghouse brake in proper order the hand-brake would be of no service; I know the hand-brake on the American cars; I don't think it would have the same effect as the hand-brake on a brake-van, because the brake on the American car works with a screw, and the one in the brake-van with a screw with leverage off the crank, making the brake power superior to the American car; I never worked the hand-brake on an American car, but I have on a G. truck, which is similar in construction; the heavier the car the more resisting power; I prefer in practice the van to the American car; I have never worked the brake in a brake-van going down this incline; I have often gone down this incline without a brake-van, taking eleven, twelve, and thirteen trucks, and less; the trucks were loaded with bricks; I should say one of those heavy loads would have weighed about 120 tons.

Sworn and made before me at Sydney, }
this 30th June, 1887,—

HENRY SHELL, J.P., Coroner.

H. G. PERKINS.

Inquest adjourned till 10 o'clock in the forenoon of Friday, the 1st day of July, 1887, at the Court-house, Darlinghurst, for the production of further evidence.

H.S., Coroner.

Inquest

Inquest resumed in pursuance of adjournment at 10 o'clock in the forenoon of Friday, the 1st July, 1887, at the Court-house, Darlinghurst.
Sydney, 1 July, 1887.

H.S., Coroner.

Henry George Perkins, re-called, on oath, states:—

By Mr. Simpson (on behalf of the Westinghouse Brake Company): I noticed the third carriage from the engine; I can not say that that was the one the blocks were loose on; I do not know which one the blocks were loose on; I did not examine the $\frac{1}{2}$ -inch cock; I did not see brake-blocks on the engine that day, she was under water and I could not see any; I saw a brake-block on the engine after she was taken out; the break-block which I saw hanging on the engine was a hand brake-block; so far as I know I do not think it had nothing to do with the Westinghouse brake; there is generally a Westinghouse apparatus on the engine, and if it was not connected with the brake-blocks it would materially affect the resisting power of the brake; I do not know the weight of the engine, the engine is much heavier than the tender.

By Mr. Nathan (on behalf of relatives of Mr. Rennie): There is a custom on newly constructed lines for the gentleman who superintended the construction of the line to act as pilot for the Government engine-driver when they do not know the road, if requested to do so.

By the Foreman: Supposing the driver of an engine, after applying the brakes, find they are not acting, the only other way he takes to stop his train is by reversing his engine; when I examined the engine I found the safety-valve blowing off steam; the impression I formed from my examination was that the engine had plenty of steam on when she ran past the station.

By Dr. Sly (on behalf of the Commissioner for Railways): The sand from the sand-box would assist him on a wet rail.

Sworn and made before me at Sydney, }
this 1st July, 1887,—

H. G. PERKINS.

HENRY SHIELL, J.P., Coroner.

Robert Hannsell on oath states:—

By the Coroner: I reside at Berowra, and am a builder; I remember Tuesday, the 21st of June last; I was on the platform at Berowra when the excursion train passed on that day; there is a gradient there; the train did not stop there; she was going at an ordinary rate of speed; I saw Mr. Rennie on the engine; I knew him; he was holding on by his left hand to some part of the engine, and lokoing behind, waving his hand towards the end of the train, giving the signal "Brakes down"; I could not say, when the train passed me, if any of the brakes were down; after passing the platform he got further out on the engine and waved his handkerchief towards the end of the train, giving the same signal; Mr. Rennie seemed to me to be excited, and I thought something unusual was up; the train then passed out of my sight; Berowra is about 7 miles from Peat's Ferry; I think I saw three persons on the engine.

By Mr. Rogers (in the public interests):—I thought the signal Rennie was giving was "Brakes down"; I thought he wanted the train to stop at the platform; there would be no necessity to put the brakes on there unless the train was going to stop; there is no station there; a waiting-room is being built; I have been there three weeks.

By Dr. Sly (on behalf of the Commissioner for Railways):—I knew that the waving of the hand in the manner I have described meant "Brakes down."

Sworn and made before me at Sydney, }
this 1st day of July, 1887,—

R. HANSELL.

HENRY SHIELL, J.P., Coroner.

Hugh Rohen, on oath, states:—

By the Coroner: I reside at Peat's Ferry, and am a labourer; I remember Tuesday, the 21st June last; I was at Peat's Ferry about 5 o'clock on the afternoon of that day; there was a discussion going on about a railway accident that had occurred that day, and in consequence of that discussion I went and examined the carriages, and found that the couplings between the second and third were not attached, and that they were not broken: I found there was no air connection between those carriages; they were the second and third from the engine; I have had no experience of the Westinghouse brake; I showed to one or two persons on the following morning that the connections I have mentioned had not been made; the first four carriages from the engine were off the line; I did not observe the coupling between three or four or any of the other carriages; I did not observe the condition of any of the brake-blocks on the wheels.

By Mr. Rogers (in the public interests): The two carriages I have mentioned were not coupled; I cannot swear that the iron couplings were broken, but to the best of my belief they were broken; I know how the Westinghouse brake connections are made; I have seen them connected, but I never made the connection myself.

Sworn and made before me, at Sydney, }
this 1st July, 1887,—

HUGH ROHEN.

HENRY SHIELL, J.P., Coroner.

Richard Brennan, on oath, states:—

By the Coroner: I reside at Peat's Ferry; I am an engine-driver in the employ of Mr. Amos, and was so employed on Tuesday, the 21st June last; I saw the excursion train pass me at the tanks on the afternoon of that day, $3\frac{1}{2}$ miles from Peat's Ferry; I was standing at the tanks to give the engine of the excursion train water, but she did not stop; I observed the train approaching me at a faster speed than ordinary; I saw the driver on the engine and beckoned to him to stop; he whistled twice in answer to my signal, and when he came alongside the tanks I saw that the wheels of the engine were locked; he must therefore have had the gear of the engine reversed; I could see that the side-rods were stationary, and that the wheels were skidding; I knew then that he had no control over his train, that she had run away with him; he was then descending the 1 in 40; the driver continued blowing his whistle till he got out of my hearing; I saw Mr. Rennie sitting on the tender, near the sand-box, holding his hat on with his left hand, waving with his right hand; he was facing the driver; I should think the train passed me at about the rate of 35 or 40 miles an hour; I once saw an engine pass me there before; she did so at the rate of about 15 miles an hour; I was standing on the ground when the train passed, and I don't think that the brake power was acting, or she could not have been going at such a speed.

By

By Mr. Rogers, in the public interest: The two short whistles the driver gave on passing me was a signal to the guard to put the brakes down; I don't know what Mr. Rennie's signals meant; I think if the brakes had been on the carriages the train could not have gone at such a rate; it is a descent from the tanks to Peat's Ferry; I can't say what steam the driver had on; I did not see the guard; I saw the driver on the previous day—never before.

By Mr. Williamson (on behalf of John Pye): The driver said to me, the day previous, that it was a steep gradient coming down—that was all; he stopped at the tanks and took water in, and asked what like the road was from there to the ferry; I did not observe if he had a brake-van on his train; I don't think the rails were more greasy on Tuesday than on other days; I think he was standing in his proper place on the engine when he passed me on Tuesday.

By Mr. Nathan (on behalf of the relatives of Mr. Rennie): I did not see Mr. Rennie on the engine on Monday; I swear he was not on it.

By the Foreman: I supplied the engine with water on Monday, and I knew it was the driver's first trip down; I signalled the train when she came out of No. 2 tunnel with my hand to stop; the driver applied his brakes and slackened speed when approaching the tanks on Monday; I don't think he had the same engine on Tuesday as he had on Monday; I gave the same signal to stop on Tuesday as I did on Monday.

By Mr. Williamson (on behalf of John Pye): The driver did not have much difficulty in stopping at the tanks on Monday; he overran them about the length of a waggon.

Sworn and made before me at Sydney, }
this 1st July, 1887,—

RICHARD BRENNAN.

HENRY SHIELL, J.P., Coroner.

James Makintosh, on oath, states:—

By the Coroner: I reside at Strathfield, and am an engine-fitter in the employment of A. and R. Amos; on Tuesday, the 21st June last, I was at Peat's Ferry; I was there when the railway accident occurred, and witnessed the occurrence; I was about 15 yards from the platform when the train passed it; I should think she did so at the rate of from 50 miles to 60 miles an hour; I heard the crash of the collision, and went up to where the carriages were, and examined four of them about the middle of the train, and found they had no brake-blocks on them; they were second class carriages; I next examined the engine, and found the gear reversed, and the regulator a quarter open; I did not look at the air connections.

By Mr. Nathan (on behalf of the relatives of Mr. Rennie): I was at Peat's Ferry on Monday, and saw Mr. Rennie there that afternoon; I went there by the first train in the morning, and he came by the second; he told me he had piloted that train down at the request of the driver; Rennie did not come down with Wilson on Monday; Mr. Rennie was engineer and overseer in Mr. Amos's employ; I know it is the practice, when requested to do so, for the gentlemen who superintend the construction of a line, to act as pilot to the Government engine-drivers.

By a Juror: I examined some of the carriages of the wrecked train.

Sworn and made before me at Sydney, }
this 1st July, 1887,—

JAMES MAKINTOSH.

HENRY SHIELL, J.P., Coroner.

William Hulme, on oath, states:—

By the Coroner: I reside at Macdonaldtown, and am an engine-driver in the employ of the New South Wales Government; I was at Peat's Ferry on Tuesday, the 21st June last, and witnessed the railway accident; I was standing near the points when I heard the train coming down the bank, and almost simultaneously I saw the train approaching from the cutting at a fast rate of speed; I could see that she was from under control, and in a few seconds she passed me at, I should say, fully 50 miles an hour; I followed it up; I ran after it, but a collision took place; before I reached I saw that the engine had turned over into the water, and that the first and second carriages had telescoped; on reaching the train, after the accident, I saw the brake-blocks on the third carriage from the engine hanging loose; I felt the tires of that carriage, and the one behind No. 4, and found they were as cool as they could be by running, without the brakes being applied to them; I examined the air taps on the whole of the carriages except the front one, and found they were all open; I could hear the donkey on the engine pumping while she was in the water; when I examined the tires of the wheels of the carriages mentioned, my examination led me to the conclusion that the brakes had not been applied to the wheels; I could not see the tap next the engine, but all the other taps were open, so as to allow the air to pass through the pipe to all the carriages connected with the Westinghouse brakes; the connections showed that all the carriages could be worked by the air brake that were connected with it, but my examination of three and four carriages showed that it had not been working on them; my examination showed that out of a train of nine carriages there were at least six not under brake action; had the brakes been applied to the tires of Nos. 3 and 4 carriages, coming in at the rate the train did, I would expect the tires to be quite hot.

By Mr. Rogers (in the public interest): So far as I could see, the air connecting seemed to me to be all right, although the brake was not working; I saw two of the carriages off the line; I did not notice the couplings nor the air pipe; I was on that line on Monday and Tuesday, the 20th and 21st June last; the train I took down on Monday was equal to nine carriages, the one on Tuesday equal to seven and a half; I had a brake-van on Tuesday; I can't say if I had one on Monday; I saw the engine of the wrecked train; it was a New South Wales engine; the one I drove was an English one, but both were of about the same power; the load that the wrecked engine brought down on Tuesday was equal to thirteen ordinary carriages; I had no difficulty in getting down with my train of nine carriages on Monday; I had a Westinghouse brake on, and I consider it a safe enough road to travel; I have been driving about eleven years, and I have seen this engine, and if the Westinghouse brake had been working properly she could have taken twenty carriages as well as nine; if the engine supplies the air to the carriages she is not required further than that; the carriages would go down by themselves; it is the train that holds the engine descending an incline if the brakes are working properly; if five out of the nine carriages (out of the nine) had been supplied with

with

with the Westinghouse brake, and it working properly, no matter where they were placed, there would have been sufficient brake power to hold the train.

By Mr. Williamson (on behalf of John Pye): If the driver's brake valve were found half open, it would be quite sufficient to work the train; when I saw the blocks hanging loose I came to the conclusion that the air taps had not been properly fixed to allow the air to pass through; but on examining the taps I found them all right, but I did not examine the tap on the carriage next the engine, nor the one on the engine; if the triple valve got stuck, the brakes would go on, and would not come off till released; assuming that the Westinghouse did not work, I would sooner have the guard on an American car at the end of a train with a hand-brake than to have the guard in a brake-van with a hand-brake; if there was a gauge in a brake-van attached to a train, it would assist the driver in pulling up the train.

By a Juror: I was on the railway before the Westinghouse brake was introduced; the only brake power at that time were the hand-brakes on the engine, and the hand-brakes on the guard's van.

Sworn and made before me, at Sydney, }
this 1st July, 1887,—

WM. HULME.

HENRY SHIELL, J.P., Coroner.

Inquest adjourned till 10 o'clock on the forenoon of Monday, the 4th July instant, at the Court-house, Darlinghurst, for the production of further evidence.

H.S., Coroner.

Sydney, 1st July, 1887.

Inquest resumed in pursuance of adjournment at 10 o'clock on the forenoon of Monday, the 4th day of July, instant, at the Court-house, Darlinghurst.

Sydney, 4th July, 1887.

William Hulme, recalled, on oath, states:—

By Dr. Slay (on behalf of the Commissioner for Railways): Supposing the brake-blocks were not working on No. 3 car, but were working on the other four carriages with brake-blocks on, and the engine, it would be sufficient to control the train. I am of opinion that there was sufficient hand-brake power on this train to control it if it had been taken in time. } 26

By Mr. Rogers (in the public interest): From my examination of the wheels of Nos. 3 and 4 carriages, I should say that the brake-blocks had not been acting on the tires of the wheels from the tanks down to where the wreck took place; I know where the commencement of the descent is after passing Berowra; I should say the brake-blocks had not been working on those tires from there down; I think that is about 6 miles distant from the station at Peat's Ferry.

By the Coroner: The Westinghouse brake does not act on the engine; its effect commences on the tender; there is a hand-brake on the engine; its application to the wheels hard on might or might not cause the wheels of the engine to skid descending a gradient of 1 in 40. I am quite certain that the couplings and air-coupling between carriages 2 and 3 were quite perfect when I examined them about half an hour after the accident.

By Mr. Nathan (on behalf of the relatives of Mr. Rennie): I think they had been depending on the Westinghouse brake power, and the train had got away from them before the hand-brakes were applied; I examined all the taps on the carriages except the one on the front carriage; if there was only one tap turned on between that carriage and the engine, it would make the working of the Westinghouse brake inoperative.

By Mr. Simpson (on behalf of Westinghouse Brake Company): There are engines fitted by the Government to which the Westinghouse brakes are applied to the wheels; I believe it is better to have only the hand-brake on the engine; I don't think the application of the Westinghouse brake-blocks to the wheels of the engine has any benefit in stopping the train; the simultaneous application of the whole brake power of the train would have greater effect.

By Mr. Rogers (in the public interest): The reason why I say it is better for the Westinghouse brake not to be applied to the wheels of the engine is because if anything were to go wrong with the Westinghouse brake it would be more difficult to apply the hand-brake; the small engines to which the Westinghouse brake-blocks are applied have no tenders.

By a Juror: Before the introduction of the Westinghouse brake the driver had no control over the brake power of the train further than by the hand-brake on his engine; I have had a good deal of experience on goods trains; I ran between Picton and Goulburn for close on nine years as driver; I have run the old truck goods waggons; each truck had a brake on it; we had to stop on the top of a bank before descending and pin our brakes down; it would be necessary to pin those brakes on that class of trucks descending the gradient to Peat's Ferry.

By another Juror: An assistant guard in the other American carriage would have been of great assistance in this case, in bringing the train under control.

By another Juror: I consider there was sufficient hand-brake power on the two American cars and the engine to control this train if there had been an assistant guard to work one hand-brake; I took an excursion train down on Monday, and the same on Tuesday; I had a brake-van on the latter day; I am not sure if I had one on the Monday.

Sworn and made before me at Sydney, }
this 4th July, 1887,—

WM. HULME.

HENRY SHIELL, J.P., Coroner.

James Makintosh, recalled, on oath, states:—

By Mr. Nathan (on behalf of relatives of Mr. Rennie): I searched the clothing on the body of Mr. Rennie, and found in his pockets a first-class return ticket from Ryde to Peat's Ferry for that day; I gave it to a constable.

Sworn and made before me at Sydney, }
this 4th July, 1887,—

JAMES MAKINTOSH!

HENRY SHIELL, J.P., Coroner.

John Edward Pye, on oath, states :—

By the Coroner : I reside at 21 Pitt-street, Redfern, and am a fireman in the employ of the Railway Department, and was engaged in that capacity on Tuesday, the 21st June last, on a train on the Hawkesbury line, which was timed to leave Sydney at 10.25 a.m., but we were some few minutes late in starting ; a man named Thomas Wilson was the driver ; there were nine carriages attached to the engine ; at Hornsby we made our train up again, and started ; I do not know anything about the air connections between the carriages there, it was not a part of my duty to examine them ; at Ryde the donkey-engine that supplies the air stopped working ; I spoke to the driver about it, and he said that I had better go out and give it a lubrication of tallow ; I got out and did so, and gave it a few knocks on the cylinder with a spanner, and the piston started to work up and down all right ; I took my place on the engine again, and after some time we reached Hornsby, and left it again a couple of hours late, and going up a bit of an incline we got stuck up ; we had to put back some distance, and make a fresh start, and we succeeded in getting over the incline, we had but a little distance to go ; when we got over the top of the hill (when) the driver shut off steam ; I was then at my station at the left-hand side of the engine ; the driver was at his on the right, and I saw him shut off steam, that was just as we commenced the descent ; the brake power of the Westinghouse brake was under the driver's control at the right-hand side of the engine, and the hand-brake power was under my control at the left ; at the time the driver shut off steam, we were going at the rate of about twelve miles an hour from the place we stuck up to where we shut off steam was about a mile and a half ; I did not notice anything after the steam was shut off till I saw the driver working the air-brake ; going round curves, before we entered the first tunnel, the speed seemed to be reduced by what he did ; it would not take so much to slacken speed going round curves as on the straight, and I had my hand-brake on then and had it on all the way down ; I did notice any more till we were coming out of No. 2 tunnel when I noticed the driver put the air on full, which did not seem to have any effect at all ; he then said to me, she has got away from us, and at the same time he reversed his engine and the engine wheels skidded ; I had to slacken the hand-brake off to free them again, and that was all we could do till we ran into the contractor's vans a little beyond Peat's Ferry Station ; the donkey-engine was working all the way going down the incline, the air power failed to act, but I cannot say what was the cause of it ; I saw the driver do something to the air valve on the engine which would have the effect of putting the air full on, but it did not diminish the speed, it increased ; after the driver applied the air and found it was not acting, he reversed his engine and whistled to the guard, and continued whistling all the way down ; the driver was killed, and I sustained injuries from which I still suffer ; when the driver whistled to the guard, I cannot say whether his hand-brake was applied ; after releasing the wheels I put my hand-brake on again and kept it hard on all the way down ; as near as I can judge, we passed Peat's Ferry Platform at the rate of 50 miles an hour.

By Mr. Rogers (in the public interests) : I lubricated the donkey with tallow before I struck it on the cylinder with the spanner ; it seemed to work all right, and it was working all right all the way down the hill ; when the driver was applying the air going round the curves, the speed was reduced ; I noticed that, but the connection might have only extended to two or three carriages ; I saw the driver opening the valve just before turning the two or three curves, but I could not tell on the engine if the air was working on the carriages, but I am sure it was working on the tender, and it was working on the tender when the driver told me that the train had got away from us ; and it was working on the tender within three quarters of a mile of Peat's Ferry ; I could tell that by the handle of the hand-brake on the tender being raised up by the air-pressure ; I think we had sufficient brake power on the train to control it if everything was acting properly ; I cannot in any way account for the accident.

By the Coroner : If the brake power was only acting on the tender, and not on the carriages, that would account for it.

By Mr. Rogers (in the public interests) : When the driver said to me she has got away from us, he did not assign any reason for so saying.

By Mr. Williamson (on behalf of John Pye) : I recollect the train being uncoupled between Ryde and Hornsby ; I cannot say who uncoupled the carriages there ; when we were stuck up between Ryde and Hornsby Mr. Rennie suggested to the driver to take the half of the train on to Thornleigh, and that he would stop behind and take charge of the remainder, and Mr. Rennie stayed behind with the two carriages ; he was standing on the embankment on the right-hand side of the engine when we went away with the seven carriages ; no one went in charge of those seven carriages ; we left Mr. Rennie and the guard behind ; on arriving at Thornleigh we found the siding we wanted to put the carriages into filled with trucks, and we went on, taking the porter from there with us to Hornsby ; I cannot say who uncoupled at Hornsby ; I only saw the station-master and the porter we took from Thornleigh there, and if the station-master did not uncouple the porter must have done so ; we took the porter from Thornleigh to act as guard ; I did not see the station-master at Hornsby leave the platform ; after uncoupling at Hornsby we went back for the remainder of the train, taking the same porter with us to where the two carriages were ; on our return I saw Mr. Rennie standing on the embankment ; I also saw the guard ; when we approached the two carriages the porter got off the engine ; I cannot say who coupled us to the two carriages ; the porter did not say what he was getting down to do ; I cannot say who gave the signal to start ; the driver got it ; we took the porter on to Thornleigh and dropped him there ; I saw the guard in the cutting near the two carriages, before we coupled up ; the porter made no remark after he got on to the engine ; Mr. Rennie got on to the engine when we were leaving with the two carriages ; I did not hear anyone ask him to get there ; on reaching Hornsby we were coupled on to the seven carriages which we had previously taken there with the two carriages which we brought up ; I cannot say who coupled them on to the seven ; I have no doubt Mr. Rennie stayed behind when we brought up the first seven carriages ; as soon as ever we got over the hill descending to Peat's Ferry and put on the hand-brake on the engine, that helped to steady her ; when the driver applied the air-brake he did so in the usual way ; if the valve was half open it would be sufficient ; I understand the Westinghouse brake ; when the wheels of the engine were skidding I released my hand-brake to free the wheels, and applied it again ; I did not see the wheels skid after that ; Mr. Rennie got on to the engine after we picked up the two carriages, and remained on it till we arrived at Peat's Ferry ; he got on to show us the road ; I did not hear anyone ask him to do so ; this was my second day on the road ; I asked Mr. Rennie after the train had run away how far it was to Peat's Ferry, and he replied about a mile ; I did not see him waving his hand ; I heard the driver when about a mile from the station say, " This is dreadful, we will all be killed " ; after the engine was reversed he had the Westinghouse

house brake full on ; he drew out and shut it (the valve) several times just for an instant ; when I saw he had to reverse the gear, I noticed the gauge, and found that we had about 75 lbs. pressure, but when he opened the valve full it flew round to zero, and on shutting it again I saw it run up to about 75 lbs. ; I could see the indicator ; I have had two years experience of the Westinghouse brake with heavier trains than we had on this day between Sydney and Parramatta ; when I saw the indicator showing 75 lbs. pressure I came to the conclusion that the brakes were not working somewhere ; if the brakes had been working right throughout the train, with that pressure it would instantaneously place all the blocks on the wheels, and the effect would be to lessen speed, which could be felt on the engine ; the 75 lbs. pressure did not have any effect on the speed of the train ; after the air was applied the speed increased ; if the taps had not been turned on between any of the carriages it would have prevented the air getting from one end of the train to the other ; neglecting to couple the air-pipe would have the same effect ; I know what the triple valve is ; I cannot say if it got stuck if it would apply the blocks to the wheels and stop the train ; I steadied the hand-brake all the time ; the driver stayed at his position all the time, and from what I saw he did all in his power to try and save the train ; the engine did not skid for some time after I released the hand-brake ; but I cannot say whether they skidded or not before reaching the ferry ; going down that incline it would not have been better to have allowed the wheels to skid ; the brake power would not have had so much power to pull up the train if the wheels were skidding. From the time we left Sydney till just before we got to Ryde the donkey-engine wrought all right ; I then lubricated it and it wrought all right till we got to Peat's Ferry. When we left Hornsby we had about 80 lbs. pressure of air ; we had quite sufficient to carry us to the ferry ; the air-gauge indicated the highest pressure after we left Hornsby, indicating that we had sufficient pressure to work the train if it had been passing through it all right. I cannot say when we coupled on at Hornsby if the tender brake was properly coupled ; the pressure ascended after we left Hornsby, and before we got to the descent to about 90 lbs. ; when I observed them I saw the driver easing the steam to the donkey his object was to prevent the bursting of the air-pipes between the carriages ; every precaution was taken by both the driver and myself to work the train properly and to save it, and carry the passengers to Peat's Ferry in safety ; when we coupled up at Sydney I coupled the close second to the engine ; I was not then informed that although there were brake blocks on that carriage they were not working ; I was not informed there were no brake blocks on the four open carriages ; I have not since ascertained that although there were brake blocks on the close second carriage when we left Sydney that they were not working ; when we arrived at Peat's Ferry a Redfern carriage and American car were next to the engine, and that carriage (No. 3), on arrival there, would have been No. 1 on starting from Sydney ; I was on a train running to Peat's Ferry on the previous day ; we had a brake-van on that train ; it was not so large a train as the one we had on Tuesday ; if there had been a brake-van behind the train on Tuesday fitted up with the Westinghouse brake and gauge, and the Westinghouse brake not complete, the guard could have assisted us to pull up the train ; he would have been able to pull up the train by himself ; I saw the pointsman at the points at Peat's Ferry ; no remark was made by any one on the engine beyond what I have already stated.

By Dr. Sly (on behalf of the Commissioner for Railways) : I am never, as a fireman, informed anything about the brake-blocks on a train ; before we got to the first tunnel on this day we seemed to have the train pretty well under control, and I noticed nothing wrong till after we got out of the second tunnel ; it was then the engine was reversed ; the application of the brake before that seemed to have no effect on the speed of the train ; when we left Hornsby the train started all right, and went on all right till the last gradient, in 1 in 40, when we stuck up ; I cannot say if the air-brake was on when we ran back, but I had the hand-brake on ; if the air-brake were used it would lessen the pressure ; I did not notice after we commenced the descent till we got between one and two tunnels how often the driver used the air-brake ; I know that if the air-brake is used too often it will lessen the pressure ; but the donkey will keep it up ; I do not know whether or not the donkey will supply the air as fast as it is used.

By the Foreman : The number of the engine we took down on Monday, the 28th of June, was 176, and the number of the one on Tuesday, 178 ; I knew that there were tanks between Browra and Peat's Ferry, but we did not intend to stop there for water on the Tuesday, and the driver did not shut off steam for that purpose ; I had no knowledge on leaving Sydney station as to how many carriages had brake-blocks attached to them ; I do not know if the driver knew ; the engine we had on the Monday was a colonial-made engine, and the one we had on Tuesday was the same class ; I do not know as a fact that the wheels of one of the carriages were skidding going up an incline.

By Mr. Williamson (on behalf of John Pye) : The driver made no complaint to me, or to any one in my presence, as to the weight of the train ; I don't think he knew how many carriages we had on on leaving Sydney.

By a Juror : I know that sometimes the blocks hang to the wheels after the brake is applied if there is not sufficient pressure to release them.

Sworn and made before me at Sydney, }
this 4th July, 1887,—

JOHN EDWIN PYE.

HENRY SHIELL, J.P., Coroner.

Jacob Derham recalled, on oath, states :—

By the Foreman : I was not aware when I coupled this train up at Sydney, on Tuesday, the 21st ultimo, that the half-inch pipe connecting the brakes with air connection of No. 1 carriage was broken, and the tap closed ; it was not my duty to examine the brake, it was the brake examiner's duty.

By Mr. Williamson (on behalf of John Pye) : I am coupler up of centre couplings ; I am not aware that it was written on this carriage (No. 1) copper pipe leaking ; I am not aware that on the previous day Mr. Tempest had examined that carriage and found it unfit ; if there had been anything wrong with it it ought to have been written up on both sides, and nothing was written on the side I was on.

Sworn and made before me at Sydney, }
this 4th July, 1887,—

JACOB DERHAM.

HENRY SHIELL, J.P., Coroner.

William Frame, on oath, states :—

By the Coroner : I am an engine-driver in the Railway Department ; I was at Peat's Ferry on Tuesday, the 21st ultimo, and saw the railway accident ; about half-past 2 on the afternoon of that day I was

was standing within about 20 yards (from) of the Peat's Ferry Platform, when I heard the whistle of an approaching train; I saw the train dash into the station, pass the platform, and I heard a crash, and found she had collided with some trucks; I went to where the collision took place; I walked along to where the engine was in the water; I looked at the brake blocks on the carriages as I went along, and I found none of the blocks on the wheels, and I came to the conclusion that the brakes had not been applied coming down; I then went on to the engine, and had a look all round, and saw the driver's brake-hauldle standing straight out from the boiler, showing that he had done all he could to make the brakes act; I heard the donkey working; soon after I saw Driver Perkins on the foot-plate of the engine, and he told me he had shut the donkey off; I did not examine the couplings of the carriages.

By Mr. Williamson (on behalf of John Pye): I have had five or six years' experience of the Westinghouse brake; finding the blocks off the wheels and the driver's air valve open, I should say the air connections had not been made, or the taps were not turned; from rear of the train, up to and including the seventh carriage, there were no blocks on the wheels; I mean those that had blocks on, the blocks had not been working.

Sworn and made before me at Sydney, }
 this 4th July, 1887,— }
 HENRY SHIELL, J.P., Coroner.

WM. FRAME.

Inquest adjourned till 10 o'clock in the forenoon of Tuesday, the 5th day of July instant, at the Court-house, Darlinghurst, for the production of further evidence.
 Sydney, 4th July, 1887.

H.S., Coroner.

Inquest resumed in pursuance of adjournment at 10 o'clock on the forenoon of Tuesday, the 5th day of July instant, at the Court-house, Darlinghurst.
 Sydney, 5th July, 1887.

H.S., Coroner.

George Gayleard, on oath, states:—

14 { *By the Coroner*: On Tuesday, the 21st June last, I was officer in charge at Thornleigh Railway Station; I remember the train to which an accident occurred to on that day; I remember the engine coming to Thornleigh with seven carriages; I went on with that train to Hornsby, where those carriages were left, and the engine went back to Beecroft; I went there with it, and came back to Thornleigh. I know nothing about the coupling of the train at Beecroft; I noticed at Beecroft that the brakes were hard on to the two carriages, and that there was a sprag in the wheels of one carriage; I did not notice the couplings, or air couplings, of those two carriages, nor did I take any notice of any of the couplings on the seven carriages.

By Mr. Williamson (on behalf of John Pye): I know a man named Stead who is acting as station-master at Hornsby; he did not call on me last night; I did not see him as the train passed Thornleigh last night; I did not come down with him this morning; I saw him outside this court this morning; I don't know if he went home last night; I was summoned by the police to attend here this morning; I have seen this morning's newspaper; I bought it at Strathfield; I have had no conversation with anyone about this case this morning; on arrival at Hornsby with the seven carriages Stead uncoupled the seven carriages from the engine, and give the driver the signal to go on, to the main line, and I went to see that the points fell back on the main line, when we took the seven carriages from Beecroft to Hornsby; the fireman, driver, and myself only were on the engine; when we got back from Hornsby to Beecroft I saw the guard standing in the cutting; I saw Mr. Rennie at the two carriages; I got off the engine and stood in the cutting, and saw the guard couple the two carriages on to the engine, he went in between the first carriage and the engine, but I did not see him couple up; I was not looking at him; I could not say whether he turned the air taps or not; when we left, Mr. Rennie went on the engine as far as Thornleigh.

By the Foreman: Neither the driver or guard gave me any reason for taking the seven carriages on to Hornsby; I went on to Hornsby of my own accord; I went as guard according to the rules which say that a station-master must not despatch a train without some one in charge, and there was not anyone in charge of this one on its arrival at my station.

Sworn and made before me at Sydney, }
 this 5th July, 1887,— }
 HENRY SHIELL, J.P., Coroner.

G. M. GAYLEARD.

William Rice, on oath, states:—

11 { *By Mr. Rogers*: On the 21st June last I was porter at Darling Harbour, but I went to Hornsby on that day to act as assistant to Mr. Stead; I remember the train that left Sydney for Peat's Ferry at 10.29 a.m. that day; I was on the back car as that train left Sydney; the train stuck up in the cutting a little past Beecroft, and the engine went on to Hornsby with seven carriages; the guard of the train knew I was on it; I was with him on the back car, and it was my duty to assist with the train if necessary. I knew Mr. Rennie; I think he stopped behind with the two carriages, as did I; I remember the engine coming back and taking the two carriages on to Hornsby, where those two carriages were backed on to the seven; I held the points back to allow the two carriages to be backed on to the seven; Clissold coupled them up, and Stead ran back for the iron couplings to the rear of the train; I saw Clissold turn two of the air traps, and I thought I heard the air whizzing through when he turned them; the brakes were off when the train left; I walked up and down the line, alongside the train, and I thought everything was all right before it left; I did not have anything to do with the coupling up of the train; I heard Stead ask the guard if all was right, and if he turned the taps on.

By Mr. Williamson (on behalf of John Pye): The seven carriages were standing on the siding on the opposite side of the platform; the two carriages were coupled on there; I did not see the train alongside the platform at Hornsby; all I did was to hold the points to allow the two carriages to be backed on to the seven; when they were coupled on to the seven I saw the station-master on the opposite side; I think he was watching the guard; after I held the points I ran back to see the train coupled up, or to do anything that was required to be done; I saw the station-master bring the couplings up and throw them in between the second and third carriages; I saw the guard couple up the screw and air

air connections; I saw him turn the tap of the car next the engine; I cannot say I saw him turn the tap at the end of the engine; I did not see him turn more than one tap on; I did not see the station-master turn any of the taps on; I cannot say that the station-master made any examination of the engine; I put my foot to one of the blocks on the second carriage, and found it loose; I did not examine No. 3 from the engine; I examined No. 4. and found nothing wrong with the blocks; I did not examine the blocks on the four last carriages; I did not notice whether they had blocks or not; I simply looked at the couplings and blocks; that was the whole examination made of the train so far as I am concerned.

By Dr. Sly (on behalf of the Commissioner for Railways): After I held the points open to allow the engine and two carriages to be backed on to the seven my duty at the points was done; I then went up to the train, and saw the station-master bring up the couplings and throw them in between the second and third carriages from the engine, and it was between those carriages that I saw the guard couple up the hose and turn one tap on.

By a Juror: I examined the blocks on the second carriage to see if the brake was off; when I say the second carriage I mean as the train left Sydney; it was on recoupling No. 4.

By another Juror: I don't know who held the points when the train was going off the siding; my duty was done at the points when I held them open for the two carriages and engine to be tacked on to the seven carriages; the points are self-acting going out.

By Mr. Williamson (on behalf of John Pye): It is not usual for a guard to do the coupling when a shunter is present; the shunter does so; I was not shunter that day; I was there to assist the station-master; I swear that the brakes were on one and two carriages—the carriages that were left behind; before we left Beecroft the air had to be released from them.

By a Juror: The sapling was put in between the wheels of one of those carriages before the air was tried on them; I took it out; I had not reported myself to the station-master at Hornsby when I held the points open; I went and did what I saw was required to be done.

Sworn and made before me, at Sydney, }
this 5th July, 1887,— }

W. RICE.

HENRY SHIELL, J.P., Coroner.

Joshua Everingham, on oath, states:—

By the Coroner: I reside at Peat's Ferry, and am a publican; I remember Tuesday, the 21st ultimo, and a railway accident occurring at Peat's Ferry; I saw the train approaching; I was between 80 and 100 yards from it; my attention was first attracted to it by hearing a sharp, shrill, continuous whistling, and on looking I saw the train coming in at a very rapid pace; the wheels of the engine were skidding, and I saw something like fire flying from the wheels or the rails; I do not know if the wheels of the tender were skidding, but the engine wheels were, and appeared to me to be locked; I would not say whether the brakes were acting on the wheels of the carriages; I believe the wheels of the tender were skidding.

Sworn and made before me, at Sydney, }
this 5th July, 1887,— }

JOSHUA EVERINGHAM.

HENRY SHIELL, J.P., Coroner.

William Thomas Chambers, on oath, states:—

By the Coroner: I am an engine-fitter, in the employ of the Railway Department, and reside at 12, Buckingham-street; I do not know what carriages a train was composed of that left for Peat's Ferry at 10.25 a.m. on Tuesday, the 21st ultimo; I saw a carriage that morning on one of the sidings for repairs; I was informed it was there for repairs, and I examined the brakes on it between 9 and 10 o'clock, and found a rupture of the copper pipe in connection with the air-pipe; I marked on that carriage on one side, "copper pipe"; I saw nothing more of it till about four days after; I did not notice the number of the carriage; I heard when I next saw this carriage that it came from where the smash was at Peat's Ferry; it was then in the yard at Sydney; I did not examine it then nor since; I am not able to say it is the same carriage that I examined on Tuesday; it was a close second carriage; the main brake connections went through under the carriage all right, but the brakes would not act on it; it would run the same, as, although there were no blocks on the wheels, the air could run through the main connections all right; the carriage could run all right.

Sworn and made before me, at Sydney, }
this 5th July, 1887,— }

WILLIAM THOMAS CHAMBERS.

HENRY SHIELL, J.P., Coroner.

William Frame, recalled, on oath, states:—

By Mr. Sly (on behalf of the Commissioner for Railways): I have had experience in driving on steep gradients on both the Western and Southern lines; I know the class of engine on this particular train; with such an engine, if the Westinghouse brake was acting properly throughout the train, I think I could go down an incline like the one in question and control twenty carriages; if the Westinghouse brake had been working in the four carriages of this train properly I could have kept it under control; supposing the train were fitted throughout with the Westinghouse brake, and a brake-van were at the rear of the train, fitted with brake valve and gauge, and the driver were to put the air full on, the guard could not assist him; I consider the hand-brake on an American car more powerful than the hand-brake on an ordinary brake-van, as there is more weight.

By a Juror: If there had been an ordinary brake-van at the rear of this train it would have not had so much effect as an American car in the same position; but if there had been a brake-van of equal weight to the American car the brake-van would be the most powerful; I could take a train of twenty American cars down this incline if they were all fitted with brake blocks; in going up and down the mountains the brake van is always at the rear of the train; there would be no more retarding power if the van were at the rear of the train than there would be if it was next the engine, but the drag would be greater.

By Dr. Sly (on behalf of the Commissioner for Railways): I have been stopped by the guard applying the air to the train two or three times on starting away from stations when passengers wanted to get out after he had given me the signal to start.

By

By Mr. Nathan (on behalf of the relatives of Mr. Rennie) : If the driver puts on the air full the guard cannot assist him, but if the driver only applies the air partially the guard can stop the train if he sees any necessity independent of the driver ; I never knew of a train being stopped by the guard on running past a platform where he was wanted to stop and not previously informed.

Sworn and made before me, at Sydney, }
this 5th July, 1887,—

W. FRAME.

H. SHIELL, J.P., Coroner

Frederick Sheehan, on oath, states :—

By the Coroner : I reside at No. 5, Abercrombie-street, and am an engine-driver in the Railway Department ; I took a train from Sydney to Peat's Ferry on the 24th May last, consisting of equal to fifteen and a half carriages, to the best of my belief ; I had one of Stephenson's engines, the number was 63 ; I think there was a Pitt-street brake-van behind the train, it used to run on the tram-line ; I believe it had brake-blocks on ; and, I believe, the Westinghouse-brake was acting on all the carriages right throughout the train ; I went through without any difficulty.

By Mr. Williamson (on behalf of John Pye) : I have had experience on the Western Line ; when travelling on that line I have always had a brake-van fitted with the Westinghouse brake-valve and gauge ; there are some steep gradients on that line ; in descending a gradient of 1 in 40 if the air-connections were not complete in the centre of the train, a brake-van fitted up in that manner would be of great assistance to the driver in stopping the train, the gauge would show the guard what pressure the driver had on his engine, and what pressure he put on the blocks ; the brake-van at the rear of the train would assist in keeping a train from running away if the connections were not complete in the centre of the train ; the automatic Westinghouse-brake is so constructed that it cannot fail ; I don't think that the engine I had on the 24th May was much more powerful than the one on this train ; she was a little more powerful ; the station-master never consults the driver of a train as to what weight he puts behind his engine ; I ran 176 engine, a sister one to the one that got smashed to Bathurst.

By Dr. Sly (on behalf of the Commissioner for Railways) : If I found the load too heavy, I would use my own discretion to work the traffic if at a junction station, I would ask for a pilot engine ; I had no difficulty going down to Peat's Ferry with my train on the 24th May ; I could have stopped anywhere, and I stopped at the tanks on the way down.

By Mr. Williamson (on behalf of John Pye) : The air passed through the whole length of that train.

By Mr. Rogers (in the public interest) : The air is only applied to the Westinghouse-brake to take the blocks off the wheels, and if the air becomes exhausted the blocks fall down on the wheels and stops the train.

By Mr. Williamson (on behalf of John Pye) : During the whole time the valve is shut the donkey is supplying air to the main reservoir ; if it has been sworn that, just at the time of descending, the gauge showed 90 lb. pressure, and when a mile from Peat's Ferry Station 75 lb. pressure, it showed that the driver had been working the air-brake on the engine properly, and if the air couplings had been complete he could have stopped the train on this incline in about 300 yards, providing the air-brakes had been working properly throughout the train ; if the gauge showed 75 lb. of pressure when a mile from the station it would prove that the air-connections were not complete throughout the train ; if the gauge showed 75 lb. pressure and it were opened it would go round to zero ; if the triple-valve got stuck when the train was travelling the brakes would go hard on.

28 { *By a Juror* : I consider that this train could have gone with safety down to Peat's Ferry had five out of the nine carriages had brake blocks on, if properly connected ; I do not consider it would have been safe with four ; the four carriages without brake-blocks would have been better at the centre of the train.

By Dr. Sly (on behalf of the Commissioner for Railways) : The brake-power on a heavy car would have more effect than the brake-power on a light car ; the brake-power on four heavy cars would have far more effect than the brake-power on four small ones ; the brake-power depends on the number as well as the weight ; the brake-power depends on the length of the train and how the weight is divided ; I have been to Goulburn with a train with the old hand-brakes, but we can take heavier trains with the Westinghouse-brake ; if the weight of a train is 150 tons, including the engine, going down a gradient of 1 in 40 I think all the vehicles should be under the Westinghouse-brake ; if all the carriages had blocks on it would not matter where they were placed ; I am not a skilled engineer ; I had a crowded train on the 24th May last, and I had perfect control over it ; there was a left hand screw-brake on the Pitt-street van and blocks on the wheels.

By Mr. Williamson (on behalf of John Pye) : Under the old system I have taken a train of six cars, including the brake-van, over the mountains.

By Mr. Simpson (on behalf of the Westinghouse-brake Company) : If a driver going down an incline like this were to apply his brakes full on, I don't think he would lose above 7 lbs. of air pressure after he recharges ; it is my opinion that in this case some of the taps, one or more, were left closed and the air-connection not complete through the whole train ; that is how I account for the accident.

By Dr. Sly (on behalf of the Commissioner for Railways) : I never worked the Westinghouse-brake in England ; there is the Westinghouse continuous and the Westinghouse automatic ; ours is the Westinghouse automatic ; I never read of an accident occurring in England through exhaustion of air in the Westinghouse automatic brake.

By Mr. Simpson (on behalf of the Westinghouse-brake Company) : I knew Wilson well ; he fired for me for some time ; he was a very careful experienced driver ; if he had exhausted all his air going down this incline it would not have been the act of a careful experienced driver.

By Mr. Williamson (on behalf of John Pye) : Any man who has been firing for some time can read the air-gauge ; I have read the returns of the Board of Trade, showing that this air-brake is used throughout the whole world.

By Mr. Rogers (in the public interest) : I don't know who is the Inspector of the Board of Trade ; I never heard of Colonel Yanland, Inspector of Lines to the Board of Trade, England.

By :

By Mr. Williamson (on behalf of John Pye): I have read a portion of Stratton's works; I don't know that certain railway officials are advocating the adoption of the vacuum brake.

By the Foreman: The donkey-engine would supply the air as fast as the driver used it under ordinary circumstances.

By Mr. Rogers (in the public interests): If a train was going down an incline of 1 in 30, and the air should become exhausted, the blocks would come down on the wheels and stop the train, and the donkey would fill the reservoir again in from five to seven minutes; I have been stopped on a gradient in 1 in 30 through one of the air-pipes bursting.

By Mr. Williamson (on behalf of John Pye): If the air becomes exhausted the train stops.

By Dr. Sly (on behalf of the Commissioner for Railways): If there is no air pressure in the main reservoir then you have no brakes, but it is impossible to exhaust the air in the main reservoir unless something gets broken and allows it to escape.

By Mr. Williamson (for John Pye): I recollect twice my air getting exhausted on the train through the pipe bursting; my fireman knew it as well as I.

By Mr. Simpson (on behalf of the Westinghouse Brake Company): If there is no air in the train the brakes are off; if the donkey is working it is impossible for the main reservoir to become empty unless the connection gets broken; if the main reservoir were to become empty, and there was air in the small reservoir under the carriages, it would apply the brakes to a certain extent.

By Mr. Simpson: The fact of the gauge going down to zero shows the fact that the air is all exhausted in the main pipe, but it does not show that it is exhausted in the main reservoir.

Sworn and made before me, at Sydney, }
this 5th July, 1887,— }

F. SHEEHAN.

HENRY SHEILL, J.P., Coroner.

Walter Shellshear, on oath, states: I reside at Stanmore, and am District Engineer in charge of the Central District of Existing Lines.

By Mr. Williamson (on behalf of John Pye): I recollect Tuesday, the 21st ultimo; I was at Peat's Ferry; I arrived there about 7 in the evening; I arrived with the relief train; I have been examined before the Railway Board of Inquiry; the reason why I went to Peat's Ferry was in consequence of an accident happening to a train there; I examined the carriages of that train; I found a tap at the end of the first carriage, next the American car, shut; the tap was apparently not damaged in any way; Mr. Robert Scott, of the Locomotive Department, saw the tap as well as I; I don't know where it is now; I don't know who produced that tap before the Railway Inquiry Board; I saw the tap between the second and third carriages; all the others that I saw were in their proper positions only this one.

By the Coroner: This tap was in such a position as to prevent the air from passing through it.

By Mr. Rogers (in the public interests): The tap was on the end of the Redfern carriage at the end furthest from the engine; that carriage had telescoped into the American car; the tap was turned the reverse way to what is usual; it is possible for the tap to be turned in the telescoping, but from its appearance I don't think it at all probable.

Mr. Williamson (on behalf of John Pye): The tap on the end of the American car next to the engine was properly turned to allow the air to pass through; nothing was done to the taps on Tuesday night.

By Dr. Sly (on behalf of the Commissioner for Railways): The Redfern carriage telescoped in the American car, and the connection was hanging down; the handle would not necessarily be turned during the telescoping; I don't think so, as the Redfern carriage had considerably overridden the American car.

Sworn and made before me at Sydney, }
this 5th July, 1887,— }

WALTER SHELLSHEAR.

HENRY SHEILL, J.P., Coroner.

Inquest adjourned till 10 of the clock on Wednesday, the 6th day of July instant, at the Court-house, Darlinghurst, for the production of further evidence.
Sydney, 5th July, 1887.

H.S., Coroner.

Inquest resumed, in pursuance of adjournment, at 10 o'clock on the forenoon of Wednesday, the 6th July instant, at the Court-house, Darlinghurst.
Sydney, 6th July, 1887.

H.S., Coroner.

Walter Shellshear recalled, on oath, states:—

By Dr. Sly (on behalf of the Commissioner for Railways): When I say that I don't think the tap was turned in telescoping, my reasons for so saying are that the tap was not damaged, and it was perfectly horizontal with the pipe, and the pipe is thicker than the handle; if the handle had been forced up by the collision the probabilities are that the end of the handle would not have risen above the bottom of the pipe; the handle when turned down is below the level of the carriage; the hose-pipe is immediately in front of the handle, and it was not in any way injured, and if it had received a blow it must have been.

By the Coroner: From the reasons I have given I am of opinion that the tap was turned off before the collision.

By Dr. Sly (on behalf of the Commissioner for Railways): I examined the taps between the second and third carriages, and found them open and the hose-pipe separated, evidently from the force of the collision, as the second carriage was turned over on to its side; if there had been air in the reservoirs underneath carriages four and five, and the connecting-pipe had become cut between carriages two and three, the brakes would have gone on; it follows that if the brakes did not go on there was no air in the reservoirs.

By Mr. Williamson (on behalf of John Pye): If there was no connection and no air in the reservoirs the brakes would not go on, and I believe from the reason I have given, it is my opinion the tap was not turned on, and that was the cause of the accident; the pipe and tap produced I believe to be the same as I have mentioned in my evidence as not being open.

By Mr. Rogers (in the public interests): If about 60 per cent. of the brake-power was applied to the } 29

the wheels of a train descending an incline of 1 in 40, I am of opinion it would be sufficient to control the train; with regard to the four carriages without brakes it would make no difference to the retarding power what part of the train they were put.

Sworn and made before me, at Sydney, }
this 6th July, 1887,— }

WALTER SHELLSHEAR.

HENRY SHIELL, J.P., Coroner.

Edwin Faucett, on oath, states:—

By the Coroner: I am a guard on the New South Wales Railways; I had eight or nine years' experience in America before I came here; I was on four or five different lines; I was on the Pittsburg to Chicago, on the North Missouri, on the Burlington and Missouri River, and one or two others; on those lines they use cars similar to what is called in New South Wales American cars; we have no such thing as brake-vans on those lines on passenger trains; they use the American car as brake-vans; the brakes on the American cars there are similar to the brakes on the American cars here; there is no air-gauge or valves on the cars; there is no air-gauge or valves in the luggage van which is always placed next the engine; it is close on ten years since I left America; the air-brake was in use three or four years before I left.

By Mr. Rogers (in the public interests): I cannot say what the gradients are on any of the lines I have mentioned.

By Mr. Williamson (on behalf of John Pye): The Westinghouse automatic was in force for two years before I left America on the North Missouri railway; I was on that line; when I ran there we had no air-gauge and valve at the end of the train; I don't know why it was not put there; I could walk from one end of the train to the other; there were three men to look after the train besides the driver and the fireman, and the train would consist of from six to seven cars on the main line; if the automatic brake was not in operation the three men would apply a hand-brake each; I know nothing about a Board of Trade over the railways in America.

By Dr. Sly (on behalf of the Commissioner for Railways): I have seen the ordinary brake vans here, and in my opinion the hand-brake on an American car is much more effective.

By Mr. Williamson (on behalf of John Pye): The screw-brake is the most powerful, but it is more trouble to put on.

By the Foreman: All the carriages in America have brakes; I never travelled on carriages without brakes; if there were four carriages without brakes behind a train, and no brake-van behind, ascending a gradient of 1 in 40, and the couplings were to break, there would be no safety for the travelling public in those carriages.

Sworn and made before me at Sydney, }
this 6th July, 1887,— }

EDWIN FAUCETT.

HENRY SHIELL, J.P., Coroner.

Jacob Garrard, on oath, states:—

By Mr. Rogers (in the public interests): I am a Member of Parliament, and reside in Balmain; I was a passenger in a train which left Sydney for Peat's Ferry on the 21st ultimo, and I was in the last carriage leaving Sydney, a first-class American car; I know when a Westinghouse brake is applied to a train; I have no recollection of feeling the brake power on this train till arrival at Coola; the carriage became the second after leaving Hornsby; Coola is about 2 miles beyond Hornsby, on the Hawkesbury side; we stuck up at Coola, and ran back about a mile, and I am under the impression I felt the Westinghouse brake applied to my carriage to stop the train when it ran back; after getting through the second tunnel, the brake appeared to me to be applied to my carriage, but was working spasmodically.

By Mr. Williamson (on behalf of John Pye): I did not notice the guard applying the hand-brake; I saw the guard all the way to Becroft; I did not see him after leaving Hornsby on the platform of my carriage; if the guard has sworn that the hand-brake was applied by him to this carriage, and was hard on, I would be astonished to hear that the Westinghouse brake was not acting; I was not paying strict attention to the working of the brake.

By Mr. Rogers (in the public interests): I am perfectly certain as to application of a brake of some sort, and from the way it was applied and released, I am confident it was the Westinghouse brake; it was applied as if the person in charge had put it on once or twice, and released it again; I don't suppose more than three or four seconds elapsed between the time I first felt it being applied till I found it off altogether.

Mr. Williamson (on behalf of John Pye): Assuming that all the carriages were in complete communication with the Westinghouse brake the train would have been stopped.

By the Foreman: I did not feel the effect of the air-brake on the train when it was ascending the incline near Coola; I do not think it was the fireman putting on and releasing the hand-brake on the engine that I felt; we were considerably late and I thought when I entered the train at Sydney that the train was rather too heavy for the engine, and I came to the conclusion the driver was not husbanding his steam properly to meet the pinches; I saw the seven carriages detached at Becroft, and I saw them attached again at Hornsby; I did not know when leaving Sydney that five of the carriages were without brake-blocks.

By a Juror: I have had trains myself I think much heavier than the one in question; I have had I think a train of fourteen carriages with a similar engine; if there had been an assistant guard in another American car he could have assisted the guard in stopping the train; I do not think she could have been stopped after she got away by means of the hand-brake; it is possible the guard might have been on my carriage without my seeing him; a brake-van with a brake would have been of assistance.

23 { *By Mr. Simpson* (on behalf of the Westinghouse Brake Company): If the Westinghouse brake had been applied to the tender on the engine and the carriage in front of mine, I am still confident that the Westinghouse brake was applied to the carriage I was in.

By the Foreman: I felt the application of the Westinghouse brake descending the incline.

By

By Mr. Williamson (on behalf of John Pye) : I heard the engine whistling, but I did not hear the air escaping when the Westinghouse brake was applied.

Sworn and made before me, at Sydney, }
this 6th July, 1887,—

J. GARRARD.

HENRY SHIELL, J.P., Coroner.

Alfred Clissold, recalled, on oath, states :—

By the Coroner : I have heard the evidence given this morning as regards this tap being found turned off ; from the time the train left Sydney till the time the accident occurred I never touched that tap, nor had I occasion to go near it ; at Beecroft, before the train was divided, I am certain the Westinghouse brake was acting on the last car. } 10

By Mr. Williamson (on behalf of John Pye) : When the train was parted, passengers remained behind in the two cars ; I cannot say I saw Mr. Kennie on the embankment after the seven carriages went away ; the fact of the station-master at Thornleigh coming back with the engine for the two carriages slipped my memory ; after going through No. 2 tunnel I applied the hand-brake, and took up the slack of the chain ; I did not find, after taking up the slack, that I could apply more pressure ; I did swear in my examination-in-chief that the hand-brake seemed to be acting ; I cannot say how the tap in question came to be shut off ; I was a little riled by the passengers chaffing me, and I was anxious to get away ; I was not aware that the carriage next the engine on leaving Sydney was not connected with the Westinghouse ; I cannot account for the blocks acting on the wheels after we left Hornsby ; that fact did not impress it upon me that the air was not working throughout the train ; I cannot say if the blocks were hard-on going up an incline ; it proves the air connection was not complete throughout the train ; I cannot say positively from which carriage I released the blocks ; it was neither from a Redfern carriage or American car ; I believe it was a close second—that would be No. 3 ; when I put my hand on the release tap I heard the air rush out sufficiently strong to take the blocks off ; I cannot say whether or not the blocks ever operated on that carriage that day ; before I got off to release the tap I was on the last American car—No. 5 from the engine ; I ran forward, and after releasing I jumped on the train, but whether the train was going or not when I did so ; I recollect swearing that as I was going forward to the engine the driver started away ; I cannot say how far I was from the engine when he started, but I got on the rear platform of the second car ; I can give no explanation how I got on the rear platform of the second carriage if the train was going ahead.

By a Juror : The order for my going to Peat's Ferry on this day emanated from the station-master's office.

By the Foreman : I remained on the second carriage from the engine after I got on it till the accident occurred.

Sworn and made before me, at Sydney, }
this 6th July, 1887,—

A. CLISSOLD.

HENRY SHIELL, J.P., Coroner.

Francis Cox Johnson, recalled, on oath states :—

By the Foreman : The trains are despatched by me under my supervision while I am on duty, whether night or day ; this train was despatched while I was on duty ; I was not aware that the brake on No. 1 carriage when leaving the station was inoperative ; I was not aware that, so far as the brake-power of that carriage was concerned, it was inoperative ; I was not at that time aware that it was guard Clissold's first trip to Peat's Ferry ; I had no suspicion that the engine was unable to take the train to its destination ; my position does not make me acquainted with the capabilities of an engine before despatching it ; I am not aware whether an engine is sufficient or not, unless I am informed by the driver ; the two additional carriages were placed on the train by my instructions ; I do not know of any guide as to the quantity of brake-power to be attached to a train in proportion to its length ; there are, I believe, special engines for mountain traffic.

By a Juror : Nos. 1 and 2 were the carriages that were placed on the engine at Sydney by my instructions ; I was not aware that No. 1 was disabled at the time ; it is not usual for me to permit a train to go out with only five of the carriages out of nine under the influence of the brake-power without a brake-van behind ; I considered quite 80 per cent. of the dead weight of this train was under brake-power, and that the American car at the end of the train was equal to a brake-van ; the American car had no air-gauge ; all the brake-vans do not have air-gauges ; some have, others have not ; the air-gauge shows the guard the pressure in the pipes ; I believe that on this same morning, before this one, a train started for Peat's Ferry with seven carriages, having a brake-van behind ; I think it would be partially my duty to know that a guard is acquainted with the road upon which he is to travel, but I have a superior officer in that respect.

By a Juror : The driver, so far as I am aware, has nothing whatever to do with the appointing of the guard who is to accompany him ; it is the rule that the station-master whom I relieve appoints the guards for duty before I relieve him, and I found guard Clissold's name down for two trains when I went on duty a little after 7 o'clock that morning ; one of those trains was for Peat's Ferry.

By the Coroner : Clissold has been a guard in the Department for over 20 years.

By the Foreman : I don't consider it was a judicious act to place the four carriages not under brake control at the rear of the train.

By another Juror : The Locomotive Department have printed time-tables on a day like this, and they supply engines at their discretion ; if a driver refused to take away a load, I would rectify the matter ; no complaint was made on this day.

By Mr. Rogers (in the public interest) : The principal difficulties are after passing Hornsby, and there was no danger of the four carriages unprotected by brake-blocks getting away.

Sworn and made before me, at Sydney, }
this 6th July, 1887,—

F. C. JOHNSON.

HENRY SHIELL, J.P., Coroner.

Edward Andrew Laughry, on oath, states :—

By Dr. Sly (on behalf of the Commissioner for Railways): I am an engineer, and am Travelling Locomotive Inspector in the Railway Department, and have been so for about four years; I have been employed on the Railways about eight years; I came here under contract to the Government; I served my time as an engineer, and have been through all the grades; I know the working of a Westinghouse brake; on the afternoon of the 21st ultimo, after hearing of the accident, I went down to Peat's Ferry, arriving there about half-past six; I saw the train, and examined part of it that night by a hand lamp; I commenced at the rear of the train, and found the first four vehicles without brake-blocks, but with the continuous pipe all united between those carriages; the cock at the rear end of the fifth vehicle was closed; the pipes between the fourth and fifth vehicle were connected, and both cocks open; the pipes between the third and fourth vehicles were united, and both cocks open; the pipe at the leading end of the second carriage had been uncoupled, and the cock in the main pipe was open; the brakes on the third, fourth, and fifth vehicles from the engine were off; I did not examine further that night; at daylight the following morning I made a further examination, and found the brake-work of the first and second vehicles all broken up through the collision; I then examined the engine; I found her linked in full forward gear, which, running backward, would indicate that it was reversed against the train; I found the engine hand-brake hard on, tender hand-brake off, both engine hand-valves open, and drivers brake-valve in the release position, indicating brakes off; it was quite possible for it to be knocked into that position by the collision; I further examined the two carriages next the engine, and I found the tap at the rear end of the first carriage closed, and the handle pointing in the direction of the centre of the carriage; I examined it closely, and, from the position of the vehicle, I came to the conclusion that it was not possible for it to be otherwise than closed after the collision, as the floor of the vehicle had skidded some 20 feet over the floor of the other vehicle, which would tend to close it if it had been open; I searched for the tap at the leading end of the first vehicle but could not find it; I then tested the brakes on the fourth and fifth vehicles from the engine and found them to be in good working order; I connected them to an engine; I also tested the brake of the third vehicle from the engine and found it was not in working order; I found that the connection between main train-pipe auxiliary and reservoir was shut off; that would prevent the blocks being applied to the wheels; I found, on Tuesday night, that the hose connections between the second and third carriages were united and the cocks open; the tap at the leading end of the engine was also open; it was early on the afternoon of Wednesday that I tested the brake-power on third, fourth, and fifth carriages with the engine; supposing there was air in the reservoir underneath the fourth and fifth, and the driver had not put the brakes on, and the connection in front of those carriages getting broken by the collision, it would have put the brakes on; if they were found off, under the same conditions, immediately after the collision, it would show there was no air in the cylinders; the tap produced I believe is the same one I found shut; it may have been shut before the collision, but if it had been open before the collision, the collision must have shut it; I am of that opinion, even although the hose-piping is not injured in any way; the hose-piping between the engine and first carriage was broken in two or three places; I know the train that was wrecked; the amount of brake power varies with the speed, not with the length of the train; I know the actual composition of this train, and the weight, and the brake-power it had on; in my opinion, the brake-power was sufficient to control the train, and more than sufficient; the minimum of brake-force to control this train would have been 21 tons on a gradient of 1 in 40; the amount of brake force on this train was 65 tons; the hand-brake force on the engine and tender amounted to about 28 tons, and, including one hand-brake on an American car, would raise the hand-brake force to 38 tons; the failure of the engine to take the train up the incline had nothing whatever to do with the failure of the brake-force which caused the accident; an American car is heavier than an ordinary brake-van, and the brake-power of the former more powerful; if a driver puts the air-brake hard on, a guard could not assist him in stopping the train, even if he had a brake-van and air-gauge at the rear of the train; it is possible for a driver to exhaust his air descending an incline like this so as to make the brakes practically inoperative; it is also possible for a driver to exhaust his air faster than the donkey can supply it; the force of air necessary to operate on the brake would be from 10 to 20 lb, but that would operate so slightly as to be of little use.

Sworn and made before me, at Sydney, }
this 6th July, 1887,—)

E. A. LAUGHRY.

HENRY SHIELL, J.P., Coroner.

Inquest adjourned till 10 o'clock on forenoon of Thursday, the 7th day of July instant, at the Court-house, Darlinghurst, for the production of further evidence.
Sydney, 6th July, 1887. H.S., C.

Inquest resumed, in pursuance of adjournment, at 10 of the clock on the forenoon of Thursday, the 7th day of July instant, at the Court-house, Darlinghurst.
Sydney, 7th July, 1887. H.S., C.

Edward Andrew Laughry, recalled, on oath, states :—

By Dr. Sly (on behalf of the Commissioner for Railways): I have on several occasions, in course of my duty, spoken to drivers about exhausting their air too quickly while travelling upon steep gradients on the Mountains; it is part of my duty when an accident occurs to at once proceed to the spot, and try to find out the cause of it, and that is why I went on this particular day; I had about three years' experience in America as an engine-driver; the Westinghouse automatic brake, fitted on the engines as it is now, was in use there then, and I used it during the whole of that time; it was not the practice then to run brake-vans on passengers' trains; the engines used by driver Wilson on Monday and Tuesday, the 20th and 21st June last, were of the same class; they were of the 79 class, but of different numbers; those engines were capable of hauling eleven vehicles on a gradient of 1 in 40; the engine and tender would weigh about 59 tons; the reason why the same engine was not used on Tuesday as was used on Monday was on account of the driver having reported on Monday that the side-rods of that engine were slightly bent; engines of this class are used on the Mountains still; the Mountains have steeper gradients and sharper curves; the steepest is 1 in 30, and a great deal are 1 in 33; on 1 in 30 the haulage power would be less, and such a heavy train could not be put on that as on a gradient of 1 in 40; the wrecked engine was capable of hauling nine ordinary vehicles on the Mountains, which, loaded, would weigh about 75 tons; they are the closed, four-wheeled, first-class carriages; the Redfern carriage is an eight-wheeled vehicle.

By

By Mr. Rogers (in the public interest) : It is quite possible that the telescoping could have caused the tap in question to go into the position in which I found it ; I believe the concussion would cause it to go into that condition ; the piping runs about an inch below the bottom of the floor of carriage, below the bottom framing, and is not protected by the framing ; the wheels of the first carriage at the end furthest from the engine were off ; the tender and engine fell over into the water, and the end of the first carriage next the engine was resting upon a truck ; that was the result of the collision, and the engine was lying in the water in the reverse way to which she was running ; the seats and front end of the second carriage were forced away by the first carriage as far as the latter had entered the former ; that was for about 20 feet ; and the floor of the first vehicle was from 10 to 11 inches above the floor of the other at the rear end, and not so much at the front ; there were splinters of wood between the floors—the seats of the American car had iron frames, and I found them broken off near the floor ; the hand-brake force on the engine, tender, and one American car was 38 tons ; the hand-brake-force on the engine and tender, 28 tons ; the minimum brake force necessary to control this train was 21 tons ; the only way I can account for the hand-brake power not being able to stop this train is that it (the train) had been allowed to obtain too great a momentum before they were applied ; I knew that the engine on Monday had been stuck up coming up the gradient from Peat's Ferry ; the driver reported on this occurrence (*report put in, read, and marked "A."*) ; according to last part of rule 442, page 134, the driver is responsible for the coupling and uncoupling of the air connections on a main line ; when I made my examination of the carriages at Peat's Ferry on the Tuesday and Wednesday I found the air connections of three of them all perfect, and the other one not working ; from the examination I made, finding the tender hand-brake off, and the cock at the leading end of the engine open, led me to believe that air was being used up to the last moment ; I have control over the drivers ; driver Wilson was never to my knowledge taken off passenger-train running ; I don't recollect an order being issued to that effect ; I don't know that Wilson remonstrated against being sent to drive on this line on the Tuesday.

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By Mr. Williamson (on behalf of John Pye) : I know rule 368, page 112 ; I have read the book supplied to the railway employees relating to the Westinghouse brake ; they are not given to the drivers ; those books are delivered to the department ; we are not guided altogether by them ; we are guided by our experience as well ; I came to this colony in 1879 ; I have not been continuously in the employ of this Government ; I was a year in South Australia ; I first came here as a tramway-motor driver ; I came under contract with the Government to teach others to drive tram-motors and locomotives ; I drove a tram-motor five or six months ; I had a superior officer of the name of Mason ; during the time I was driving the motor he did not recommend my dismissal on the grounds of incompetency ; I was not dismissed by Mr. Mason ; I resigned ; I was not asked to resign, nor was I informed I would be dismissed if I did not do so ; I resigned to go to the gold-fields ; I don't recollect having a dispute with Mr. Mason ; a complaint was not made against me before I resigned as to my incompetency, so far as I am aware ; I resigned some time during the latter end of 1880, but I cannot give you the date nor the month ; I came back to the railway sometime in 1883, and was appointed travelling locomotive inspector, and all rolling-stock ; I had three years' experience as a driver in America with the Westinghouse brake previous to that, as a railway locomotive driver ; the train run through the streets ; I call the tram-motors locomotives ; I have taken a great interest in this case ; I felt it my duty to do so, but I have not read all the evidence taken here ; I know fireman Pye ; he is a very good man as such, so far as I know ; if he swears that about a mile from Peat's Ferry the air-gauge showed 75 lb. of pressure, I should say it was very bad judgment for the driver to have indicated such pressure on the gauge, as it would prove that the brakes were off ; it would not prove that the air connections were not correct throughout the train ; it is possible for the connections to be correct, and yet throw a pressure into the gauge ; it would be one indication that the air connections were not correct throughout the train, but it does not prove beyond doubt that they were not correct ; 75 lb. of air pressure should have brought this train up, going down this gradient, in from 400 to 500 yards ; if the driver found the brakes not acting when a train is from under control, it would be injudicious on his part to relieve the valves and apply them again, as by so doing the speed of the train would increase much more ; that answer is given on the assumption that a train is descending an incline of 1 in 40, at a speed of not less than 40 miles an hour ; it would be injudicious to throw them off to try again ; when I found the carriages telescoped, I did not find any injury to the tap, which I found closed ; the telescoping would not necessarily leave any marks upon it ; the iron pipe produced is what is called an inch pipe ; if the handle was found horizontal with the inch pipe, the slightest tap would cause it to assume that position ; it is possible, if I were to strike the handle fifty times with a piece of wood, that I might once out of the fifty times knock it into that position.

By Dr. Sley (on behalf of Commissioner for Railways) : There is not the slightest shadow of truth in the assertion made by Mr. Williamson that I was dismissed from the Government service ; when I first came to Sydney I drove a tram-motor ; it was the first time they were put on the streets of Sydney ; I know the rule at page 30 in the working time-table relative to drivers satisfying themselves as to the completeness of the air connection with the engine.

By Mr. Simpson (on behalf of Westinghouse Brake Company) : Mr. Scott is at the head of my department ; he is Locomotive Engineer, and the head of that branch ; if the air-gauge shows 75 lb. on the engine, and assuming that the air connections were all correct, it shows the brakes are off, assuming the pressure in the brake pipe not to have been greater than 75 lb. ; I give that answer on the latter assumption.

By Mr. Rogers (in the public interest) : If the air was put fully on, the gauge would go down to zero, showing the brakes were full on ; 60 lb. pressure is the maximum pressure for railway working ordinarily.

By Mr. Simpson (on behalf of Westinghouse Brake Company) : A reduction of 20 per cent. would put the brakes on.

By the Foreman : I examined the main air-pipe throughout the train as far as I went, and found it complete ; I found it disconnected between the first and second carriages ; I examined the three vehicles next to the two disabled ones, No. 3, 4, and 5 from the engine ; I coupled the engine to the American car, No. 5 from the engine ; the connections between the second and third carriages were separated on Wednesday morning to get at the wreckage.

By a Juror : I have passed a local examination as an engineer ; a truck stands about 4 or 5 feet above the level of the rails, and I believe the truck was mounted by the first carriage after the engine and tender left the rails.

By another Juror : An ordinary brake-van weighs about eight or ten tons, and the brake power on an American car of that weight is equal in restraining power ; the retarding power would be the same no matter in what part of the train a brake-van was placed on the application of the brake ; the driver reported one of the side rods of his engine bent slightly ; the load on the Monday was within the power of the engine, but the driver had no sand ; it is the duty of the running foreman and inspectors in Sydney to allot the engines to the drivers.

By Mr. Williamson (on behalf of John Pye) : I do not know the rules of the Board of Trade, England ; I designed and constructed the engine on Frank Smith's merry-go-round at Botany, and started it.

By Mr. Simpson (for Westinghouse Brake Company) : A reduction of 20 per cent. would put the brake on fully generally, but in some cases it would not.

By the Foreman : The minimum brake force of twenty-one tons was sufficient to control this train if applied in time ; the aggregate hand-brake force on this train was thirty-eight tons ; twenty-five tons of brake force would have been sufficient to control this train if applied in time ; forty miles an hour is an unusual running speed down such inclines ; assuming that both the hand brake and Westinghouse brake are applied with the same force, both are of equal retarding power, but the latter as a train-stopper is superior to the former ; I know of cases where a train has met with an accident under hand-brake power, but not such an accident as this.

By Mr. Simpson (on behalf of the Westinghouse Brake Company) : Supposing there were nine carriages with hand-brakes, to apply them at the same time it would require a man at each brake ; the Westinghouse brake has the great advantage that it can be applied with equal force at the same moment throughout the whole train.

By a Juror : One man at each brake could apply the hand-brake with the same force as the Westinghouse brake ; the Westinghouse brake operates more quickly ; the screw is more powerful than is required ; it is possible to skid the wheels with the screw hand-brake with less exertion than with the chain one

Sworn and made before me, at Sydney, }
this 7th July, 1887,— }

E. A. LAUGHRY.

HENRY SHIELL, J.P., Coroner.

William Farquhar, on oath, states :—

By Dr. Sly (on behalf of the Commissioner for Railways) : I am locomotive shed inspector in the Railway Department ; I remember the engine driven by Driver Wilson, on Monday, the 20th June last ; he made a report on that engine the same night on his return to town, as follows :—“ 176 coupling-rod bent ; signed, T. Wilson ” ; No. 176 was the number of the engine.

By Mr. Rogers (in the public interest) : I know the engine Wilson had on Tuesday ; it was of the same class as the one he had on Monday ; I did not know that the engine he had on Monday was unable to pull the load up the gradient from Peat's Ferry when I supplied him the engine on Tuesday.

By Mr. Williamson (on behalf of John Pye) : The driver's have a room in which a book is kept, and they have to enter in that book any remarks or repairs which they think necessary ; I examine that book ; I have charge of the casualty book ; I also peruse the casualty book and repairs book at 6 o'clock in the morning, and also at 6 at night, to see that repairs are completed ; the western train arrives at Sydney at 6.6 p.m. as a rule ; I could see Wilson's report at 6 o'clock on Tuesday morning, but I did not look at the casualty book that morning till after he had left for Peat's Ferry ; I only looked at the repair book, and saw 176 right coupling-rod bent, which I should say was occasioned through the wheels slipping, or want of sand ; I never travelled to Peat's Ferry, but I know the class of engines required on that road by the gradients on it ; I believe the gradient is 3 miles in length, but it does not matter if it were 6 or 7 miles ; the engine used on Tuesday was able to draw a maximum weight of from 90 to 92 tons up the gradient from Peat's Ferry ; when I send an engine out I have no idea what weight she will have to draw ; I know from the time-table what class of engine to send out ; if the number of vehicles are not stated, we know from the time-table whether it is a goods or passengers train, and provide accordingly ; I will not swear that I have not had complaints of engines of this class sticking up between Ryde and Hornsby ; I do not remember ; I had charge of sending the engines out on the 21st June last ; supposing that engine had to draw 90 tons, and two more carriages were put on by the station-master, I would know nothing about it ; the engine would have to pull them if she could ; but the driver might complain to the guard at the first gradient, and some of the load could be taken off ; the driver is subject to the Traffic Department until he reaches the first gradient ; I saw Wilson on Tuesday morning ; he did not make any complaint to me ; he turned his engine that morning so as he could go down tender first.

By the Foreman : I don't think the defect in the rod of the engine was sufficient to cause the delay of over two hours on the road from Peat's Ferry to Sydney ; it should not have interfered with the engine coming up the bank ; I believe she was unable to ascend the bank through want of sand when running tender first ; I am not aware that when he put back to Peat's Ferry a fresh supply of sand was offered to him ; in my opinion a heavier engine could have taken the load attached to this one up the bank ; the driver would be accountable for the delay in slipping on Monday ; he would enter an account of it in the casualty book of his own department ; I was not aware what load the driver had to take on Tuesday, when I gave him the same class of engine on Tuesday.

By a Juror : The same class of engine is sent with a train on an excursion day as on an ordinary day, unless we get orders to the contrary from the Traffic Department.

By Mr. Williamson (on behalf of John Pye) : When I saw this engine could draw from 90 to 92 tons—I mean dead weight—she could not draw 105 tons.

By Dr. Sly (on behalf of Commissioner for Railways) : Wilson was accustomed to mountain roads as fireman, not as driver ; he had been driving about six years.

Sworn and made before me, at Sydney, }
this 7th day of July, 1887,— }

WILLIAM FARQUHAR.

HENRY SHIELL, J.P., Coroner.

Inquest adjourned till 10 o'clock in the forenoon of Friday, the 8th day of July instant, at the Court-house, Darlinghurst, for the production of further evidence.

Sydney, 7th July, 1887.

H.S., C

Inquest

Inquest resumed in pursuance of adjournment at 10 o'clock in the forenoon of Friday, the 8th day of July instant, at the Court-house, Darlinghurst.
Sydney, 8th July, 1887.

H.S., C.

John Barrie, on oath, states :—

By Mr. Rogers (in the public interest) : I reside at Canley's Creek, on the Illawarra line, and am a storekeeper ; I was in a train with my wife and three of my children on the 21st June last which left Sydney for Peat's Ferry ; I was in the second carriage from the engine on arrival at Peat's Ferry ; I was amongst those left behind at Beecroft ; my carriage, which was the last one leaving Sydney, became the second one recoupling at Hornsby ; on starting from Hornsby the thought occurred to me from what I saw at the time that the driver was starting without trying his air ; I remember going along till we came to the first incline past Hornsby, when we got stuck up and ran back for about a couple of miles and made a fresh start, and ran up the incline ; on beginning to descend I did not observe anything with (the) regard to brakes, but about No. 2 tunnel I felt a shaking apparently coming from the engine ; at this time I was not aware but that the train was under perfect control ; I noticed nothing further until we were approaching No. 3 tunnel, when I noticed that the driver had lost control of the train, and it seemed to me as if the hand brake was applied to the carriage I was in ; I came to that conclusion because the brake appeared to be applied gradually and not spasmodically ; I am acquainted with the application of the Westinghouse brake through travelling, and I know the sensation felt on its application ; the hand brake is a gradual application, and the Westinghouse brake is a tightening at once ; at No. 3 tunnel I concluded that the train was from under the control of the driver, but I felt there was a brake on my carriage all the way down the hill ; I was standing on the platform at Hornsby after we had been stuck up, and I said to the guard, " I thought the driver was short of steam, but apparently he was blowing off steam." The guard replied to me, " Oh yes, he has got plenty of steam " ; when the collision occurred, I sustained some injuries, as also did two of my children, one of whom was severely hurt.

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By the Foreman : I was aware that the train was late on arrival at Hornsby ; the driver seemed to have plenty of steam, and our late arrival at Hornsby was because the load was too heavy for the engine ; I joined the train at Strathfield ; there was no unnecessary delay stopping at stations after I joined it ; while at Beecroft, I am not sure whether it was in reply to a remark from myself, or someone else, the guard said the driver had no right to leave Sydney with a train his engine was not able to draw, or words to that effect.

By a Juror : I did not notice the guard in the carriage I was in ; I saw there was a hand-brake on that carriage.

By another Juror : I have travelled a good deal on the train ; at one time my duties took me daily on the train, and by that means I have acquired a knowledge of the application of the brake ; I cannot tell what drew my attention to the driver not trying his air ; I thought so in my own mind, as I have invariably noticed that when a train is remade the air is tried, and my knowledge in travelling was sufficient, in my opinion, to know the application of the hand brake from the air brake.

By Mr. McCarthy (on behalf of the relatives of driver Wilson) : I thought it strange of the driver to leave Hornsby without trying his air, but I did not think of looking for the guard when we got stuck up after leaving there and telling him about it ; that fact escaped my memory then.

By a Juror : I do not know who applied the hand brake to the carriage I was in ; I was sitting facing the engine.

By Dr. Sly (on behalf of the Commissioner for Railways) : The train, when it ran back after leaving Hornsby, was brought to a stand by the hand brake on the engine, or by a brake on the engine ; I mean, either on the engine or tender.

By the Foreman : I did not see any one on the engine besides the driver and fireman after leaving Ryde.

Sworn and made before me, at Sydney, - }
this 8th July, 1887, — }

JOHN BARRIE.

HENRY SHIELL, J.P., Coroner.

David Kirkcaldie, on oath, states :—

By Mr. Rogers (in the public interest) : I am assistant traffic manager in the Railway Department ; I went to Peat's Ferry on Tuesday, the 21st June last, after the accident, in the same train as Mr. Loughry, and made an examination of the carriage with him with a hand-lamp at about half-past 6 o'clock ; we examined from the rear of the train ; the first four carriages had no brake blocks, and therefore no taps on the main air-pipe ; the next vehicle was an American car, the taps at the rear end of which was shut ; from there to the front of the second vehicle on the train (an American car) all the taps were open, but the brake blocks throughout the train were hanging loose ; from the manner in which the Redfern carriage (the first vehicle) had telescoped into the American car, and also from the position of the front of the Redfern carriage upon the remains of what had been an ordinary goods' truck, it was absolutely impossible to see the taps on the Redfern carriage that night ; the screw couplings between the second and third carriages were so securely coupled that they could not be uncoupled that night ; I gave the order to uncouple those carriages about 10 minutes to 7 ; I also found the air couplings between those carriages all complete ; the taps were all open that I could see that night up to and including the second vehicle, with the exception of the one at the rear of the fifth carriage ; I found the second vehicle turned almost on its side, and the front vehicle telescoped about 20 feet inside it ; we uncoupled between the third and fourth vehicles ; I told a man to go in and uncouple, but not to turn the taps, and when he uncoupled the air-pipe no air escaped, showing there was no air in the reservoir ; if there had been the brakes would have gone hard on if the brakes had not been working ; from some cause or other the brake power had failed ; I remember Clissold saying that he released the brakes after leaving Hornsby ; if that is true it would show that the brakes were working then, and that there was air in the cylinder ; I cannot account for the absence of the air from the cylinders at Peat's Ferry only on the one theory that the air had become exhausted in going down the bank ; it could become exhausted by a too frequent use of the driver's brake valve, while he would be endeavouring to check the train, not to stop it ; I have witnessed experiments made on an engine fitted up with the Westinghouse brake, and the nature of the experiments was as follows :— The donkey going at full speed, and six manipulations of the drivers' brake-valve, the pressure of air was reduced

reduced from 88 to 40 lb. in $7\frac{1}{2}$ minutes; a further test was made with the donkey-stopped, and in two minutes the pressure was reduced from 64 to 20 lb. by six manipulations of the valve; the brake power would be practically inoperative with 20 lb. of air pressure; it would put the brakes on, but not sufficiently strong to place the blocks hard on to the wheels; 7 lb. of air would check the train, but when the brakes are put full on, the gauge falls to zero; when the pressure under the carriages in the reservoirs fall to 15 or 20 lb., the brake power is practically inoperative; I saw the positions of the first and second carriages, but I did not see the tap which has been produced here, but I have heard the evidence as to its condition and position when found, and from that, it is my opinion, had it been open before the collision, the collision must have closed it; if the air connections leaving Hornsby were not complete, the brake must have gone on if there was any air in the reservoir; and if any one walked through between the second and third vehicles at Peat's Ferry any time on the afternoon of the accident after it occurred, then the brakes on vehicles four and five must have gone in if there was any air in the reservoirs; the train getting away all right from Hornsby proves that the brakes were off; if the brakes were on any of the seven carriages before the two were added to them at that place, the train could not have got away, and it would have been discovered at once; the exact weight of the five carriages not under brake power was 26 tons 16 cwt., without the passengers; the weight of train under brake power was 123 tons 7 cwt., exclusive of passengers; there were twenty wheels without brake power, and forty-two under brake power.

By Mr. Williamson (on behalf of John Pye): I have taken a great interest in this case, and I am desirous of getting at the truth, and I have no desire to save the department from an adverse verdict either one way or another; I do not push myself forward as an expert on the Westinghouse brake, but I know something about it; I did not go to Mr. Moore for information about it; the Mr. Moore present is the one I refer to; I won't swear that the tap referred to as being found shut was not shut when the train left Sydney; if the evidence given be true that the air went through to the last vehicle before the train left Sydney the tap could not possibly be shut; I have heard it sworn that the two first carriages as the train left Sydney were never examined; I have heard it sworn that the first seven were tried before the other two went on; Werrick may have sworn that he was unable to say whether or not the whole of the brake power was in order that morning; I remember him saying that he had not time to examine the train that morning; I recollect him swearing that he only examined seven of the vehicles, and the air was in the last carriage, and I wish to add that the carriage under which the tap was found closed was the second last of those seven vehicles; I know Rohan's evidence about the connections between the second and third carriages, at 5 o'clock on the same afternoon; I have no hesitation, although I was not present in Sydney, that it is untrue; I know Mr. Shellshear, he is a civil engineer; I heard the evidence he gave as regards the position of the carriages; I will swear that his evidence as to the position of the carriages is true, but if he said it was impossible from the angle of the Redfern carriage for the tap to be turned in telescoping, I differ from him; I heard Clissold swear that after leaving Hornsby he had to get out and release the brake, that is not evidence that the air communications were not complete throughout the train; if Mr. Sheehan has sworn that it is evidence that the air was not complete throughout the train I differ from him; I have had experience in regard to the working of the Westinghouse brake on the Railways of New South Wales, and on the railways in Scotland before I came here, and I am practically, as well as theoretically acquainted with its working; if the brakes were hard on after leaving Hornsby going up the hill it would be an indication that there was air in the cylinders, nothing else; my theory is that the driver exhausted his air, and it is the only possible theory, although there is no direct evidence upon which I can base that theory; I have heard the evidence of Pye, where he said I found 75 lb. of pressure on the gauge, about 1 mile from the Ferry, and when he (meaning the driver) opened the valve it showed zero; if the driver had 75 lb. of air in his main pipe and sufficient air in the reservoir under the carriages, the brakes must have gone hard on, if connected; but if he had exhausted the air in the reservoir under the carriages very much, not having sufficient air in those reservoirs to apply the brakes, that 75 lb. pressure in the main pipe may have indicated that he had opened a communication between the main reservoirs and the carriages reservoir for the purpose of re-charging, so that 75 lb. pressure in the air pipe does not mean that there is 75 lb. in the reservoirs under the carriages; you may have 75 lb. in the main pipe, but only about 25 lb. in the reservoirs under the carriages—just sufficient to put the brakes on; the reservoirs under the carriages must be charged from the main reservoir, but the brakes must be off.

Question: If you were to apply the air-brake by reducing the pressure in the gauge, 25 lb., what time would it take before you would recharge going down this incline?

Answer: I say you could not re-charge your reservoir without releasing the brakes, and then you could re-charge; I have heard Pye's evidence as to the gauge showing about 90 lb. pressure after leaving Hornsby, and the driver having to ease the steam to the donkey to prevent the pressure rising to a much higher point for fear of bursting the pipe; that showed that he had more than sufficient air to work his train if his air connections were complete throughout the train; if the driver did not put full steam on to the donkey again it would prevent it from supplying the air so quickly; I know the donkey was found working in the river; one application of the brakes was sufficient to stop the train descending this incline; the donkey was able to supply all the air that was required, but I would not attempt to say it could make air so fast as it might be used; if the fireman has sworn the driver had 90 lb. pressure going down the incline and 75 lb. pressure within a mile of Peat's Ferry, I could not swear whether he had judiciously or injudiciously used his air, but I say, as I have already explained, that although he had 75 lb. pressure in his main pipe, it does not by any means follow that he has 20 lb. of pressure in the cylinders under the carriages.

Sworn and made before me at Sydney,)
 this 8th July, 1887,—)
 HENRY SHIELL, J.P., Coroner.

DAVID KIRKCALDIE.

Inquest adjourned till 9 o'clock on the forenoon of Monday, the 11th July instant, to be resumed at the Redfern Railway Station, to enable the jury to examine the wheels of carriage next the engine on its arrival at Peat's Ferry, and from thence to the Court-house, Darlinghurst, for the production of further evidence.

Sydney, 8th July, 1887.

H.S., C.

Inquest

Inquest resumed at 9 o'clock on the forenoon of Monday, the 11th July instant, at the Redfern Railway Station, where the jury examined the wheels of the carriage next the engine, on its arrival at Peat's Ferry, after which the inquest was resumed at the Court-house, Darlinghurst.
Sydney, 11th July, 1887.

H.S., C.

Richard Milton, on oath, states :—

I reside in Alexandria, and am a labourer in the Railway Department ; I went to Peat's Ferry on the morning of the 22nd June last, arriving there about 6 o'clock in a special train with other workmen ; when I got down there I saw the engine in the water ; I saw that the two first carriages, a Redfern carriage and an American car, were telescoped, and had a tendency to lie on their side between the second and third carriages ; the buffers were interlocked, and the screw couplings were connected ; it would be impossible for a man to walk through between the two carriages as I saw them ; one buffer had to be taken off before the carriage could be pulled apart ; I undid the screw couplings between those carriages ; I noticed the air connections between those carriages ; they were hanging down loose ; no man could have walked through between those carriages before I undid them ; it would have been impossible for anyone to do so ; I was acting under the instructions of Foreman Bingham, and he was present at the time.

By Mr. Williamson (on behalf of John Pye) : I do not know a man named Rohan ; I did not examine the taps ; I am sure the air-couplings were hanging loose ; I saw that the Redfern carriage had been driven into the American car ; I did not observe how far the rear end of the Redfern carriage was above the floor of the American car ; I did not examine the wheels ; I do not know Mr. Hulme, an engine-driver.

By the Foreman : I was sent by the foreman to uncouple the couplings between the second and third carriage, and the chain couplings were attached ; I had to uncouple them ; the third carriage was standing on its wheels, and one of the buffers of the third carriage was interlocked with one of the buffers of the second carriage.

By a Juror : The screw couplings were slightly bent.

RICHARD MILTON.

Sworn and made before me, at Sydney, {
this 11th July, 1887,— }

HENRY SHIELL, J.P., Coroner.

David Kirkcaldie, re-called, on oath states :—

By Mr. Rogers (in the public interests) : I noticed the brake-blocks loose on the third, fourth, and fifth carriages ; the main air connection was complete under No. 3 carriage, although the air was not acting on the blocks for the reason already mentioned.

By Mr. Simpson (for Westinghouse Brake Company) : From the top of the incline to Peat's Ferry the distance is about 6 miles ; if the train had gone down the incline from the tanks at the rate of 20 miles an hour, it would take it about 10 minutes to reach Peat's Ferry ; I should say that the train took about 15 or 16 minutes to descend the whole incline ; if the fireman's evidence is correct, that the driver had 90 lbs. pressure in his air gauge shortly after entering upon the descent, that fact is reconcilable with my theory ; if the driver had to ease the steam to the donkey to prevent him burst the main air-pipe, he must have had plenty of pressure then in the reservoir to control the train ; I am aware that the fireman has sworn that he saw the driver ease the donkey in order to prevent the pressure increasing to such a point as to probably cause the pipes to burst ; if that evidence is correct it is reconcilable with my theory ; I account for the driver not having sufficient air to control his train in the latter portion of the descent by a rather too frequent use of his air between the top of the hill and the tanks for the purpose of steadying his train a distance of about $3\frac{1}{2}$ miles ; that would take him 10 or 11 minutes ; the donkey would have been compressing air all the time ; before the driver could have exhausted his air in that distance he would require to manipulate his valve five or six times ; I did not hear the fireman swear that he only saw the driver use his valve once or twice in that distance ; if he had only done so once or twice, he could not have exhausted the air ; assuming that the driver had only manipulated his valve two or three times during that time, my theory falls to the ground, and the accident will have to be accounted for in some other way ; so far as the evidence in this case goes, and if my theory falls to the ground, the only other cause that could be assigned is that one or more of the taps upon the main air-pipe must have been closed ; those taps are not absolutely necessary for the working of the Westinghouse brake, but they are absolutely necessary for railway work ; the Westinghouse brake is complete without those taps, but in order to facilitate shunting and railway work they are absolutely necessary, and are put on for those purposes ; if my theory is correct, it does not show that there was any defect in the Westinghouse brake, but the accident would be caused by an injudicious use of the brake by the driver.

By Mr. Rogers (in the public interest) : The Westinghouse brake taps are recommended by the Westinghouse brake people themselves, and it is in accordance with those recommendations they are put on ; if the driver showed 75 lb. of air pressure when within a mile of Peat's Ferry it showed an injudicious use of air ; he should have only shown zero ; if a sudden application of the brakes had been made it would not, I don't think, account for the looseness of the blocks.

By a Juror : I should think the driver would have pulled up the train by means of the air brake when he ran back after leaving Hornsby, and if he had found it not working he would have got down and examined it.

By another Juror : If the tap was turned off the main pipe under the carriages near the engine, of a train, and the donkey working, would the gauge show a high increasing pressure if the driver was not using his valve ? *Answer* : Yes ; but the very same result would follow if the reservoir under the carriages were fully charged with air, no matter what the length of the train was.

By the Foreman : I cannot give you the power of the engine ; the weight of the carriages was 90 tons ; I do not think that 12 miles an hour was too fast to go down this incline ; it is possible for the donkey to have stopped of its own accord descending the incline, and the collision may have started it again.

By Dr. Sly (on behalf of the Commissioner for Railways) : Supposing the Westinghouse brake was only acting on the engine and first carriage, I would have expected to have found considerable evidence of "skidding" on the wheels of the first carriage. I have seen the wheels of that carriage, but I saw no evidence of "skidding" on them. I saw the wheels of the engine ; they show no evidence of "skidding" that was caused by the reversing gear.

Sworn and made before me at Sydney, {
this 11th July, 1887,— }

DAVID KIRKCALDIE.

HENRY SHIELL, J.P., Coroner.

By

John McCarthy, on oath, states:—

By the Coroner: I am a shunter in the Railway Department; I remember, on the 21st June last, shunting seven carriages into the platform at Sydney about twenty or twenty-five minutes past 10 in the morning; I brought them down to the station; I was on the American car at the rear of the train next the buffer stops going into the station; I was in the act of putting the hand-brake on when some one at the other end of the train put the air on, and made my hand-brake useless; I believe it was shunter Durham that applied the air; I have since learned so; that showed me that the air was working up to the carriage I was on; the carriages I refer to were the first seven that were going to Peat's Ferry.

By Mr. Williamson (solicitor for John Pye, fireman): I asked Durham why he put the air on, as it was an unusual thing to do.

By the Foreman: I shunted those carriages by order of the foreman.

Sworn and made before me, at Sydney, }
this 11th July, 1887,— }

JOHN MCCARTHY.

HENRY SHIELL, J.P., Coroner.

Alfred Vincent, on oath, states:—

By Mr. Williamson (on behalf of John Pye): I reside at Kelnworth House, Golden Grove-street, Redfern, and am an engine-driver, employed on the Government Railways; I recollect going to Peat's Ferry with the relief train on the 21st of June last; I arrived there about 6:35 p.m.; I saw a train there, that had met with an accident that day, but I made no examination of it that night; about 11 o'clock on the following morning I made an examination of carriages 1 and 2, and found the Redfern carriage, No. 114, telescoped into the American car, No. 47; I did not see the rear end of carriage 114, but I saw the leading end of No. 47 car, and the supplementary reservoirs and brake gear of that car greatly knocked about, and I saw the main through-pipe broken off nearly up to the reservoir, and with the tap closed, the flexible hose being in good condition; I took charge of the main through-pipe, and the one now before the Court is the same, and the tap is in the same position now on that pipe as it was when I found it; I cannot say if the two flexible pipes had been connected; the pipe was under the floor of the American car at its leading end, and the Redfern carriage was inside the American car; I made no further examination; from the position of the two carriages it might be possible that the tap was closed by the concussion, but very improbable; I have been on this road for some time; I ran the opening train there, and have had considerable experience of that road, having run on it frequently; going down the incline, after passing Hornsby, to Peat's Ferry, I have always had the train under the control of the Westinghouse brake; if I had 90 lb. of air pressure at the commencement of the incline and only four vehicles connected with the air-brake, it would be impossible for me to exhaust my air before reaching Peat's Ferry if the donkey was working all right; I have been four years and a half driving an engine fitted with the Westinghouse brake; I have driven between Sydney and Goulburn on the Southern line, where there are some gradients of 1 in 30, and I never knew the air to become exhausted when the donkey was working; supposing there were 90 lb. pressure and the donkey not working at the commencement of the incline it would take seven applications of the brake to exhaust that air; supposing the driver had 75 lb. pressure on his gauge about a mile from the Ferry, it would show that he had 75 lb. of air pressure throughout the train as far as his air connections extended; if the driver showed 75 lb. pressure and the driver were to open his valve and the gauge showed zero, it would prove so far as the tender was concerned, that the brakes were operating, and if the brakes had no effect on the train it would show that the air connections were not made complete; if the air communications were complete and the brakes hard on, about a mile from the Ferry, descending a gradient of 1 in 40 with the engine reversed, the driver could have pulled the train up in about 600 yards; if Mr. Kirkcaldie has sworn that if the gauge showed 75 lb. there might be only 25 lb. of air in the supplementary reservoirs or main reservoir, it is not possible; there must be the same pressure throughout the train if the taps are all open and the driver's valve in a release position; I have gone down with a heavier train than the one in question; I went down with a total of fifteen carriages with brake-power right throughout the train; I had six American cars on the train and one guard; I had no difficulty in taking that train down; if the gauge showed 75 lb. air pressure and four vehicles under air-brake control, the driver would have to release and recharge before he could bring his train up in going down a gradient of 1 in 40; that would take him about 20 seconds; supposing $3\frac{1}{2}$ miles from the Ferry the driver reversed his engine and said the train was from under his control, the air connections could not have been complete; if the driver applied his air the momentum would decrease; if the connections were not made complete, the momentum would increase; I saw Mr. Loughry at Peat's Ferry both on Wednesday morning and also on the Tuesday night; he told me to take charge of all broken pipes and I told him about the pipe produced and the condition I found it in; I told him that the pipe underneath 47 car was lying there, and that I found the tap shut—that was on Wednesday; he made no reply; having heard the evidence and from my experience as driver, and considering that the driver had 75 lb. of air when a mile from the ferry, and 90 lb. on entering upon the descent, and the gear of the engine being reversed, I attribute the accident to the incompleteness of the air connections; I think they could not have been properly made.

By Dr. Sly (on behalf of the Commissioner for Railways): I left Sydney about 4 o'clock on Wednesday morning, and reached Peat's Ferry about 6 o'clock, and I saw the pipe produced about 11; I took down a special train of workmen and from 6 to 11 they were engaged clearing away portions of the wrecked train, including those two carriages; there were over a dozen men so employed; those two carriages when I saw them on the Wednesday at 11 o'clock were in the same position as when I saw them on the previous night; the men during the morning were engaged clearing the debris from inside the American car, and I was engaged trying to pull some carriages on to the rails by means of a locomotive tire; I told Mr. Loughry about the pipe (produced), and that the tap was close, and he saw it closed; I did not tell anyone else down there; I told Mr. Downes about it when I returned from the Ferry on Wednesday; he was down at the Ferry, but I did not mention it to him there; if Mr. Loughry, Mr. Shellshear, and Mr. Kirkcaldie have sworn that tap was open on Tuesday night I will not swear it was not; at the time I found the tap open the other carriages were disconnected from the two front ones; but the men had not commenced to separate those two, they were taking debris from inside American car.

By Mr. Rogers (in the public interests):—The men had not commenced to work underneath those two carriages when I saw the tap open; I found the pipe (produced) lying under the second carriage, and the end at which the tap was at was about 18 inches off the ground at one end; the men could walk up to and about where the pipe was.

Ry

By a Juror: The leading end of 114 carriage was resting on the fore part of a "D" truck.

By a Juror: I have seen the engine of the wrecked train; the engine I took down the fifteen carriages to Peat's Ferry was a more powerful one; it was a six-wheeled couple engine.

By Mr. Williamson, solicitor (on behalf of John Pye, fireman):—I recollect the time Mr. Loughry left the Government service.

Sworn and made before me, at Sydney, }
this 11th July, 1887,—

ALFRED VINCENT,

HENRY SHIELL, J.P., Coroner.

Inquest adjourned till 10 o'clock in the forenoon of Tuesday, the 12th day of July instant, at the Court-house, Darlinghurst, for the production of further evidence.

Sydney, 11th July, 1887.

H.S., Coroner.

Inquest resumed, in pursuance of adjournment, at 10 o'clock in the forenoon of Tuesday, the 12th day of July, instant, at the Court-house, Darlinghurst.

Sydney, 12th July, 1887.

H.S., Coroner.

John Pye, recalled, on oath, states:—

By a Juror: We were stuck once after leaving Hornsby, and had to run back and make a fresh start; I put on the hand-brake to pull the train up on that occasion, but I cannot say whether the driver used the Westinghouse brake or not; we let the train run up the next incline; I could not from my position on the engine say whether the Westinghouse brake was used or not.

By another Juror: I cannot say who coupled the two carriages to the engine when we went back to the cutting for them.

By the Foreman: I do not remember making the remark, after leaving Ryde, that I thought the donkey would fail; I may have done so; I cannot say that if any of the brake blocks on either the engine or tender had got broken when descending the incline at such a high rate of speed my attention would not have been called to it.

By Mr. Simpson (on behalf of Westinghouse Brake Company): After I lubricated the donkey it worked all right after that.

By a Juror: I cannot say whether the Westinghouse brake was in working order or not after we left Hornsby.

By Mr. Rogers (in the public interest): I remember seeing the air gauge showing 90 lbs. air pressure at the brow of the hill when we were commencing the descent; I saw it afterwards showing 75 lbs.; I saw the driver apply the air-brake on rounding the curves, but I cannot say if the train was steadied by the Westinghouse brake or hand-brake; when we got over the brow of the hill we were going at the rate of 12 or 14 miles an hour, and we went down the first part of the descent at about the same rate; after we got over the top of the hill and commenced the descent, I put the hand-brake on the engine; the air brake was working on the tender after we passed No. 2 tunnel, and I saw the driver release the brake, and the air-gauge showed 75 lbs. pressure; he applied the brake again immediately after releasing it, and it was then he said the train had got away from us.

By a Juror: It was about the time he released and applied the brakes again that he said the train had got away from us, and he applied the reversing gear to the engine just after we passed the tanks, and kept it applied.

By Mr. Williamson (on behalf of John Pye): If the driver finds that the Westinghouse does not act in the first instance, I think it is his duty to apply them again; if the first application had the desired effect to either stop or steady the train it would not be necessary to apply the brakes a second time; the donkey engine was working all the time after we commenced the descent till we reached the Ferry; I have no doubt about that; the gauge showed 90 lb. pressure at the top of the hill, and 75 lb. just after we got through the second tunnel, and the donkey was working all the time; I do not think it would be possible to exhaust the air; I saw the driver apply the air-brake after we passed the brow, but I cannot say how many times he applied it before we reached the first tunnel; from the way in which he used his brake, if the air connections had been complete throughout the train, there would have been no difficulty in stopping her; on descending the incline when he applied the air-brake I did not observe any effect from the application only in rounding the curves, but whether that was attributable to the Westinghouse brake or hand-brake I am unable to say; on going round the curves I kept the hand-brake hard on, and from the time the driver reversed the engine till the accident I kept it as hard on as I could without causing the engine wheels to skid; previous to leaving Hornsby I noticed the gauge showed about 60 lb. air pressure; after we coupled up the two carriages there I saw the gauge showing an increase of air power; I cannot say what pressure of air we had between Sydney and Ryde; the air-brake seemed to work all right between those places; it pulled us up at the stations; I should think the increase in the gauge of air pressure would show that the air connections were not all right; I have been as far as Blacktown on the Western Line on a train fitted with the Westinghouse brake; I noticed before reaching the brow of the hill after leaving Hornsby that the driver had to ease the donkey to stop the increase of air pressure; the air-brake is fitted up on the tender, and every time the driver applied the air I saw the tender brake rise, which shows, so far as the tender was concerned, that the air-brake was working, and that there was sufficient pressure of air.

By Dr. Sly (on behalf of the Commissioner for Railways): I have been a fireman about three years and six months; I have been about two years on a passenger train; out of that time the furthest I have been on a passenger train was Blacktown; I have not been on them on steep gradients, and I have not been accustomed to seeing drivers use the air-brakes going down steep gradients; I saw the handle on tender brake rise after we passed through the second tunnel, and I also noticed it rise within $\frac{1}{2}$ mile or $\frac{3}{4}$ mile from the station; I never wrought the Westinghouse brake myself; after commencing the descent I applied the hand-brake on the engine, and attending to that I did not notice how often the driver applied the air-brake; I cannot tell the length of the first tunnel; I did not notice the driver applying the air-brake in it; I cannot positively say what the air pressure was after recoupling at Hornsby.

- 4 { *By a Juror*: If the engine had been stronger and able to take the train on to its journey's end without disconnecting I do not think the accident would have occurred.
- 4 { *By another Juror*: The only reason we could not get up the inclines, in my opinion, was that the engine was not strong enough for the load; we had plenty of steam; the driver reversed his engine before he said the train had got away from us; if the wheels had been skidding and the brakes were holding the train would have gone down quicker.
- 5 { *By Dr. Sly* (on behalf of the Commissioner for Railways): Assuming that all the air connections were complete, the weight of the engine would have nothing whatever to do with the accident.
- 5 { Sworn and made before me, at Sydney, } JOHN EDWIN PYE.
this 12th July, 1887,—
- HENRY SHIELL, Coroner.

William Thomas Dodds, on oath, states:—

By Mr. Rogers (in the public interests): I am foreman to Mr. T. Williams and Company, boot manufacturers, 278, George-street; on the 21st June last I was a passenger from Sydney to Peat's Ferry in the train which met with the accident; I remember two of the carriages being left behind in a cutting near Beecroft; I was in the second carriage of the original train; I got in at Petersham; after the carriages were disconnected at Beecroft, I saw the fireman Pye going along the whole length of the train examining them, the carriages, and I saw him put his hand under, I think, the third carriage from the engine and do something; the man now before the court, John Pye, is the fireman, I believe; I saw him come along from the rear of the train from behind what was the then end carriage, and went to his place on the engine; we went on to Hornsby and waited there till the two carriages that were uncoupled were brought up by the engine, when they were coupled on in front, and the carriage I was in then became the fourth from the engine; when I saw Pye do what I have stated I was standing on the left hand side of the carriage looking towards the engine; I noticed that the coupling was made at Hornsby, but I do not know who coupled; I saw the guard superintending the coupling; I saw him first standing on the permanent way; then he walked up to a carriage and stood against the buffers; I was still standing in the same place as before; I am accustomed to railway travelling; I travel daily between Sydney and Petersham; the train went on from Hornsby and stopped at the platform at Carlingford to let passengers out, I believe; that is my impression; I am certain we stopped on the other side of Hornsby, but for what purpose I do not know; I did not notice anything on stopping there; we went on again and did not stop again; I noticed nothing more after that till I observed we were entering a tunnel, which I believe we entered with steam on the engine; I noticed that steam was shut off in the tunnel; we were then running at about 30 miles an hour, and the speed kept increasing and kept on increasing; and we went through No. 2 tunnel, the train attaining greater speed as she went on; I was sitting down in passing through the tunnels, but was next the window; we came to No. 3 tunnel and we passed through the latter part of it at about 40 miles an hour, the train rocking very much; on getting out of that tunnel I got up; the speed seemed to increase much more, and the train went round one or two curves; and I saw the engine at one of them, and there seemed to me to be steam coming from underneath her and dust-coloured smoke coming from under the first and second carriages as if the wheels were skidding or the brakes were very hard on; when I first noticed the engine the wheels appeared to me to be going round with the force of the engine going down the incline; the steam coming from under the engine stopped, to the best of my recollection, before I saw the dust coming from under the first and second carriages; about a second or two after I saw the smoke from under the carriages I saw Peat's Ferry Station; I was still standing with my head slightly out of the window; I saw Mr. Hankin, who was in the same carriage as I was in, get up off the floor, make some remark to his friends and went to the door; I understand the sensation that is felt on the application of a brake to a carriage I am in; I first became aware that I was descending an incline going through the second tunnel; the brake was never applied to the carriage I was in from the time I saw steam shut off at the first tunnel till the accident took place; I did not notice its application to my carriage between Hornsby and the first tunnel.

By Mr. Williamson, (on behalf of John Pye): I did not observe any water tanks; I was looking out at the left hand side; I did not observe a man on that side as we were descending; I cannot say I heard the engine whistle in the first tunnel, but it was whistling right through the second, and continued to do so till within a few yards of Peat's Ferry Station; I saw the engine; I did not notice anyone on it; my impression is that the smoke-coloured dust that I saw was coming from the first carriage, and rolling out from under the front part of the second, but I did not see it the whole length of the second carriage; when I heard the train continuously whistling, I thought it was to clear the line, but I did not know what for; I believe I saw steam coming from the smoke-stem of the engine: I swear the steam was not coming from the steam escape-valve; I was looking out at the window before entering the first tunnel, and it was just as the engine entered it I saw steam coming from the smoke-stem of the engine; I cannot say that I saw any smoke with the steam more than usual; the steam seemed a light-coloured grey; I caught a momentary glance of the engine as she entered the tunnel, and the steam came from the top—not from below,—but I cannot say that I heard it; at no time descending the incline did I feel the brake operating upon my carriage (No. 4); I saw the fireman go to carriage No. 3 in the cutting; I believe it was No. 3, and behind it I saw four open second-class carriages, and the carriage I saw the fireman put his hand on became No. 5 going down the Peat's Ferry, after recoupling; I saw the guard leaning against the buffer when the connections were being made at Hornsby, but I was not in a position to see if it did anything; I did not see more than two persons interfering with the couplings; I know the Station-master at Hornsby by sight; I did not see him do anything to the train while it was there; I saw a man at the points; I believe it was him; I did not see him approach the couplings.

- 20 { *By Dr. Sly* (on behalf of the Commissioner for Railways): After leaving Hornsby and before entering No. 1 tunnel I did not notice either one way or another whether the brakes were applied to the carriage I was in.
- 20 { Sworn and made before me, at Sydney, } W. T. DODDS.
this 12th July, 1887,—
- HENRY SHIELL, J.P., Coroner.

John Pye, recalled, on oath, states :—

By Mr. Williamson (on behalf of John Pye) : I have heard the evidence of Mr. Dodds as to my being off the engine in the cutting ; I now recollect getting off and going down the train, inspecting the carriages, and I found one of the brakes on and I released it ; I may have looked at the blocks ; I found the blocks on the wheels of one of the carriages hard on ; that was one of the seven carriages before we left for Hornsby ; I put my hand under it to the release tap and released the blocks, otherwise we could not have started ; I could not say what class of carriages were immediately behind that carriage ; we tried to start but found the engine could not move the seven carriages, and I got off to see the cause ; we had full steam on at the time ; before I got down the driver had his air-valve released, and finding we could not start I went down and inspected the carriages myself, and as far as I went I found all the carriages released except this one on which I found the blocks hard on.

By Dr. Sly : When we stopped at Beecroft the driver put the air-brake on before separating the train, and I expect it was it that put the blocks on the wheels which I had to release. } 15

By Mr. Williamson (on behalf of John Pye) : It often happens that the blocks, after being applied by a driver at a station, won't release themselves, and some one has to release them.

By a Juror : The guard, myself, and the driver were all sober on this day.

Sworn and made before me, at Sydney, }
this 12th July, 1887,—

HENRY SHIELL, J.P., Coroner.

JOHN EDWIN PYE.

Edward Andrew Laughry, recalled, on oath, states :—

By the Foreman : I am Inspector of Rolling Stock ; I have not examined the engine and tender of the wrecked train since she was taken out of the water ; I have the wheels of both since ; I don't know of anyone who has examined the engine and tender ; I am not aware that 9 or 10 feet of a driving side road and a brake-block are missing from either the engine or tender.

Sworn and made before me, at Sydney, }
this 12th July, 1887,—

HENRY SHIELL, J.P., Coroner.

E. A. LAUGHRY.

Edward Andrew Laughry, recalled, on oath, states :—

By Dr. Sly (on behalf of the Commissioner for Railways) : I gave no instructions to Mr. Vincent about the pipe produced ; I gave him some broken pipes to place in his engine and deliver to me at Sydney, which he did ; I found the pipe produced on the night of the 21st ultimo ; it was in its place on the vehicle, with the tap open ; I also saw it on the Wednesday morning before the men commenced to clear the wreckage away ; the tap was open then ; the men commenced first thing in the morning, about 6 o'clock, to clear away the underneath gear on the two carriages which had been next the engine, and by 11 o'clock the bogies had been taken out, as also was the pipe produced.

By Mr. Williamson (on behalf of John Pye) : If Vincent has sworn that at 11 o'clock on the Wednesday morning he found the pipe suspended to the vehicle, it is untrue ; Vincent told me on Wednesday last that he found the pipe lying on the side of the road, and that when he first took charge of it, it had been loaded on a truck ; this conversation took place between us in the presence of Mr. Downes and Mr. Cobb ; there was no importance attached to the pipe, and I did not think it was necessary to produce it ; I think Vincent said the tap was closed when he found the pipe ; Vincent might have said at the conversation, "I have just mentioned that the pipe produced was included amongst the things I told him to bring from Peat's Ferry ;" the tap at the front end of the carriage, which was next the engine, is missing ; the pipe is at the Redfern Station ; I have searched all about the wreckage for the taps ; the main pipe was broken off short up against the tap ; I have seen the hose coupling ; it is at Redfern Station ; the hose-pipe belonging to the engine was still on the engine ; it went into the river with it ; the hose coupling belonging to the carriage was broken about 6 inches from the main pipe ; I did not find the portion that was broken off ; there was a diver there ; I did not think it was essential to make a further search for the broken portion than I have made.

Sworn and made before me, at Sydney, }
this 12th July, 1887,—

HENRY SHIELL, J.P., Coroner.

E. A. LAUGHRY.

William Henry Warren, on oath, states :—

By Mr. Rogers (in the public interest) : I am a Professor of Engineering at the Sydney University of Sydney, and was holder of the Whitfork Scholarship, looked on in England as one of the highest scholarships. The brake-power necessary to control a train weighing about 167 tons, including passengers, descending a gradient of 1 in 40 at the rate of 25 miles an hour, would be 26 tons, but that would not stop it, and it would require about 40 tons brake-power to control a train descending the same gradient at 40 miles an hour ; if there were a train of nine carriages, five of which were under brake-power, it would not make the slightest difference to the retarding power, no matter what part of the train those carriages were placed ; the power of the engine has nothing whatever to do with a train descending an incline, the train descends by gravity ; the engine only has to control it ; the heavier the train the more power would be required to control it ; supposing an engine weighed (say) 70 tons, with the brake-power on the engine and tender, that would have more effect in controlling a train than an engine of 50 tons with the brakes applied in the same manner ; supposing the air-gauge shows 75 lb. pressure it does not necessarily show that there is 75 lb. pressure in the reservoirs under the carriages, even although the donkey was working ; the air would not pass into the reservoirs much quicker, even if the gauge were to show 90 lb ; you could apply about 55 lb. pressure in about 50 seconds to the reservoirs.

By a Juror : The pressure would show about the same on the gauge in the guard's van as it would show on the gauge on the engine, but that would not show either the driver or guard that they had the same amount of pressure in the reservoirs under the carriages as shown on their gauges ; assuming that the driver had 90 lb. of air pressure at the commencement of a descent, and after descending about 4 miles,

miles, the gauge were to show 75 lb. pressure, would that show a judicious or injudicious use of his air supposing that were so, it would show an injudicious use of his brake; it would show that he had taken his brakes off.

By a Juror: From the weight of this train I think it had sufficient brake-power, providing everything was in good order; it is desirable that Railway Stations should be constructed at places where the roads are near level as possible.

Sworn and made before me, at Sydney, }
this 12th July, 1887,—

W. H. WARREN.

HENRY SHIELL, J.P., Coroner.

Inquest adjourned till 10 o'clock on the forenoon of Wednesday, the 13th day of July instant, at the Court-house, Darlinghurst.
Sydney, 13th July, 1887.

H. S., Coroner.

Inquest resumed at 10 o'clock on the forenoon of Wednesday, the 13th day of July instant, at the Court-house, Darlinghurst, for the production of further evidence.
Sydney, 13th July, 1887.

H. S., Coroner.

By Mr. Williamson (on behalf of John Pye): William Henry Warren, recalled, on oath, states:—When I said 26 tons of brake-power was sufficient to control this train I mean 26 tons of brake-power applied to the wheels; I have had some experience of the working of the Westinghouse-brake; I have ridden on the engine some dozen times, and the driver has used the brake under my observation; if the first vehicle weighed 17 tons 10 cwt. and 3 qrs., and had eight wheels, and the brakes were hard on (at full pressure), going at the rate of 25 miles an hour, descending a gradient of 1 in 40, it would take a total of about 22 tons brake-power to stop it in about 400 yards.

Question: What amount of brake-power would it take to stop a train weighing 170 tons descending a gradient of 1 in 40 at the rate of 25 miles an hour? *Answer*: It would require about 100 tons to stop it in about 400 yards. My first answer is over-stated, and I correct it by saying that about 20 tons brake-power would stop that carriage in about 400 yards.

Question: If the second carriage weighed 16 tons 10 cwt. 3 qrs., descending the same gradient and at the same rate, to be stopped within 400 yards, and having the same number of wheels, what amount of brake-power would it require to stop that carriage? *Answer*: Say 19 tons brake-power. I understated the brake-power necessary to stop the whole train on the same data as previously given; it would take about 120 tons to stop it in about 400 yards.

Question: If the third carriage had eight wheels, and weighed 13 tons 8 cwt. and 3 qrs., travelling down the same gradient at the same rate, what amount of brake-power would it require to stop it within 400 yards? *Answer*: Say 14 tons. If the fourth carriage had eight wheels, and weighed about the same as the second, descending the same gradient at the same speed, it would require about the same brake-power to stop it in 400 yards—19 tons.

Question: If that were the only brake-power on a train of nine vehicles descending the same gradient at the same speed, would that be sufficient to stop the train if it weighed 90 tons exclusive of the passengers in 400 yards? *Answer*: No, it would require a little more; 90 tons of brake-power would stop it in that distance.

Question: If it takes 90 tons of brake-power to stop a train weighing 90 tons, going down a gradient of 1 in 40 in 400 yards, how do you account for saying that it would take 120 tons brake-power to stop a train descending the same gradient at the same rate of speed, and weighing 170 tons? *Answer*: I am 50 tons out in proportion, it would take 170 tons to stop a train weighing 170 tons in 400 yards.

Question: If the engine and tender have fourteen wheels, and weighed 60 tons descending the same gradient at the same rate of speed, what amount of brake-power would it require to stop it in the same distance? *Answer*: 60 tons would pull it up.

Question: Supposing the first carriage as I have stated require 20 tons brake-power, the second 19 tons, the third 14 tons, and the fourth 19 tons, making a total of 72 tons on the four carriages, and the engine described requiring 60 tons, making a total for the whole train of 132 tons, would that be sufficient brake to stop a train weighing 170 tons descending a gradient of 1 in 40 in 400 yards, if travelling at 25 miles an hour? *Answer*: No.

I was five years in the North-western Railway, England; I have repeatedly travelled and seen the trains leave the stations; I have seen a passenger train leave without a brake-van, but it is not usual; I believe the Board of Trade insist upon a brake vehicle being attached to the rear of every train; the object of a brake vehicle at the rear of the train is mainly used to control it; there is no special advantage in having it at the rear of the train; I don't think it operates any better there in regard to the brakes; I am not aware that the Board of Trade, England, insist upon one brake vehicle to every four carriages; but I know they insist upon one to so many carriages, consequently the longer the train the more brake vehicles; in England, to a train of nine vehicles there would be two brake vehicles required; I have had some experience of the Westinghouse-brake.

Question: What absolute pressure of air is required in the main reservoir to enable the driver to start the train with the brakes hard on, if he had 85 lb. pressure in the reservoir underneath the carriages? *Answer*: Practically, 85 lb.

Question: How many times can the Westinghouse-brake be applied with full force with 95 lb. pressure in the auxiliary reservoirs without recharging, and the applications successive, and the reservoirs the same size as they are here? *Answer*: Five applications with full force would reduce the pressure from 90 to 30 lb.

On descending an incline of 1 in 40 the brakes would have to be taken off and put on again to graduate the speed; one application of the driver's valve with 90 lb. pressure would stop the train; if it took five applications with full force to reduce the air 90 to 30 lb., it would take ten half manipulations to make the same reduction.

Question: If the driver had 90 lb. pressure at the commencement of the descent, how many manipulations would it take during the time the trains travelled a distance of 4 miles down a gradient of 1 in 40 to reduce the pressure 75 lb.? *Answer*: Two half manipulations or one whole; one half a manipulation would reduce the pressure about $7\frac{1}{2}$ lb.; the donkey could pump that amount into the main

main reservoir in at least five seconds; I said yesterday that if the driver had 90 lb. pressure at the commencement of the descent, and after travelling $2\frac{1}{2}$ miles had 75, that he used his air injudiciously—I mean he must have reduced his pressure in his auxiliary reservoirs by more than that amount in the distance travelled on an incline of 1 in 40, and therefore an application with 75 lb. in the main pipe would take off the brakes.

Question: If the gauge showed 90 lb. at the commencement of the descent, and the air connections were incomplete between the first and second carriages, and several applications of the brake-valve had been made by the driver, and the gauge showed 75 lb. after travelling $2\frac{1}{2}$ miles, would that not show that the air connections were incomplete? *Answer*: No, the air gauge is no indication of the amount of pressure in the auxiliary reservoirs.

Question: Supposing the driver was going down a gradient of 1 in 40, and the gauge showed 75 lb. pressure, how long is he compelled to look at the gauge before he can tell that there is the same pressure in the auxiliary reservoirs? *Answer*: That will depend upon the pressure in the auxiliary reservoirs, and whether the brakes were on or off.

Question: Supposing the brakes were off and he had 25 lb. in his auxiliary reservoir, and the donkey engine working in the ordinary way? *Answer*: It would take the driver about three minutes to tell that he had the same pressure in his auxiliary reservoirs.

Question: If the driver had 25 lb. of pressure in the auxiliary reservoirs, and 75 on the air gauge, how long would it take the air to equalise itself? *Answer*: About one minute.

Question: If this train had $3\frac{1}{2}$ miles to travel, and the engine gear were reversed, and 50 lb. pressure throughout, the train travelling at the rate of 25 miles an hour down a gradient of 1 in 40, and having 170 tons to control, and the hand-brake power being 38 tons and hard on, could it be pulled up within a mile? *Answer*: Yes, certainly.

Question: If the gauge showed 75 lb., and went to zero on being applied, would it show, as far as the tender was concerned, the brakes were on? *Answer*: Yes; it would be on the tender and train, assuming the connections were complete.

Question: If the gauge showed 75 lb. pressure, and on being applied went to zero, and air brake went with full force on to the tender and engine, and not upon the train, does that not show, amongst other things, that the air connections are not complete? *Answer*: Not necessarily so, but it would be one of the indications; it might also show that the triple valves were not working properly; but if the brakes were off all the carriages, and in perfect order, it would show unmistakably that the air connections were incomplete.

By Dr. Sly (for the Commissioner for Railways): The longer the distance, the less brake force necessary to stop a train, therefore it would require less brake force to stop a train in 500 or 600 yards than it would require in 400 yards; it is possible and I have seen it so that there might be only 20 or 25 lb. of air in the carriage reservoirs while the gauge showed 75 lb. on the engine; 75 lb. air pressure on the gauge on the engine does not show that there is 75 lb. air pressure throughout the train as far as the air connections extend; it is possible to exhaust the air from the carriage reservoirs in a long descending gradient by applying the brakes too frequently.

Question: Supposing the connections (air) were severed between the first and second carriages by the accident—what effect would that have on the vehicles behind those two if there were air in the carriage reservoirs? *Answer*: If there was air, the brakes would go hard on.

Question: If the blocks were found off the uninjured carriages immediately after the accident, what would that indicate? *Answer*: It would indicate there was no air in the reservoirs, if the air connections were complete.

Question: Assuming there was sufficient in proportion to the weight of the train of brake power on the carriages and engine, the train would be easier controlled with a light engine than by a heavy one. } 7

By the Foreman.—*Question*: The train in question had a distance of 6 miles to run down a gradient part of which was 1 in 40, say at the speed of 20 miles an hour, the indicator showed a pressure of 90 lb., of air on the summit of the gradient; the driver applied all available brake power at the commencement of the descent, and finding the brake power had no control over his engine, at $2\frac{1}{2}$ miles distance from the summit he reversed his gear—would the indicator then show a loss of air, and what would be the loss? *Answer*: The indicator would show no pressure in the main pipe if his brakes were full on.

By Mr. Rogers (in the public interest): The driver's gauge is no sure indicator of the amount of air he has in his auxiliary reservoirs; to show that you would require to have a gauge connected with the auxiliary reservoirs, and to be absolutely accurate you would need to have a gauge connected with each carriage; my answers in reply to Mr. Williamson this morning, in connection with the brake power, are given but approximately in a slight degree, but, if necessary, I could work them out accurately if I had time.

By Mr. Simpson (on behalf of the Westinghouse Brake Company).—*Question*: How long would it take for the gauge to show how much air there was in the auxiliary reservoirs.

Answer: The indicator would not show the driver at any time the amount of air he has in the auxiliary reservoirs absolutely; it shows absolutely how much he has in the main pipe, and it also would convey to the mind of the practical man who knew the principle of his brake at once how much pressure he had in the auxiliary reservoirs.

Question: If the indicator shows 75 lb. air pressure in the main pipe how much air would he expend in putting his brakes hard on.

Answer: He would expend about 15 lb., leaving 60 lb., and if the donkey were still working it would be making more air, and immediately he took his brakes off the air would find its way into the main pipe, and from there to the carriage reservoirs; up to 50 lb. air is more speedily compressed than in a large pressure; assuming he had 25 lb. in the auxiliary reservoirs it would take about fifty seconds to bring the pressure up to 50 lb., and 50 lb. of air would control and stop the train; the air is speedily compressed when the donkey is working and the brakes off; my evidence given goes to support Mr. Kirkcaldie's theory; the correctness or otherwise of the theory depends upon the completeness or incompleteness of the air connections; if they were incomplete the theory falls to the ground.

Question: Assuming that there was an experienced driver in charge of this train and that the gauge showed 90 lb. of air pressure, and that he had to ease his donkey engine in order to prevent the pipes bursting.

Can

Can you reconcile it with the action of a discreet and experienced man, who was on the road the day before once up and once down, to exhaust his air before he got to the foot of the incline, a distance of $3\frac{1}{2}$ miles. *Answer*: No.

W. H. WARREN.

Sworn and made before me at Sydney, }
this 13th July, 1887,—

HENRY SHIELL, J.P., Coroner.

Thomas Philip Latter, on oath, states:—

By the Coroner: I reside in the avenue off Thomas-street, Ashfield, and am a builder and contractor; I was a passenger by the excursion train which left Sydney for Peat's Ferry on 21st June last; I joined the train at Strathfield, and all proceeded well till we reached Ryde, where we remained for a few minutes, and then started on our journey; I did not feel the air-brake between Strathfield and Ryde; from Ryde we started to go up a steep incline, failed, and had to run back, and finally we ran on to Hornsby, the train having been stuck four times before reaching Hornsby; after leaving there we stuck up once, but I am not positive as to that, and after leaving Hornsby some distance we went on at a brisk pace, and we increased our speed, but I noticed nothing particular till we emerged from the first tunnel; our speed increased, and going round a sharp curve I was thrown from my seat by the oscillation of the train; the whistle was blowing then and kept blowing till the accident at Peat's Ferry; I was not conscious of the application of the brakes to the train after it left Hornsby; I was not aware that the train had run away till the accident took place; as we ran down the hill I was conscious that the speed was increasing; I was in the fourth carriage from the engine after the train was re-made, and I was never conscious of the application of the brake to that carriage.

THOMAS PHILIP LATTER.

Sworn and made before me at Sydney, }
this 13th July, 1887,—

HENRY SHIELL, J.P., Coroner.

Inquest adjourned till 10 o'clock in the forenoon of Thursday, the 14th day of July instant, at the Court-house, Darlinghurst, for the production of further evidence.

H.S., C.

Inquest resumed in pursuance of adjournment at 10 o'clock in the forenoon of Thursday, the 14th day of July instant, at the Court-house, Darlinghurst.

Sydney, 14th July, 1887.

H.S., C.

William Henry Warren, recalled, on oath, states:—

By Mr. Rogers (in the public interest): Since giving my evidence yesterday I find that the calculations then given on brake pressure on the wheels were incorrect; I have since made calculations, and I now hand in the amended results. [*Put in and marked exhibit "B."*]

W. H. WARREN.

Sworn and made before me at Sydney, }
this 14th July, 1887,—

HENRY SHIELL, J.P., Coroner.

INQUEST on William Henry Hankin.

Finding:—Died from the effects of injuries received through jumping or falling from a runaway train on 21 June, 1887.

HENRY SHIELL, J.P.,
City Coroner.

EXHIBIT A.

RETURN of Casualty to No. 176 Engine, with Special Pass. Train, from Hawkesbury to Sydney, on the 20th day of June, 1887.

Name of driver, Thomas Wilson. Fireman, John Pye.

Nature of Casualty: Heavy bank, and being tender first, and heavy load, I got into No. 3 tunnel, and I was not able to lift them, and after trying three or four times I got back into Hawkesbury, and they brought the other train on, and we was assisted up the bank.

Remarks (Time delayed, &c.): 2.25 minutes late into Sydney.

EXHIBIT B.

To calculate the required pressure on the wheels of rolling stock, I make use of the following formula based on Captain Galton's experiments:—

Let x = percentage of retarding force required to stop train on level.

y = the pressure on the wheels found by dividing x by the co-efficient of friction.

v = equal velocity in miles per hour.

d = the number of feet travelled before the train stops, in feet;

$$\text{then } x = \frac{3.34 \times v^2}{d}$$

$$y = \frac{x}{\frac{1}{6}} = 6x \text{ for 25 miles per hour.}$$

If $v = 25$ then $v^2 = 625$.

Let $d = 400$ yards = 1,200 feet.

$$y = \frac{3.34 \times 6.25 \times 6}{1,200} \times 10.38 \text{ per cent.}$$

For a gradient, 1 in 40, we require $\frac{6 \times 100}{40} = 15$ per cent. of pressure.

Therefore the total percentage of pressure on wheels on a gradient of 1 in 40 at 25 miles per hour to stop the train in 400 yards will be 25.38 per cent.

Hence to stop a train of 170 tons under the conditions above stated we require

$$\frac{170 \times 25.38}{100} = 43.146 \text{ tons pressure on wheels.}$$

To stop a carriage of 17 tons $10\frac{3}{4}$ cwt., under similar conditions, would require

$$\frac{17.57 \times 25.38}{100} = 4.45 \text{ tons}$$

To stop a carriage of 16 tons $10\frac{3}{4}$ cwt., under similar conditions, would require

$$\frac{16.57 \times 25.38}{100} = 4.2 \text{ tons}$$

To stop a carriage weighing 13 tons $8\frac{3}{4}$ cwt., under similar conditions we require

$$\frac{13.437 \times 25.38}{100} = 3.41 \text{ tons}$$

To stop an engine and tender weighing 59 tons $5\frac{1}{2}$ cwt., under similar conditions, would require

$$\frac{59.27 \times 25.38}{100} = 15.04 \text{ tons}$$

The following calculations are made for the same vehicles and engine at 40 miles per hour on a grade of 1 in 40, in order to find the brake force necessary to stop in 400 yards. In this case Captain Gaulton found the co-efficient of friction to be $\frac{1}{7}$ between blocks and wheels.

$$\therefore y \frac{3.34 \times 2,500 \times 7}{1,200} = 49 \text{ per cent.}$$

$$\text{Add for gradient} = 15 \text{ ,, ,,}$$

$$\text{Therefore total percentage of pressure} = 64 \text{ ,, ,,}$$

To calculate the pressure on the wheels of the train before mentioned on a grade of 1 in 40, so that the train would stop in 400 yards, we have to take 64 per cent. of the weight, which =

$$\frac{64 \times 170}{100} = 108.8 \text{ tons}$$

To stop a carriage weighing 17 tons $10\frac{3}{4}$ cwt., under similar conditions, would require

$$\frac{64 \times 17.57}{100} = 11.24 \text{ tons}$$

EXHIBIT

[*Extracts referred to in Evidence.*]

EXHIBIT .

INSTRUCTIONS TO DRIVERS.

The driver must ascertain, before starting, the number of vehicles on the train, and the number working with brakes or pipes only.

Drivers must always satisfy themselves that the brake coupling on their engine is properly connected to that on the train, and *that the cocks in the brake-pipes are open.*

INSTRUCTIONS TO GUARDS.

Before leaving the terminus, after adding to a train on the journey, or on another engine being attached, the guard must ascertain whether the couplings are connected and the cocks in the brake-pipe are all open throughout the train, by applying the brakes from his van, and seeing that *they are released from the engine.*

If the brake is not in use in the whole train, or if the van is not the last vehicle, the test must be made by opening the cock in the brake-pipe at the rear of the last vehicle connected.

When guards have occasion to apply the brake from their van they must open the tap and allow the air to escape until the train is brought to a stand-still, but they should only use the brake in cases of emergency.

Guards must, in all cases, screw the *hand-brakes clear off* before starting.

STATION-MASTERS AND OFFICERS-IN-CHARGE.

Station-masters to have control of Station staff.—To see that Rules and Regulations are complied with.

171. The Station-master shall have the control of all the servants of the Commissioner who are engaged in the conduct of the traffic or trains, to whatever department they may belong, while at his station; he is to see that they comply with the rules applicable to each, and *must satisfy himself that they have each a copy of these rules and regulations.*

Report to be made of waggons left behind.

173. Station-masters and officers-in-charge shall report to the inspector of the district, each day, the number of waggons not taken forward when required by trains stopping at their stations, and assign the reason.

Allotment of duty to servants.

177. The Station-master shall see that the various duties of the station are properly allotted to the servants of the Commissioner under his charge, where not specially assigned by these rules; and *that each man thoroughly understands his duty.*

Station-masters to observe that guards obey rules.

189. Station-masters are to take care that the guards, while at the stations, carry out all instructions laid down for their guidance, and they are to report any infringement of the regulations to the proper officer.

Station-masters at intermediate stations to examine couplings.

213. Station-masters at intermediate stations must observe the state of the couplings on the arrival of the trains, and cause any that require it to be adjusted.

Examination.

214. At stations where carriage-examiners are kept, the Station-master, or person in charge, must, before starting the train, satisfy himself that the examination of it has been completed, and that, so far as the carriage-examiner is concerned, the train is all right and fit to proceed.

At stations where examiners are not kept, steps must be taken to remedy any defect that may be observed in the running of the vehicles, by supplying oil or grease to the axle-boxes of any that may require it, or removing the defective vehicles from the train, as it may be found necessary.

Limit to the number of vehicles.

228. Station-masters are *particularly instructed to limit the number of vehicles* placed on the trains, as far as practicable, having regard to the probable wants of the journey, to prevent unnecessary haulage.

Examination of train by Officer-in-charge—Carriage doors to be secured.

238. Before starting a train, whether passenger or goods, and whenever vehicles are attached, as well as at each stage of the journey, the Station-master or officer-in-charge must see that it is in all respects properly arranged and coupled, and in a perfect state for running with safety. The moment before the train starts he should closely observe each carriage, to insure the doors on the platform side being properly fastened, and that the tail and side lamps are in their places; and the vehicles should be watched closely from the farthest point of the platform as the train moves out, with the view of discerning any defect.

Examination of couplings, breaks, &c., before starting.

368. *Before starting*, every guard must satisfy himself that the carriages or waggons are properly coupled, also the air-brake and electric connections attached, where such are provided, and in their appointed situations, so as to cause the least possible amount of shunting on the journey, that they are properly oiled, and that there are proper *brakes*, in good working order on the train. *He must also test his brake* by applying it, to insure its being in perfect working condition. Any *brake*, whether in van or truck, out of order, to be reported by him, and to be stated in his daily report.

Engine-drivers and guards not to depend on air-brakes.

369. Engine-driver and guards are not to depend entirely upon the action and power of the air-break where in use; but when approaching terminal stations or junctions must have their trains well under control, so that they can be brought to a stand-still with the hand-brakes, if necessary. They must also make themselves conversant with all the rules relating to the working of the air-brake issued from time to time.

Guard

Guard to travel in each brake—Recoil in stopping to be avoided.

379. The head guard will always travel in the *brake* at the rear of the train. He must keep a good look-out for all signals in front, and closely observe them, and occasionally look along the train on either side alternately, in order that he may observe any irregularity in the running or oscillation, or any signal that may be made by a passenger or by the under guard. In stopping at a station, the guards should work their *brake* so that any recoil may be avoided after the train has come to a stand.

To apply his brake when required.

381. Every guard must *constantly* be on the look-out, during the journey, for signals ahead; and if the driver gives *two or more sharp whistles* he must immediately apply his *brake* or *brakes*, if he has control of more than one, whether he sees a signal or not, or *whether or not he comprehends the driver's reasons for making the signal*; and if he should see a danger-signal ahead, or any obstruction, he must apply his *brakes*, whether he receives a signal whistle from the driver to do so or not.

To attach engine to carriages cautiously—Enginemmen to couple engine to train.

442. Great caution should be used in placing the engine against the train, which should be done without moving a single carriage, in order to guard against injury to any passenger who may be stepping into or out of a carriage at the time. Enginemmen will be held responsible for having their engine (and the Westinghouse brake and electric connections where such are provided) attached to the trains. The coupling and uncoupling of the engines to and from the trains, and also the coupling and uncoupling of air-break connections (where such are provided), while on the main line, *are to be the fireman's duty*, under the direction of the driver.

Engine-drivers and guards not to depend on air-brakes.

443. Engine drivers and guards are not to depend entirely upon the action and power of the air-brake where in use; but when approaching terminal stations or junctions must have their trains well under control, so that they can be brought to a stand still with the hand-brakes, if necessary. They must also make themselves conversant with all the rules relating to the working of the air-brake issued from time to time.

To examine sand-boxes.

505. The engine-driver, before starting with a train, must examine his sand-boxes, and take care that they are fully supplied with dry sand, and that the delivery pipe is clear. He must freely use the sand, if necessary, to increase the effect of the brake, and when necessary to check the slipping of the driving wheels.

Fireman to put down brakes when train is divided.

507. In case of a train being divided for want of engine-power, and there being only one guard with the train, the fireman must put down all the brakes *immediately* the train stops, while the guard goes back with the danger signal.

WORKING STEEP GRADIENTS—PASSENGER TRAINS.

Precautions to be taken before leaving Picton and Penrith.

514. Before ascending steep gradients, all couplings must be carefully examined to see that they are perfectly sound and properly screwed up, the threads being quite through the nuts, and also that the side chains are properly connected.

Passenger-engines without brakes.

515. No engine is to be used for passenger trains unless it has brakes on the driving wheels.

Brake-vans.

516. The heavy brake-vans to be used with all trains, unless special brakes are provided.

Brake-blocks, &c.

517. The guards must be careful that the brake blocks and all the working parts of the brake are in good order.

THE WESTINGHOUSE AUTOMATIC BRAKE.

Described and Illustrated.

General principle of its action.

COMPRESSED air is the power employed to work the brake.

The air, compressed by an air-pump on the engine into a main reservoir, flows through the driver's brake-valve into the main brake-pipe, which extends the whole length of the train, and fills on each carriage a small reservoir by means of the triple valve attached to it. Each triple valve is also connected to a brake cylinder. As soon as the pressure in the brake-pipe is lowered, the triple valve piston on each vehicle is moved down by the greater pressure above it stored in the small reservoir, which is then allowed to pass instantly into the cylinder, force out the piston and rod, and thus cause the blocks to press against the wheels.

The brakes are released by an increase of pressure in the main pipe, produced by allowing air to pass from the main reservoir along the train. This moves up the triple valves, recharges the small reservoirs, and at the same time allows the air which had forced out the pistons to escape into the atmosphere.

General description of the apparatus.

To make this description perfectly clear two plates are given.

Plate I shows the brake complete on an engine and tender.

Plate II is a diagram showing the operation of the brake, from the air-pump to the end of a vehicle. It is, of course, not exact nor to scale, but is intended simply to show the relation which each part bears to the whole.

The engine, tender, and every vehicle of a train, is fitted with the following parts, to be found on plates I and II:—

A triple-valve, F, by means of which the instantaneous automatic action is produced, in conjunction with

A small reservoir, G, in which is stored the compressed air for applying the brakes.

A brake-cylinder, H, with pistons and rods connected to

The brake levers and blocks.

Upon the engine is also placed:—

The steam engine and pump which produce the compressed air.

A main reservoir, C, for storing the air necessary for releasing the brakes and recharging the small reservoirs.

A driver's brake-valve, D, which regulates the flow of air from the main reservoir into the brake-pipe for charging the train and releasing the brakes, and from the brake-pipe to the atmosphere for applying the brakes.

A single line of pipe, E, called the brake-pipe, extends the whole length of the train.

Each van has a valve connected to the brake-pipe, and a gauge to indicate the pressure of air. By opening his valve a guard can stop the train, even against the will of the driver, if necessary.

OPERATION OF BRAKE.—(See plates I and II)—The pump being started by admitting steam to the cylinder A, air is forced from the cylinder B into the main reservoir C, which is connected to the driver's brake-valve D.

When a train is to be charged—the hose couplings between the carriages having been united and the engine connected to the train—the compressed air stored in the main reservoir is turned into the brake-pipe E, by putting the handle of the driver's brake-valve over to the left. It then fills the brake-pipe and flows through the branch-pipe on the tender, and each vehicle, as shown by the arrows on plate II to the triple-valve F, thence by the groove a, past the piston into small reservoir G, where it remains until the brake has to be applied. Uniform air-pressure then exists throughout the train, except in the brake-cylinders, the brakes being off, and the pressure per square inch is shown on the gauge L, connected to the brake-pipe.

So long as this pressure is maintained, the brakes are kept off, as the passage from each small reservoir to its cylinder remains closed; but letting the air escape from the brake-pipe, causes the triple-valves to move down and uncover the passages to the cylinders. The air stored in the small reservoirs then flows into the cylinders, and forces out the pistons and rods, thus applying the brakes. (See description of triple-valve, p. 19).

From the foregoing it will be seen, that the driver can, by turning the handle of his brake-valve, reduce the pressure in the brake-pipe, and thus apply all the brakes. If the brakes are to be applied moderately, a small reduction of pressure in the brake-pipe is made, as indicated in the description of the driver's brake-valve, p. 17.

The brakes are taken off by re-opening the passage from the main reservoir through the driver's valve, and thus restoring the pressure in the brake-pipe; this lifts the triple-valves, and places the cylinders in communication with the atmosphere by means of the exhaust cavity, c, in each of the valves; the air used in the cylinders is thus allowed to escape, and the brake-pistons and rods are pushed back to their places by springs inside the cylinders.

N.B.—As mentioned in the description of the driver's brake-valve on page 18, it is important to run with the handle of that valve in the 2nd or feed position. This is to ensure the prompt release of all the brakes by means of the 10 lb. extra pressure, which is thereby kept in the main reservoir.

SHUNTING.—An engine or carriage may be detached from a train without setting the brakes, by first closing the cocks in the main pipe and then separating the hose couplings in the ordinary way.

If it were not for the cocks in the main pipe the brakes would, in all cases, be applied when the hose-pipes are separated by hand for the purpose of shunting.

The cocks are open when the handle stands across or away from the pipe, and shut when the handle is up or alongside the pipe.

The application of the brake on detached portions of a train through ordinary leakage is provided for, as fully explained on page 22.

It is of the utmost importance to see that the brake couplings are properly united and that the cocks in the main pipe are opened so as to make sure that pressure exists throughout the whole train. This is only ensured by opening the valve in the last van for a second or two. If there is pressure the air will escape, and the brakes will be applied. If the connection is complete the brakes will almost immediately be released by the air from the main reservoir.

If the couplings are not united, or one or more cocks not opened, the brakes will remain on those carriages which are in the rear of the point where the couplings have not been put together, or cocks are left closed.

The pressure-gauge in the van should also be observed.

When carriages are disconnected from a train, the air-pressure is retained, as above explained; hence the indication of the air-gauge is never to be relied upon to establish the fact that the couplings have been properly united, or the cocks opened. The gauge is intended to indicate the pressure which is being maintained by the driver after the couplings throughout the train have been connected.

In case of the brake-work being damaged on any vehicle, a $\frac{1}{2}$ -inch stop-cock, I, is placed on the branch-pipe leading to the triple-valve, by means of which that particular vehicle may be shut off without affecting the brakes on the rest of the train. When this cock is open the handle lies straight along the branch-pipe, as shown in the drawing.

A release-valve, J, is fitted on each cylinder for the purpose of releasing the brake direct, if applied, when an engine is not attached. Wires should be connected to the handle so that the brake may be easily released from either side of the carriage. These valves must be held open until the air has escaped.

It should be clearly understood:—

1st. That it is the air stored in the small reservoirs which applies the brakes, while the air in the main reservoir releases them; and

2nd.

2nd, That the brakes are applied by a decrease of pressure in the brake-pipe, and taken off by restoring that pressure.

So that, whether by the driver or guard operating his brake-valve, the accidental separation of the train, the breaking of a pipe, or any other means by which the pressure in the brake-pipe is suddenly reduced below that in the small reservoirs, the brake will be put on, and will remain on. It is, therefore, automatic in its action, and is a "tell-tale" as to its own condition.

When coupling up to a train not charged with air, or to one having a less pressure than that on the engine, the brakes on the latter will fly on, the higher pressure flowing into the lower, having of course reduced the pressure in the tender brake-pipe. No inconvenience will result from this if the driver has been careful to come up to the train with a high enough pressure in his main reservoir, and he will at once take off the brake when he turns the handle of the brake-valve into the charging or "release" position. In any case, the release-valves from the brake-cylinders may be opened, and these should be so arranged as to be worked from the foot-plate.

Delays have sometimes arisen from connecting portions of trains carrying different pressures; and, to avoid detentions from this cause, drivers should be careful not to leave more than 50 lb. pressure in a train, when detaching at junctions or termini. The driver who intends to couple up at such places should, as already advised, carry a high pressure, say 80 lb., in the main reservoir, for the purpose of releasing any brakes which may happen to go on.

A high pressure, in the main reservoir only, may soon be obtained by placing the handle of the driver's valve in the neutral position; the train-pipe then being shut off, the pressure is increased only in the main reservoir.

If a driver finds the air-pressure in his train too high, he can readily reduce it by applying the brake with full power, and then releasing it.

It should be understood that, as the gauge L is connected to the brake-pipe, it can never show the pressure in the brake-cylinders. When the brake is on, the brake-pipe is shut off from both the reservoirs and cylinders, and the pressure then indicated on the gauge is that left in the brake-pipe only. The force, however, with which the brakes are applied, is in proportion to the reduction made on the gauge—that is, in the brake-pipe—to the extent of 25 lb. The brakes are then "full on," and letting out more air than this would only be waste. A reduction of 5 lb. on the gauge may put 10 lb. into the cylinders. In the same way, if the brake-pipe be suddenly emptied, the gauge registers nothing, but there will be plenty of pressure left in the reservoirs. The brakes cannot be released in the ordinary way without recharging the train.

The brakes should not be applied with full power except in an emergency, and in that case all the air should be discharged from the brake-pipe.

Drivers must exercise care and moderation in applying the brakes for ordinary stops, so as to bring their trains to rest without inconvenience to the passengers.

To ensure this, it is necessary that the brakes should be applied moderately in the first instance at a distance of several hundred yards from the station. Just before coming to a stand the brakes should be released so as to avoid any jerk.

To apply the brakes lightly not less than 5 lb. of air should be let out in the first instance. This is necessary to ensure the closing of all the leakage grooves, after which the brake-power can be increased by letting out $\frac{1}{2}$ lb. or more a time. The first reduction should be made more rapidly than results from ordinary leakage, and it is important to close the driver's valve gradually, so that the pressure does not begin to run up on the gauge again.

The same reduction of pressure per square inch is required for setting the brakes with equal force on long or short trains, but the quantity of air to be discharged from the brake-pipe to make this reduction will vary according to the length of the train. With long trains the driver's valve must be left open for a greater length of time, and must also be closed with greater care.

By violent use of the very great power now placed in their hands, it is possible for drivers to cause very unpleasant shocks, especially if the screw couplings between the carriages are not screwed tight.

Drivers should always bear in mind that much less force is required for a low than for a high speed, and that it is a bad practice to put the brakes on so hard that the wheels slide over the rails. Such sliding spoils the wheels by producing flat places, is less effective in stopping, and gives a most disagreeable sensation to the passengers.

Guards can apply the brakes by opening a valve in the van for that purpose, but they cannot release them.

Where "slip" vans are provided, however, there is a cock in the main pipe of each van which the guards must shut before "slipping," to prevent the brakes going on. These vans are provided with a main reservoir and a valve similar to the driver's brake-valve, so that the guard of the slipped portion may apply and release his brakes just as the driver does, for the purpose of stopping the carriages at the station platforms.

In case it should be necessary to empty the reservoirs on a detached portion of a train, this may be done by first letting all the air out of the brake-pipe, either through the guard's valve, or by opening the cock on the main pipe, and then opening the release-valve J on each cylinder. The air in the reservoirs will then escape through the cylinders to the atmosphere.

Brake Inspectors should pay special attention to the "taking up" of the brake-blocks uniformly throughout the train; that is, the brake pistons on each carriage should travel equal distances, so far as practicable. (See instructions, p. 27.) Much better stops can be made when this point is properly attended to, and drivers should always report when it requires to be done.

Description of the Principal Parts. Plate II.

AIR PUMP.

On Plate II is shown a section of the double acting air-pump, composed of the steam-cylinder and valves, A, and the air-cylinder and valves, B—the piston of each working together on one rod.

Steam from the boiler enters the chamber, c, and also chamber, d, in connection with it. The ports from c, to each end of the cylinder are opened for supply and exhaust by the movement of the main valve,

1. This valve consists of two pistons, 1¹, 1¹, on the same stem; and as the upper piston is of greater diameter than the lower, the tendency of the pressure in the chamber, C, is always to raise the valve, unless held down by the greater pressure of the larger piston, 2, which is supplied with steam from the chamber, D. In the position shown on the plate, steam is passing into the bottom of cylinder A and forcing the main piston, 3, upwards. As the main piston completes its upward stroke, the plate, 4, pushes up the rod, 5, working in the hollow piston-rod, and with it the slide valve, 6. This closes the passage, E, from chamber, D, to the piston, 2, and at the same time opens the exhaust passage F, to the atmosphere through G, which relieves the pressure on the top of the piston, 2. The steam in the chamber, C, then raises the main valve, 1, and enters the top of the cylinder above the main piston, 3, and at the same time the steam on the lower side is exhausted. On completing its downward stroke the main piston again draws the rod, 5, and slide valve, 6, to the position shown, thus reversing the position of the main valve, 1, and consequently the stroke of the main piston, 3.

No particular description of the bottom cylinder and valves, B, is required. Each upward stroke admits air below the piston, and discharges air from above the piston into the main reservoir, C; and each downward stroke does the reverse.

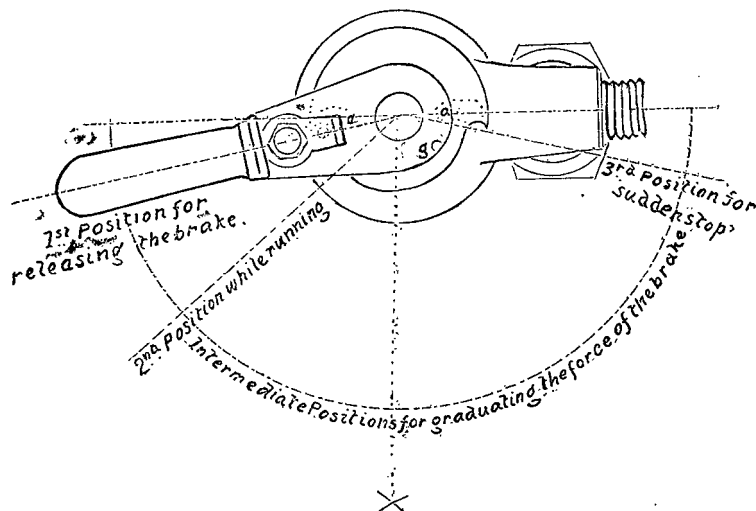
DRIVER'S BRAKE VALVE.

As shown on plate II, the driver's brake valve, D, forms the connection between the main reservoir and the brake pipe. A communication between them is made through the main valve, 1, and there is also communication between the brake pipe and the atmosphere at M, through the discharge valve, 2.

There are three principal positions of the handle for working the brake. (See plan and diagram below):—

- 1st. For charging the train, and releasing the brakes.
- 2nd. For "feeding" while the train is running.
- 3rd. For applying the brakes.

Plan of main valve and positions of handle.



In the first position, a free communication is formed through the large ports, A, A, in the valve 1, from the main reservoir to the brake pipe; but

In the 2nd position the air must pass through the small valve, 3, and the whole, G, before it reaches the brake pipe.

This valve, 3, is held on its seat by a spiral spring of a strength corresponding to 10 lbs. per square inch, so that when feeding in this 2nd position, the pressure in the brake pipe is 10 lb. less than that in the main reservoir. This extra pressure is utilized when releasing the brakes.

A little further to the right the position is neutral. There is then no communication between the main reservoir and the brake pipe; neither can air flow from the brake pipe to the atmosphere; turning the handle, however, further to the right, has the effect of taking weight off the valve, 2, which is then lifted by the pressure in the brake pipe, and some of the air escapes from it into the atmosphere at M.

This escape of air applies the brakes with a force corresponding to the reduction of pressure shown by the brake pipe gauge L, connected to the branch, h.

In the 3rd position, all the weight is taken off the discharge valve, 2, thus allowing air to escape rapidly, which applies the brakes with full force.

In the first position of the handle there is a leak through the hole, C, to remind the driver, after releasing the brakes, to bring the handle to the 2nd position, where it must remain whilst the train is running.

Operation.—To apply the brakes in ordinary stops, the brake valve should be opened gently until the desired reduction of pressure is observed on the gauge, after which the handle should be moved back gently to prevent further escape of air.

If the driver's brake valve is operated in a rough way, serious inconvenience is caused to the passengers; and it may even result in the rupture of the screw couplings.

To prevent the jerk which is often experienced with all kinds of brakes at the moment when the train comes to rest, it is sufficient for the driver to release the brakes at the last revolution of the wheels in order to give the carriages time to assume their normal position. When doing so the hand-brake on the tender may be put on to advantage, so as to hold the train at the platform.

TRIPLE VALVE.

The triple valve F, plate II, is simply a small piston, 1, carrying with it a slide-valve, 2, which can be moved up or down by increasing or decreasing the pressure in the brake-pipe.

As soon as the air from the main reservoir is turned into the brake-pipe (by means of the driver's valve), the piston, 1, is pushed up into the position shown, and air is allowed to feed past it through a small groove, A, into the reservoir, G. At the same time the slide-valve, 2, covers the port, B, to the brake cylinder, and is in such a position that the air from the latter may exhaust into the atmosphere through C.

The piston, 1, has now the same air pressure on both sides, but if the pressure in the brake-pipe is decreased, the piston and slide-valve are forced down, thereby uncovering the passage, b, through which air from the reservoir, G, flows into the brake cylinder, H, between the pistons, P, thus applying the brakes. The brake-pipe is shut off as soon as the triple-valve piston, 1, passes the groove, A.

To release the brakes, the piston and slide valve are again moved into the position shown, by the driver turning air from the main reservoir into the brake pipe. The air in the brake cylinder escapes through C, and at the same time the reservoir is recharged.

To release with more certainty the driver must be careful to maintain extra pressure in the main reservoir, by keeping the handle of his brake valve in the second or "feed" position, while the train is running.

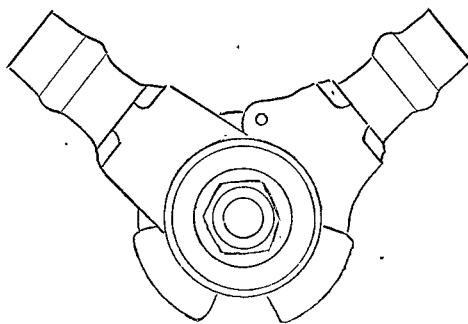
COUPLING.

The couplings K, plate II, are exactly alike, and an air-tight joint is formed between them by means of the rubber packing ring in each, which being forced together by the air pressure behind them, the joint thus becomes tighter by increase of pressure.

These couplings are united by simply placing them face to face nearly at right angles, the stop pins being on the under side, as represented below, so that the projection of the one fits the corresponding groove of the other, and then turning the coupling straight into the position shown on plate II.

No damage is done to the couplings if drawn apart forcibly by the separation of the train, as the rubber rings are forced into their respective couplings far enough to permit the projections to disengage from their grooves, and the brakes will then go full on.

Position of couplings before they can be connected.



BRAKE CYLINDER.

The figure H, plate II, represents the standard form of brake cylinder for a carriage. It contains two pistons, which are held in the position shown by the spiral springs within. When air is admitted, the two pistons are thrust outwards with equal force, and the brakes go on. When the air is allowed to exhaust, the springs expanding, push back the pistons, and release the brakes.

A leakage groove is provided to prevent the brakes from being applied when the air flows slowly from the triple valve to the cylinder as a result of a leak in the brake pipe. This groove permits air to pass the piston P, unless it is admitted suddenly, in which case the piston moves past the groove. For this reason drivers should never discharge less than 5 lbs. air pressure to apply the brake.

The following concise instructions are based upon what has been fully explained in the preceding pages. It is hoped that Drivers, Guards, and Inspectors will all take a pride in carrying them out to the best of their power.

INSTRUCTIONS.

DRIVERS must see—(1) That the top, or steam cylinder is kept well lubricated; (2) That the air-cylinder is sparingly lubricated with a small quantity of refined petroleum—other oils or tallow must not be used in the air-cylinder; (3) That the pump shall be constantly run, but never faster than is necessary to maintain the required air-pressure; and (4) that air from 50 to 60 lb. pressure for stopping trains, and from 70 to 80 lb. pressure for express trains, is carried.

For ordinary stops the brake should be applied lightly, by turning the handle of the driver's valve to the right, and gently closing it again, after a reduction of pressure in the brake-pipe of not less than 5 lb., nor more than 8 lb. has been made. If the pressure runs up on the gauge when the handle is brought back, it shows that the valve has been shut too quickly.

In ordinary working the brakes are fully applied when the pressure shown on the gauge is reduced 25 lb. Any further reduction is waste of air. In case of emergency, however, the handle must be turned so as to let all the air in the brake-pipe escape.

Long trains require more careful handling than short trains, and a greater quantity of air must be discharged from the brake-pipe to make the same reduction per square inch on the gauge.

In releasing the brakes the handle must be moved quite against the stop to the left and kept there for about ten seconds, and then moved back against the intermediate stop, which is the Feed position, and where it must remain whilst the train is running.

Drivers

Drivers must always satisfy themselves that the brake-coupling on their engine is properly connected to that on the train, and that the cocks in the brake-pipe are open.

Drivers, upon feeling that the brakes have been applied by the guard, or automatically, must at once aid in stopping the train by turning the handle of the brake-valve towards the right, thus preventing escape of air from the main reservoir.

The blocks of the driving-wheel brake should be so adjusted by turning the screw, that the pistons travel from 3 to 4 inches.

Drivers must be careful to drain the water out of the main reservoir once a week, especially in winter-time.

If vehicles having different air pressures be coupled together, the brakes will apply themselves on those which have the highest pressure. To ensure the certain release of all the brakes in the train, and also that trains may be charged quickly, the driver must carry the maximum pressure in the main reservoir before connecting to a train; and then put the handle of his brake-valve in the release position until the train is charged with air. If the brakes on the engine and tender thus apply themselves by being coupled to a train not charged, they should at once be taken off by opening the release valves from the brake cylinders, which ought to be so arranged as to be worked from the foot-plate.

After connecting the engine to the train, or after new vehicles have been added, the pipes and reservoirs are to be charged as quickly as possible. The brakes should then be applied with full force by the driver, who should not start away until the inspector or guard has signalled that the brakes are acting on all the vehicles.

GUARDS.—Before leaving the terminus, after adding to a train on the journey, or on another engine being attached, the rear guard shall ascertain whether the couplings are connected, and the cocks in the brake-pipe are all open throughout the train, by applying the brakes from his van and seeing that they are released from the engine. If the brake is not in use on the whole train, or if the van is not the last vehicle, the test should be made by opening the cock in the brake-pipe of the last vehicle connected.

Guards, when they have occasion to apply the brake from their van, must open the tap and allow the air to escape until the train is brought to a standstill, but they should only use the brake in cases of emergency.

Guards must in all cases screw the hand-brakes clear off before starting.

GENERAL.—Before detaching the engine or any carriages the brakes must be fully released on the whole train. Neglecting this precaution, or setting the brakes by opening a valve or tap when the engine is away, may cause serious inconvenience in shunting. The pipes and joints must be kept tight, and when leaks are discovered they should be corrected, if serious, before the vehicle is again used.

The brake-pipe has a tap at each end of every vehicle, all of which must be open when the hose couplings are united, except the one at the rear of the train. These taps must always be opened after connecting the hose couplings, and always closed before separating them.

If the brakes are applied by the separation of the train, or the breaking of a pipe, they can be released by opening the small release valves in the brake cylinder or pipes leading thereto. If the brakes are applied after the engine has been disconnected, they can be released as above, or by again connecting to the engine.

The brake of any vehicle can be put out of operation, without affecting the others, by closing the tap under that vehicle between the brake-pipe and triple valve.

INSPECTORS should see—(1.) That the brake connections are perfect and properly adjusted for the wear of the blocks and wheels by being uniformly taken up. The pistons of double piston cylinders should each travel not less than 2, nor more than 4 inches. Those of single piston cylinders should not travel less than 4, nor more than 8 inches. (2.) That the brake cylinders are perfect and lubricated, at least every three months, with mineral oil. (3.) That the hose couplings are united, and the cocks in the pipes are open; that is, the handles must stand across or away from the pipe, except the one at the end of the train, which must lie along the pipe in the shut-off position. (4.) That the joints are all air tight.

No. 7.

Memo. by Secretary to Commissioner for Railways.

Observations on the Verdict of the Coroner's Jury—Coroner's Inquiry—Peat's Ferry Railway Accident.

Verdict.

1st. We find that William Henry Hankin's death was caused from injuries received by jumping or falling from a runaway train on the 21st June, 1887, while passing Peat's Ferry Station, fearing danger of collision or accident, knowing the train was completely beyond control of the driver.

2nd. We attribute the accident to the great want of supervision on the part of the officials in the Railway Department in not carrying out the instructions laid down for their guidance, thereby endangering the safety of the railway travelling public. We consider the driver did all in his power to control the excessive speed of the train.

(a.) That the accident was brought about by "want of supervision on the part of the officials" is not only disputed, but is not borne out by the evidence. The only instruction admitted by the guard to have been overlooked was that which required a formal test of the air-brakes to be made before the train left Hornsby. This will be more fully dealt with in reply to the fifth finding of the jury.

(b.) It is not disputed that the driver did all that occurred to him to check the speed of the train when he found it getting beyond his control, but that he did all which was within "his power" is open to grave doubts.

According to the evidence of fireman Pye (see page 66, marked 1), the speed of the train when it ran over the top of the hill which descends to Peat's Ferry (but about 6½ miles distant from there) was about 12 miles an hour, and apart from the air-brake altogether, no difficulty ought to have been experienced in keeping it under control from that point.

The

The whole of the evidence goes to show that it was under proper control till it got between the first and second tunnels, about 3 miles from the top of the hill and $3\frac{1}{2}$ from Peat's Ferry; and according to fireman Pye (see page 66, marked 2), it was immediately after passing through the second tunnel, 3 miles from Peat's Ferry, that the driver opened his valve, "which would have the effect of putting the air 'full on,' but it did not diminish the speed—it increased," and there is no evidence that it was ever shut again; it was found open after the engine had fallen into the river (see evidence of H. G. Perkins, page 62, marked 3).

At this point Brennan (p. 15) says the train was travelling at rate of 35 to 40 miles p. hour.—J.M.

If the driver had had the presence of mind when he told the fireman that "she has got away from us" to keep his hand-brake hard on and shut his air-brake valve for not more than 50 to 60 seconds, so as to admit of the reservoir under the carriages being recharged (which was impossible so long as his valve was open), he would have allowed such a pressure of air to get into those reservoirs in that short space of time as would have enabled him, even in the last mile, to have stopped his train without difficulty.

Assuming that the train travelled from the Hawkesbury end of the second tunnel (where, according to the evidence of the fireman, the driver recognized that the train was beyond his control) at the very high speed of 60 miles an hour, which is in the highest degree improbable, the distance must have occupied three minutes, one-third of which would have been sufficient to recharge the carriage reservoirs, and the remainder would have been more than ample to stop the train.

The risk of accident could not have been increased by the adoption of the course described, for if, as is not disputed, the air-brakes were not, for some reason or other, acting upon the carriages, the hand-brakes on the engine and tender would have exercised the same amount of retarding power as the air-brakes upon the latter and the hand-brake upon the former, while an undeniable opportunity would have been afforded the driver of recharging the carriage reservoirs (and so enable him to apply the brakes on them), assuming the connections to have been complete and the taps open—in reference to which see the replies to the sixth finding of the jury.

3rd. We are of opinion that the engine was not sufficiently powerful to take that train safely to its destination.

While it is admitted that the engine had not sufficient tractive power to take the train to its destination without loss of time on the journey, there is no evidence (except that of fireman Pye—page 82, marked 4—wherein he says, "If the engine had been stronger and able to take the train to its journey's end without disconnecting I do not think the accident would have occurred, &c., &c."), nor is it possible to demonstrate that the insufficiency of tractive power contributed in any way to the accident, which was caused by a failure of the brake power on the train; indeed, in reply to Dr. Sly, Pye said (page 82, marked 5)—"Assuming that all the air connections were complete, the weight of the engine would have nothing whatever to do with the accident."

On this point see the evidence of driver William Hulme (page 64, marked 6), wherein he says, that if the Westinghouse brake was working properly "she could have taken twenty carriages as well as nine, &c."

Precisely similar evidence is given by driver William Frame (page 68). Professor Warren says (page 85, marked 7)—"Assuming there was sufficient in proportion to the weight of the train of brake power on the carriages and engine, the train would be easier controlled with a light engine than by a heavy one."

It is a matter for regret, as far as the tractive power of the engine was concerned, that the driver did not represent, either before leaving Sydney or during the journey, before starting from Ryde or Hornsby, that the weight of his train was greater than his engine could haul, because if he had done so at Sydney he would have got the assistance of a second engine in the usual course, or even if he had done so at Ryde or Hornsby one or more of the carriages would have been taken off. On this point see the evidence of driver Frederick Sheehan (page 22).

4th. We are further of opinion that the train was not properly inspected before leaving Sydney.

The only evidence in support of this finding will be found in the evidence of examiner Werrick, who says (see page 53, marked 8)—"I did not inspect the whole of the train, simply because I had not sufficient time, and I am not therefore in a position to say that the whole of the brake power of that train was in proper working order on that morning." * * * * *

"The two carriages next the engine had brake-blocks on them; I did not examine them, but I saw the blocks as the carriages were being shunted down, &c." Still, on the same page (mark), he says—"I said, 'Driver, try your air,' and he did so, and I saw that the air pressure was complete throughout the whole nine vehicles of the train; that was immediately before the train started, and I saw it start."

Then on page 54, marked 9, he adds—"I did not examine the two carriages next the engine on this train, but I know they must have been connected, or the carriage at the end of the train (the rear carriage) would not have released, &c." Hence there is indisputable proof that the air was working when the train left Sydney from the engine to the last vehicle on the train.

On this point also refer to the evidence of Jacob Derham (page 52), and of John M'Carthy (page 80).

Guard Clissold says (page 73, marked 10) that "at Beecroft, before the train was divided, I am certain the Westinghouse brake was acting on the last car."

George Gayleard (page 68) gives corroborative evidence.

5th. We are likewise of opinion that the train was not properly inspected leaving Hornsby.

The formal test prescribed by the rules—that the brakes throughout the train should be applied by means of the guard opening the rear main-pipe tap and so allowing the air to escape, and the subsequent release of those brakes by the driver from the engine—was not, according to the admission of the guard, carried out: in that respect both guard and driver were somewhat to blame, the latter rather more than the former, since the greater responsibility of controlling a train rests with a driver.

Still, although the formal test was not made, it will be seen, on reference to guard Clissold's evidence (pages 56 and 58), that when he recoupled the two divisions of the train at Hornsby he heard the air pass through, and that of itself conveyed positive proof that at that time there was an uninterrupted passage for the air between the engine and the third vehicle, at all events.

On this point the guard is corroborated by William Rice (page 68, marked 11), who says he saw the guard couple up the second to the third vehicle at Hornsby, and thought he heard the air "whizzing through" when the taps were turned. The officer in charge—Stead (page 59)—says he examined the seven carriages while they stood at Hornsby; and when the two vehicles (the 8th and 9th) were recoupled to them he called out to the guard to be sure to turn the taps. The guard admits this, and William Rice overheard it.

In

NOTE.—The engine was not attached to the train until all the nine vehicles were coupled together, so that, until the engine was attached, none of the brakes on any of the vehicles could be taken off.

In every other respect there is nothing in the evidence to support the finding that the train was not "properly inspected" before leaving Hornsby.

6th. We are of opinion the air-couplings and taps on leaving Hornsby were not complete.

Beyond the opinion of Mr. Shellshear, that the tap on the rear end of the first carriage, which was found to be shut on the day after the accident, had been closed prior to the collision, there is absolutely no evidence to support the finding of the jury; on the contrary, the whole of the evidence is opposed to it.

Mr. Shellshear said in reply to—

The Coroner: "That this tap was in such a position as to prevent the air from passing through it."
* * * * * That, "from the reasons I have given, I am of opinion that the tap was turned off before the collision."

In reply to Mr. Rogers: "That it is possible for the tap to be turned in the telescoping, but from its appearance I don't think it at all probable."

In reply to Dr. Sly: "That the handle would not necessarily be turned during the telescoping: don't think so, as the Redfern carriage had considerably over-ridden the American car."

In reply to Mr. Williamson: "That it is my opinion the tap was not turned on, and that was the cause of the accident."

That is the whole of the evidence to support the assertion of the jury that the air couplings and taps on leaving Hornsby were not complete. On the other hand, there is voluminous evidence against such a finding.

Mr. Shellshear admitted in reply to Mr. Rogers that "the tap was turned the reverse way to what is usual."

In reply to Mr. Williamson that "all the others (taps) that I saw were in their proper position"? Only this one.

In support of the assertion that this tap must have been open when the train left Hornsby there is the evidence of Jacob Derham, Andrew Werrick, and John M'Carthy (see the replies to the fourth finding of the jury) to show that the air was applied to the last vehicle before leaving Sydney, which shows conclusively that all connections were then complete, and all the taps (except the very last one, which was properly shut) open, while there is absolutely no evidence whatever that any person went between those vehicles on the journey, as must have been done in order to shut a tap; indeed, in reply to the Coroner (page 73, marked 10.) Guard Clissold says, that "from the time the train left Sydney till the time the accident occurred I never touched that tap, nor had I occasion to go near it. At Beecroft, before the train was divided, I am certain the Westinghouse brake was acting on the last car." On page 56, marked 13, he says, "when the engine came back for the two carriages I coupled them and turned the taps on between the Redfern car and the engine." On page 69, marked 12, William Rice says, "I swear that the brakes were on one and two carriages—the carriages that were left behind."

(Rice remained behind at Beecroft until the engine returned from Hornsby for the two carriages.)

On page 68, marked 14, George Gayleard says, "I remember the engine coming to Thornleigh with seven carriages. I went on with that train to Hornsby, where the seven carriages were left, and the engine went back to Beecroft. I went there with it and came back to Thornleigh. I know nothing about the coupling of the train at Beecroft. I noticed at Beecroft that the brakes were hard on to the two carriages, and that there was a sprag in the wheels of one carriage.

On page 83, marked 15, fireman John Pyc says, "when we stopped at Beecroft, the driver put the air-brake on before separating the train."

Here is the strongest possible evidence that the air-brakes were fully applied to these two carriages while they stood at Beecroft, and it is therefore conclusive that there was not a shut tap between them.

At Hornsby, while the seven carriages were in the siding, there is the evidence of George Stead, (pages 58 and 59, marked 16), to the following effect: "I left the brakes on the carriages that had blocks on when they were on the loop line. I then went and got a sprag and put it in the wheels of one carriage, first having tapped one of the blocks to see if it was acting, and found it was, &c."

He also says (page 59, marked 17), "When I returned from handing the staff to the driver I said to him (the guard), 'Clissold, don't forget the tap,' and with that I saw him put his hand up on the car and turn the tap down, and put his hand on to the other carriage on to the pipe."

William Rice says (page 68, marked 11), "I saw Clissold turn two of the air-taps, and I thought I heard the air whizzing through when he turned them. The brakes were off when the train left."

Guard Clissold says (page 56, marked 13), "When we got to Hornsby, I coupled the two carriages on to the seven, and I turned the cocks on; I heard the air go through when I turned the cocks, but only very faint." And again, "I am positive when the train was coupled up again at Hornsby that I made the connections complete so as to let the air pass through to the seven carriages behind."

Here again, it is submitted, that the brakes which were on those carriages standing at Hornsby which had blocks—the Redfern carriage and American car—were released by the driver from the engine, otherwise he could not have started the train. The evidence of Rice and Clissold that they heard the air pass through the pipe when the connections were made good readily explains how the brakes were released; and unless that of Stead, Rice, and Clissold is to be entirely disregarded, no other conclusion can be come to than that the connections were complete, and the taps all open from the engine to the rear vehicle, fitted with a tap when the train was recoupled at Hornsby.

After leaving Hornsby, Mr. John Barrie, a passenger, who was then in the second carriage from the engine, says (page 77, marked 18), "On beginning to descend (the incline towards Peat's Ferry) I did not observe anything with regard to brakes, but about No. 2 tunnel I felt a shaking apparently coming from the engine; at this time I was not aware but that the train was under perfect control; I noticed nothing further until we were approaching No. 3 tunnel, when I noticed that the driver had lost control of the train, and it seemed to me as if the hand-brake was applied to the carriage I was in; I came to that conclusion because the brake appeared to be applied gradually, and not spasmodically."

This quite agrees with the evidence of guard Clissold, who says (page 55, marked 19), "All went on right till we got through No. 1 tunnel, and between there and No. 2 tunnel I found the speed of the train increasing slightly; I then applied my hand-brake, &c. * * * * * When we got between Nos. 1 and 2 tunnels, and when the train was gaining speed, I could not feel the air-brake on the train; I believe it was on, but it was only on very slightly."

Mr.

Mr. William Thomas Dodds, another passenger, who was in No. 4 carriage from the engine after leaving Hornsby, says (page 82, marked 20) that the brake was never applied to that carriage from the time he saw steam shut off at the first tunnel till the accident took place. On the same page, in reply to Dr. Sly, he said: "After leaving Hornsby, and before entering No. 1 tunnel, I did not notice, either one way or another, whether the brakes were applied to the carriage I was in."

Fireman John Pye says (page 66, marked 21): "I saw him (the driver) shut off steam; that was just as we commenced the descent (the descent is about 3 miles before the first tunnel, where Mr. Dodds says he 'saw the steam shut off.')

Mr. Thomas Phillip Latter, another passenger, who was in the fourth carriage from the engine after the train left Hornsby, says (page 86, marked 22): "I was never conscious of the application of the brake to that carriage."

Mr. Jacob Garrard, M.P., who was a passenger in the second vehicle from the engine (the same one as Mr. Barrie was in) after leaving Hornsby (and therefore in the rear of the carriage on which the tap was afterwards found to be shut), is very positive (page 72, marked 23) that he felt the action of the Westinghouse brake on that carriage while the train was descending the incline towards Peat's Ferry. The commencement of the descent is about 7½ miles beyond Hornsby.

William Hulme states (page 64, marked 24), that on reaching the train after the accident, he saw the brake-blocks on the third and fourth vehicles from the engine hanging loose, and the tyres of the vehicles as cold as they could be, by running without the brakes being applied to them. He could not see the taps next the engine, but all the other taps were open so as to allow the air to pass through the pipes to all the carriages connected with the Westinghouse air-brakes. Again, in reply to Mr. Rodgers, he says, "So far as I could see, the air connection seemed to me to be all right, although the brake was not working."

William Frame (page 68) gives similar evidence.

Mr. E. A. Laughry (page 74) and Mr. D. Kirkcaldie (page 77), who examined the train about four hours after the accident, give corroborative evidence. The latter two witnesses examined the two wrecked carriages (those which had been next the engine) on the day after the accident, and their evidence is strongly in favour of the tap on the first carriage having been closed by the accident when the vehicles telescoped, and in that respect differs from Mr. Shellshear's.

Hugh Rohen's evidence (page 63) to the effect that he walked through between the second and third vehicles from the engine about 5 o'clock on the afternoon of the accident, and found that the couplings between those vehicles were not attached, that they were not broken, and that there was no air connection between those carriages, is uncorroborated, while it is positively rebutted by Mr. E. A. Laughry (page 74), Mr. D. Kirkcaldie (page 78), and Richard Milton (page 79).

7th. We are of opinion that the brake-power on that train was not sufficient.

No evidence will be found to support the finding that the brake-power on the train was not sufficient.

Mr. F. C. Johnson (page 51, marked 25) says: "I consider there was sufficient brake-power on 3 and 9 carriages, &c."

Driver William Hulme (page 65, marked 26) says: "Supposing the brake-blocks were not working on No. 3 car, but were working on the other four carriages with brake-blocks on and the engine, it would be sufficient to control the train. I am of opinion that there was sufficient hand-brake power on this train to control it if it had been taken in time * * * I think they had been depending on the Westinghouse brake-power, and the train had got away from them before the hand-brakes were applied."

Driver William Frame (page 69, marked 27) says: "If the Westinghouse brake had been working in the four carriages of this train properly I could have kept it under control."

Driver Frederick Sheehan (page 70, marked 28) says: "I consider that this train could have gone with safety down to Peat's Ferry had five out of the nine carriages had brake-blocks on, if properly connected. I do not consider it would have been safe with four."

NOTE.—The four carriages with brake-blocks were equal to nine ordinary-sized vehicles, and weighed 64 tons 1 cwt. 2 qr., and the five without blocks, which were only equal to one each, weighed 26 tons 16 cwt.

Mr. W. Shellshear (page 71, marked 29) says: "If about 60 per cent. of the brake-power was applied to the wheels of a train descending an incline of 1 in 40 I am of opinion it would be sufficient to control the train." Doubtless what is meant is 60 per cent. of the gross weight of the train. On the train which met with the accident there was 84 per cent. under brake-power.

Mr. E. A. Laughry (page 74, marked 30) says: "In my opinion the brake-power was sufficient to control the train, and more than sufficient; the minimum of brake force to control this train would have been 21 tons on a grade of 1 in 40; the amount of brake force on this train was 65 tons; the hand-brake force on the engine and tender amounted to 28 tons, and including one hand-brake on an American car, would raise the hand-brake force to 38 tons."

On page 75, marked 31, this evidence was repeated to Mr. Rogers, and Mr. Laughry added;—"The only way I can account for the hand-brake power not being able to stop this train is that it (the train) had been allowed to attain too great a momentum before they were applied."

	Tons.	cwt.
The train weighed, including the engine and tender	150	3
Passengers—say	20	0
Total	170	3

Professor Warren (page 137, marked 32) says that to stop a train running at the rate of 25 miles per hour in 400 yards on a descending grade of 1 in 40, 43·146 tons of brake pressure on the wheels would be necessary.

NOTE.—If it be granted that the air-connections were complete and the taps open when the train left Hornsby, no other conclusion can possibly be arrived at but that the air was exhausted, or so much exhausted as to be practically inoperative, from the carriage reservoirs between the top of the hill and the second tunnel. According to the evidence of Mr. Kirkcaldie (page 79), which was based upon that of fireman Pye (page 66), to the effect that the train topped the hill at about 12 miles an hour, and that of Richard Brennan (page 63), that it passed the tanks, beyond the second tunnel, at 35 or 40 miles an hour,

hour, it would take about ten minutes to run from the top of the hill to the tanks, while on pages 77 and 78 it is given in evidence that with the donkey working at full speed the air-pressure in the carriage reservoirs may be injudiciously reduced so as to be practically inoperative in less time than that.

Fireman Pye says (page 67) that the pressure in the air-gauge before the train got to the descent was about 90lb., and he then saw the driver ease the steam to the donkey to avoid increasing that pressure; but there is no evidence to show that during the descent the steam was put fully on again, and if it was not the exhaust must have been very much greater than the supply.

D.V.

No. 8.

Extract from *Daily Telegraph*, with marginal notes by Commissioner for Railways.

THE PEAT'S FERRY RAILWAY ACCIDENT—A REVIEW OF THE EVIDENCE—IN WHAT PARTICULARS THE TWO TRIBUNALS DISAGREED—WHICH THEORY HAS THE GREATER SUPPORT?

1. Two distinct tribunals have arrived at two distinct verdicts as to the cause of the Hawkesbury railway disaster. Both make an exhaustive inquiry; listen in a large degree to the same evidence, given by the same witnesses; both make personal examinations; yet on a matter in which the safety of the railway-travelling public is very seriously concerned the public themselves have to decide between two opposite conclusions. Two causes have been assigned for the accident. According to the Railway Board of skilled officers, it was brought about by the unskilful use of the Westinghouse brake by the driver Wilson; on the other hand, twelve certainly disinterested witnesses have decided that the driver did all in his power to control the brake.

2. The Board have affirmed that the train was furnished with ample brake power; the coroner's jury say it was not.

3. The Board, in their report, express their opinion that the brake appliances were in proper working order at Sydney and Hornsby. The jurors declare that they were not properly examined at Sydney, and not examined at all at Hornsby, and the air-couplings being incomplete, the accident followed.

4. In one thing only both agree—that the engine was overloaded.

In reflecting over these decisions the public will be inclined to wonder whether a third tribunal would have found a third cause. Placed on the horns of a dilemma, it would be well to carefully analyse the whole evidence to ascertain, if possible, which theory has the greater support.

5. It is well to remember the changes which were made in the composition of this train—that before leaving Redfern the train was detained a few minutes beyond the appointed time to allow two additional carriages to be put on, which carriages were then next to the locomotive; that at Beecroft the train was divided to allow the engine to ascend to Hornsby, and that in leaving that station the two carriages—a first-class of the Redfern type and a long American car which had formerly been the last carriages of the train—were then respectively the first and second carriages behind the engine.

6. On the condition and position of these two carriages much depends. On the morning after the accident the air-brake connection between these two carriages was closed—that is, the tap at the rear of the first carriage behind the engine was shut. If it were in that state before the accident, then undoubtedly the air-brake could only be applied to the tender and that carriage. The question then arises—Was it closed by the collision? The jury have, though not affirmed, left it to be understood that it was not; the Railway Board have declared that it was.

7. Official examinations of the wrecked train were made on the day of the accident, but this particular part of the train could not be reached. On the following morning the *débris* had been cleared away, and the tap was first found by Mr. Walter Shellshear, the central district engineer, in the presence of the engineering superintendent, Mr. Robert Scott. They say they had found the other air-connections complete, as also had the assistant traffic manager (Mr. Kirkcaldie), the travelling inspector (Mr. Laughry), and several others. Mr. Shellshear is an able engineer, who has occupied the position of president of the New South Wales Engineering Association. After a careful inspection he came to the conclusion that the tap had not been turned by the accident.

1. What is the effect of the evidence given before both the Departmental Board and the coroner's jury? The evidence is the same in both instances, although that given before the coroner is more amplified.

2. It is demonstrated beyond all question that the brake power, if used, or usable, was sufficient.

3. The whole evidence must be discredited to establish the theory that the air-couplings were incomplete.

4. Yes. The engine was asked to do more than the tractive power it possessed warranted; but still it is quite possible that a more competent and careful driver would have managed to get over the difficulty without dividing the train.

5. This is correctly stated.

6. The whole of the evidence points irresistibly to the conclusion that it was shut by the collision.

7. Mr. Shellshear's duties appertain to the permanent way, and not to the vehicles. He is not an authority upon the action of the Westinghouse brake. His theory, he said, would be supported by two circumstances—by the circumstance that the wheels of the leading carriage were hot while the remainder were cold; and by an examination of the wheels of the leading carriage, which would show marks of skidding. The authority he referred to said the wheels were cold, and an examination of the wheels of the carriage established that there were no marks of skidding. (See evidence given before the Departmental Board.)

8.

8. It was not turned in the usual way, but we believe it is optional how these taps are turned; the hose-pipe near it was not in any way injured, nor did the tap itself present any evidence that it had been struck with any force; being underneath the floor of the carriage it was protected, and the wood and iron work in its immediate vicinity showed no effects of violence.

9. On the other hand, Mr. Laughry and Mr. Kirkcaldie both affirm it as their opinion that the tap was closed by the force of the collision. Mr. Laughry points out that the floor of the American car had skidded under the next carriage a distance of 20 feet, and this might have had the effect of closing the tap; that the force of the collision had telescoped these two carriages; that the *débris* had been thrown in all directions; and that a slight blow would be sufficient to turn the tap in the position in which it was found.

10. How came the tap to be closed is a question which the volumes of evidence given do not unravel. Had the closed tap been behind the American car the presumption would be that the guard had neglected to complete the connection in recoupling the train at Hornsby. Closed was the proper condition of the rear tap of the American car up to Beecroft, when it was the last car on the train. Or had the air-tap in front of the carriage been found closed, instead of the tap in the rear, the natural conclusion would be that when the engine had been connected with the two carriages at Beecroft the guard had not turned on the air between the engine and the first carriage.

11. But the fact that it was this particular tap involves the whole matter in mystery.

12. There is evidence that the brake connection ran through the train before leaving Sydney. The brake-examiner (Werrick) and the shunter (Derham) declare that they saw that the connection was complete. Both admit that they did not examine every carriage; but if it is a fact that they saw the air acting on the last carriage, it is proof positive that it was running right through. They say they saw the driver try the brakes, and afterwards release them to start away.

13. Now, it is confessed by the brake-examiner (Werrick) that he did not make a thorough examination of the brakes. He pleads in extenuation that he only had four minutes to make his inspection, as there was another train awaiting him. But it does not require his admission to show that the train was not examined properly by Werrick or any other officer. The station-master (Mr. Johnson), the guard, the shunter (Derham), and several others, whose duty it was to attend to this train, all express their surprise to learn for the first time after the accident that on one of the carriages the brakes were inoperative, and that the words "air-pipe leaking" were marked in chalk on the carriage in two places, indicating of course that it was not to go out until repaired.

The carriage was so found, yet, strange to say, no evidence has been forthcoming as to when and by whom this notice was written. Is this not conclusive evidence that the train was not carefully examined before leaving? And if a brake-disabled carriage so marked escaped their attention, might not also the tap between the two last carriages?

The tap being at the end of the carriage, the brake-block would act on it; and had the connection been shut off at this particular carriage at that time or any time, before parting the train at Beecroft, it would have only affected the last carriage—an American car—and therefore would not be easily detected by the driver, particularly if the guard who rode in that car applied the hand-brake.

16. The only people who can speak of the air-brake acting up to Beecroft are the passengers in the American car and the guard who rode on it, and voluminous as the evidence is, sufficient attention has not been paid to the point. Mr. Garrard says he did not notice the air-brake being applied as far as Colah.

17. No other occupant of the car appears to have noticed it. The guard thinks it was acting, but one of the effects of the accident was to obliterate much that he would have otherwise remembered, and to considerably confuse his remaining impressions. In all sincerity Clissold has, upon calmer reflection, so often had reason to correct himself that it would not be well to rely on the minute accuracy of his evidence. The fact cannot be gainsaid that if the tap was turned when the train left Sydney, and the engine had managed to crawl over the grade without dividing, or if after division the position of the carriages had not been changed, no disaster would have followed. Placed where the Redfern carriage then was, eight carriages instead of one were shut off.

8. In 100 cases 90 % would show the handle turned the opposite way; this one was turned; and some of them are made with their unions so fixed that the tap will turn only one way, that is, towards the buffers.

9. Might have had the effect? If the tap were open it would certainly have had that effect, and this is distinctly sworn to.

10. The evidence points clearly and unmistakably to one conclusion only—the telescoping closed the tap.

11. The mystery, however, is solved by the explanation that the telescoping closed the tap.

12. The evidence is incontrovertible. By admitting it the writer of this summary must necessarily be thrown upon the other explanation, viz., that the collision closed the tap.

13. The writing indicated no such thing. It simply meant that the pipe connecting the copper pipe with the reservoir was to be turned off, as it was leaking. The tap was turned off, and that being the case the car was ready for use.

Evidence has been forthcoming to the effect that the words "air leaking" were seen by John Fell, and the words "copper pipe" were written by W. T. Chambers, and the evidence of these two men and of J. Hemsworth is conclusive as to the inspection and safe condition of the brake appliances of this particular carriage before it went out. It did not escape attention. (See Departmental Inquiry.)

The evidence of Werrick, Derham, & McCarthy places the fact that the tap in question was properly open when the train left Sydney beyond doubt, and Mr. Garrard's evidence on this point is convincing. He was in the last carriage, and is positive the air-brake went on between Sydney and Ryde. Well, if it did go on the theory about Shellshear's tap is upset.

But he asserts distinctly that he did notice the air-brake going on till Beecroft was reached (see evidence given to Board); and he is equally positive that it went on when descending the first part of the grade to the river (see evidence given to jury).

17. Why not? What the writer is pleased to call a fact is gainsaid. If the driver lost his air none of the brakes would act.

18. Circumstantial evidence points to the conclusion that the tap was closed before the departure of the train.

19. In disconnecting the train at Beecroft the guard would have no occasion to close this particular tap, or to interfere with it in any way whatever, simply because it was between and not at the end of the two carriages left behind. He would have no need to go near the tap while the carriages awaited the return of the engine, nor would he in recoupling the train at Hornsby.

20. It is, however, worthy of notice that he deemed it necessary to sprag the wheels of the American car. He said the brakes were left on each carriage, and he had only done this as an extra precaution against the carriages running back, as they were left standing on the incline. If he had placed the pole in one of the rear wheels of the other car it would have given rise to the suspicion that the tap might have been turned accidentally by the end of the pole unknown to the guard.

21. Though somewhat dazed and bewildered with regard to many details, Clissold was very positive that he had connected the air in making up the train at Hornsby. Stead, the officer in charge there, saw him turn one tap, and his hand raised to turn the other. Although he did not see it actually performed, from the condition of the taps after the accident the inference is that he did so. He remarked that in turning the air on from the engine the hissing sound of the air as it rushed out was not so sharp and distinct as usual. This would indicate that the force was not so great as usual.

22. The partial absence of this sound is corroborated by the guard, who also noticed it. Too little attention has been paid to the point. Nobody seems to have realised its importance.

23. If the tap was closed at that moment no sound at all could come from the hose-pipe of the American car, but in opening the tap at the end of the car, which before had been behind the engine, the air remaining in the reservoirs beneath the different carriages would be released.

24. We arrive then at several important facts. Clissold said he would honestly and candidly admit that he did not satisfy himself that the brake connection was complete. The extenuating circumstances he urges for his neglect are that the train was nearly two hours behind time, and that in the midst of a volley of satirical allusions, which passengers, especially holiday excursionists, are apt to address to a guard of a disabled train, he was very anxious to get on. Nor did the driver try the brakes on leaving Hornsby. Several remember this, amongst them the fireman. Under ordinary circumstances he would not do so, but it is the rule when a train has been remade up. It is, nevertheless, important to remember that he did not, and that if that tap at the rear of the then second carriage was closed, no means was taken at Hornsby by the guard or driver to ascertain the fact.

25. In leaving that station (Hornsby) the driver would have no necessity to put on the brakes, yet Stead stated that he noticed that the brake-blocks were on one carriage. He did not distinctly recollect which carriage, but believed it was the third from the engine; the blocks seemed to be rubbing slightly. This circumstance is corroborated by Clissold, who stated that a little way beyond Hornsby, noticing that the blocks were rubbing on the wheels of one carriage, he got off the train and released them.

26. Obviously, the blocks on one carriage only were rubbing. The position of the carriage has not been defined. The evidence is *a* that it was not the first. It could not have been the second (the American car), as Clissold could have released them from the hand-wheel without getting down. It could not have been the third *b* carriage, as it had no brakes. The brakes on the next were *c* inoperative. It must have been one of the carriages behind the fourth; and as all but the American smoking-car were second-class *d* carriages without brake-blocks, it must have been that.

27.

18. Circumstantial evidence points to quite the other fact, that the tap was open. It must have been open, or all the witnesses perjured themselves. The evidence of Wesham, Derham, and McCarthy is conclusive that the tap was not closed.

19. This is true, and the theory that the tap was closed is again contradicted by the fact that the brakes were on both the carriages left at Beecroft. (See evidence of Gaylead, Rice, &c.)

20. Clissold says that he used a sprag at the instance of Mr. Rennie; but he says it was quite unnecessary, as the brakes were on. If they were on, then the pole could not have turned the tap. It is further proved the pole did not turn the tap, because the driver sent a column of air through the pipes at Hornsby to release the brakes.

21. Still, whether the air was strong or weak, the fact that it came out upset the theory that the tap was closed at rear of first carriage. Clissold was attaching the second carriage to the third; the air must therefore have come through the first carriage.

22. As the writer says, if the tap was closed at that moment no sound at all would come from the hose-pipe. But a sound did come.

23. This shows how little the writer knows of the matter. In the first place, the tap was open: it had been opened by Stead to put the brakes on; and, in the next place, does not release air from the reservoir, but from the service-pipe. The rush of air must have been from the engine.

24. He did not try the brakes as laid down by the regulations, but the operation he made (and perhaps this was the reason he did not go further) showed clearly that connection was perfect throughout. He took off the brakes of the vehicles which were taken to Hornsby first; in so acting he demonstrated that the air-connections were complete. This is a piece of circumstantial evidence which cannot lie; it is better than personal testimony.

See Pye's evidence before Departmental Board.

It is very extraordinary that the fireman should be said to have been one of those who remembered this, seeing that the fireman states most positively that he remembers nothing about it, in fact did not know, as he was otherwise engaged. I draw attention to it as it affords another instance of the way this writer of this summary has manufactured evidence.

25. But he would require to, and did, take the brakes off, and that, as regards the air-couplings, necessitates the same condition—they must be intact from the engine to the last carriage with brakes on.

26. It could not have been the third. The third was the sixth at Sydney, and that, as we know, had the automatic portion shut off.

a. Clissold was not on the second car at this time, nor would the hand-wheel release a brake kept on by air.

b. The brakes on the fourth were not inoperative.

c. No, it was not, for Clissold was on, and got off from the fifth, behind which there were no carriages with blocks.

d. If any, it was the fourth; Clissold got off this one (the fifth).

27. Mr. Kirkcaldie says if the air had been released from the reservoirs, the brakes would have gone on. Quite so; exactly what occurred. But why only on one carriage? Simply because there was only one carriage behind the American car on which the brakes could be brought into operation, namely, the American smoking-car—the fifth from the engine. Of course no air was found in the reservoirs. Were not all the taps behind the first carriage found open?

28. Apart from the direct cause of the accident, the search for the cause has revealed culpable negligence. There is the hurried examination at Sydney, in which a disabled carriage escaped notice.

Then nine carriages are placed on an engine not powerful enough to take them over the smaller grades of the line. Undoubtedly, had the engine been sufficiently powerful, the alteration in the position of the carriages would not have been made, and the accident not have followed.

29. Then, four second-class carriages, without brake appliances, were placed in the rear of a train without a brake-van on a line of several long steep grades. The result of such an oversight in the event of the couplings parting can be easily imagined.

30. Then, the train was allowed to leave Hornsby without the brakes being tried.

Lastly, and above all, an air-tap—that behind the first of a train of nine carriages—was found closed.

31. The theory that the driver lost control of the train by an unskilful manipulation of his brake-valve and exhausted the air is almost entirely unsupported by evidence.

32. Henry George Perkins, an engine-driver for the contractors, who was on the scene of the accident, and within a few seconds of its occurrence rescued the fireman from drowning, was also one of the first to examine the engine. He found the donkey-engine with which steam is supplied to the brake working.

33. The regulator was partly open and the brake-lever applied. Although he did not examine the air-couplings, he found all the blocks of the rear carriages loose, as if they had not been operated upon, but the blocks were on the first and second carriages.

34. Hugh Rohan, engineer for the contractors, another practical man, declared that there was no brake connection between the second and third carriages, and that he drew one or two persons' attention to this fact on the following morning, but this is uncorroborated in evidence.

35. He also found all the blocks of the other carriages loose.

36. R. Brennan, another engine-driver employed by the contractors, saw the train pass 3 miles above Peat's Ferry. He, too, thought the brakes were not acting, and that the engine was reversed.

37. William Hume, a Government engine-driver waiting at Peat's Ferry, says the blocks of the third carriage were loose, and the wheels cool, as if they had been running without brakes. He examined all the taps which at that time could be got at, and found them all open. He also saw the donkey working in the water. The brake-valve on the engine was half open, and he adds that was its proper position to prevent any unnecessary wasting of air.

No; the tap at the rear end of the fifth car from engine was found properly closed.

28. It was not disabled from running, and did not escape notice and examination. (See Departmental Inquiry.)

This is assuming that the tap was closed. The accident might have followed if the carriages had remained in the same order as when they left Sydney, if it was owing to the injudicious use of the air.

29. This was no doubt a bad arrangement; if on going up the grade beyond Hornsby, or even if on leaving Beecroft, a coupling of one of these four carriages had broken there would have been no break, and nothing to prevent the detached portion of the train running back. Still, as far as the accident was concerned, it was rather an advantage than otherwise that they were at the rear of the train when it left Hornsby, because it saved the air from passing through 90 feet of main pipe, which it would have had to do if they had been in any other portion of the train, and so facilitated the exhaustion of the air.

30. No. The brakes were tried; in fact, they were taken off.

Under the circumstances it could not have been found otherwise. It was bound to be found closed, because the accident itself closed it, as the evidence clearly enough shows.

31. The accident could have been caused in no other way. The whole evidence supports this theory. If we even adopt the "shut-tap" theory it leaves the driver with 48 tons of brake-force (engine 15, tender 13, first carriage 10, Clissold's car 10), more than sufficient to have enabled him to control and stop his train after his discovery that it had got away. If he had had this the accident would not have occurred; but if he had at the time his train got away only what the Board suppose—viz., the engine hand-brake 15 tons, and Clissold's car 10—25 tons altogether—then he could not have controlled it.

32. The donkey-engine might be working, and the gauge-glass might show a pressure of 75 lb., but it would not necessarily follow that the reservoirs under the carriages were full.

33. There is not a word of evidence, either by Perkins or any one else, to this effect, viz., that blocks were on the first and second carriages. It is pure fabrication.

34. Hugh Rohan is a labourer, not an engineer; admits he knows nothing of the air-brake. His evidence is not only uncorroborated—it is distinctly denied by the evidence of Mr. Kirkcaldie, Mr. Laughry, and R. Melton.

35. What is the meaning of this? Rohan gives no evidence on the point.

36. When the engine was reversed everybody knows the blocks were not acting—the engine was reversed for that reason.

37. He does not say that any of the others were "hot." They were all cold.

The fireman is the most important witness on this point, for he alone can speak of the actual conduct of the driver. Yet from him we get nothing to support this remarkable theory. The only suspicious incident in support of it is that before the train was divided at Beecroft the piston of the donkey-engine stuck, but he states that it continued to work when lubricated. Pye saw nothing to lead him to think that the driver had extracted his air. He recollects reading the air-gauge, which showed 90 lb. pressure, 10 lb. above the maximum, soon after leaving Hornsby. The driver then took the usual course, released the surplus air pressure by easing the donkey-engine. Subsequently the gauge showed 75 lb., and this was after they realised that the train had got beyond their control. Naturally Pye came to the conclusion that the brakes were not acting on the carriages.

38. It has been asked why the train was kept under control for such a distance down the grade if the air-connection did not extend beyond the first carriage. It is answered by the fact that the grade as well as the momentum of the train increased as they descended. The first part of this long grade is 1 in 50, then 1 in 55, and it is not until emerging from the second tunnel that the grade becomes 1 in 40, and continues so to within a few yards of Peat's Ferry platform, where it eases off to a level road. Will anyone dispute that the train was under control till the 1 in 40 grade was reached? It was there that Wilson exclaimed "the train has got away from us." How remarkable that he should have exhausted the power of the Westinghouse automatic brake from that particular moment! It was here also that the guard applied the hand-brake with little effect.

39. Pye does not exactly know how often Wilson applied the brake. If he had turned it off and on as often as necessary to exhaust the air, would he not have noticed such an eccentric proceeding?

40. He knows that the donkey was working, but cannot positively say whether the air can be exhausted more quickly than the donkey can supply it. This is a point which has not been made clear.

41. Several engine-drivers are quite sure that the air cannot be exhausted by the application of the brake while the donkey is kept going. Other practical witnesses swear the opposite.

42. Frederick Sheehan, another driver accustomed to use the Westinghouse brake, has never known it to fail except when the connections are incomplete, and adds, if there had been an air pressure of 75 lb., that would alone show that the driver was working the air properly.

43. With that pressure and the connections complete, he thinks the train could have been pulled up in 300 yards. Sheehan says one full-force application of the brake on a descent of 1 in 40 would only reduce the pressure 7 lb. If correct, Wilson, without the aid of the donkey-engine, would have had to make seven or eight distinct applications before the pressure became inoperative.

44. Is it reasonable to think that the donkey-engine, which was found working in the water after the accident, was not working all the way down the hill?

45. Sheehan is also convinced that the driver could not have exhausted the air.

46. When asked to account for the accident, this witness simply replies that it must have been owing to one or more taps on the train being left closed, and the air-connection thereby rendered incomplete, and, adds Sheehan, if the air had become exhausted and the connections had been complete, the brakes would have remained on, and the effect would be to stop the train.

47. Mr. Shellshear's evidence is that if the tap was closed previous to the accident it would account for it.

48. Clissold, who was working the hand-brake in the second carriage, makes this important statement. It seemed to him that the brake was not acting on the car, as he was able to put the wheel right over, a thing he could not do when the air-brake was working.

49. Mr. Garrard, M.P., who was in the American car, was under the impression that the air-brake was working on the wheels while they were descending the grade, but he was not aware that Clissold was working the hand-brake with all his might. In fact, Mr. Garrard was astonished to learn that the guard was on the car, as he undoubtedly was. It is a pity that Mr. Garrard did not carry out his idea of rushing to the hand-brake. It is still more unfortunate that two or three passengers in the American smoking-car did not apply their utmost strength to the wheels of the hand-brake there. Had they done so, the momentum of the train would have been considerably reduced

We do get most important evidence from him. He testifies to the frequent use of the air-brake by the driver, and finally we learn from him that the driver put his valve so as fully to apply brakes, and left it so, in which position no air could get to carriage reservoirs

38. Yes, certainly—Clissold, and Pye.

He exhausted it before, not from that particular moment.

No; Clissold applied his hand-brake between the first and second tunnels, where the gradient is 1 in 50, before the 1 in 40 was reached.

39. Pye said he did use the brake frequently.

40. It can be made clear by practical test.

41. It is only those who do not understand the brake who say so. It can be tried in a few minutes if there is any doubt about it.

42. It would show no such thing. It might show that there was that amount of air in the reservoir on the engine and in the main air-pipe; but it would not show what was in the carriage reservoirs, which alone applies the brakes.

43. 15 lb., not 7 lb.

44. It might have been, but that would not put air into the reservoirs on the carriages unless the brakes were entirely released.

45. Of that, however, there can be no question.

46. This shows only that Sheehan does not know what he is talking about. How could the brakes go on if there were no air to put them on?

47. No, it would not; for, as already observed, see No. 31. Even then, the Board's theory is the only explanation that can be given.

48. I have gone through Clissold's evidence, and there is no record of his having given any such evidence as is here stated. Even if he did, however, the fact of his being able to put the brake on by hand would only imply that there was no air in the reservoir to apply it.

49. The writer ignores Mr. Garrard's evidence that when he was in the last carriage, between Sydney and Beecroft, he felt the brakes going on to that carriage. This in itself completely upsets the theory that Shellshear's tap was closed; and Mr. Garrard also is particularly positive that it was not the hand-brake he felt when descending the grade near Peat's Ferry, but the air-brake.

reduced, if the catastrophe was not altogether averted. Experts have affirmed that they could take the train down the grade with the use of the hand-brakes alone, only one of which, unhappily, in this instance, was applied.

John Barrie, another passenger in the American car, is satisfied that the brake was not applied until he saw the guard using the hand-brake. The Assistant Traffic Manager, after advancing the theory that from an injudicious use of the brake the driver had wasted the air, and thus had insufficient pressure to control the train, admitted that there was no direct evidence on which to support it. It was the only possible explanation in his mind. But then, Mr. Kirkcaldie, with the members of the Departmental Board, is convinced that the brakes were acting throughout the train when leaving Sydney, that the air-connection was complete when the train was recoupled at Hornsby, and that the closed tap was so closed by the collision. He is supported in his opinion by one or two other experts, as well as fellow-officers who compose the Board. Are these convictions formed upon or in defiance of evidence?

Here are the incidents against their theory:--

1. The finding of the tap closed.
2. Corroborated testimony that the driver's valve indicated the brake applied.
3. Brake-blocks on the first two carriages.
4. Brake-blocks loose on all others.
5. The position of the first carriage before reaching Beecroft.
6. No application of the air-brake felt after leaving Hornsby.
7. Donkey-engine working in the water.
8. Abundance of air-pressure noticed by the fireman.
9. Incomplete brake examination at Sydney.
10. No examination at Hornsby.
11. The point at which the train got beyond control.

1. Explained.
2. No air in the reservoir, nor could it be got in with the driver's valve in this position.
3. False; no evidence given.
4. False; in so far as it implies the blocks were on others.
5. Nothing in this.
6. False; see Garrard's evidence.
7. True.
8. True; but that does not prove the air had been conveyed to the reservoir.
9. Not admitted; it was absolutely complete.
10. Yes; the brake-blocks were taken off by driver.
11. What is the meaning of this? There is no meaning in it.

CH. A. G.

No. 9.

Extract.

[From the *Daily Telegraph*, 22/7/87.]

THE RAILWAY ACCIDENT—THE EXPLODED THEORY OF THE BOARD.

THE remarkable theory which, in the minds of the members of the Railway Board and the Assistant Traffic Manager, is the only possible explanation of the Hawkesbury railway accident is apparently entirely based on the fact that no air was found in the reservoirs of the uninjured carriages after the accident. The absence of air in these receptacles is said to be inexplicable by any other cause but the exhaustion of the brake-power by the driver. Had the air-connection been shut off at the end of the first carriage at Hornsby, then the air should have remained in the reservoirs, and the effect of its being there would be the application of the brakes, instead of which the blocks hung loosely from the wheels, and all the reservoirs, although intact, were empty. The first two carriages offer no key to their emptiness, as the reservoirs beneath them were smashed in the collision. On the other hand, it is alleged that if the driver exhausted his air by an unskilful manipulation of the brake, empty is the exact condition in which these reservoirs might be expected to be found.

But even this ground, which appears to be the only one on which the Board support their case, is cut away from under their feet. No automatic compressed-air brake has yet been invented which will retain the air in the small reservoirs for all time when the brakes are applied. Even when all the appliances are new, and the brakes are applied to one or more standing carriages, the maximum pressure of compressed air will exhaust itself through the cylinders in the course of three hours; but when the leather packing becomes worn, as it necessarily does by constant use, the air will escape in the course of half an hour; but if the pressure is below the maximum, the exhaustion is, of course, correspondingly quicker. Nothing has yet been invented to prevent this gradual escape and allow the pistons to work. It can only be minimised when the leather packing and hose and other pipes are new and in perfect order; it cannot be obviated altogether. The character of the motive power employed is the explanation, and, as everybody knows, when in a state of compression, amounting to 80 lb. to the square inch, is quicker than mercury, and will find an outlet through the smallest possible space. Examination of the leather packing in these cylinders would show, we have reason to believe, that they are well worn. It is not a serious defect if they are, nor is it a damaging feature in the construction of the Westinghouse brake that the air must leak out of the reservoirs while the brakes are on standing carriages disconnected from the source of supply. In a state of emptiness these reservoirs can be quickly refilled from the main reservoir. It would be the first duty to recharge them the moment the train was recoupled at Hornsby. Had the driver failed to place this valve in the feed position he could not have moved away, as he would have placed the brake on.

The

The question which then arises is, what evidence has been given as to exhaustion of air by natural leakage? Stead, the officer at Hornsby, who cut the engine off the seven carriages when they came up, after doing so closed the tap on the engine, and left the tap open on the train, thereby exhausting all the air in the main pipe, and applying the brakes on the carriages fitted with blocks. He noticed that the hissing sound was not as sharp as usual, and his first thought was that the pressure was low. As the driver would have no occasion to use his brake at any place between Beecroft and Hornsby, and as a very light pressure would suffice to pull up at the points, it is reasonable to believe, after Stead's statement, that he arrived at Hornsby with the pressure somewhat below the maximum, perhaps not more than 50 lb. or 55 lb. Stead saw the blocks on the wheels, but it is not certain whether he closed the tap again or not. Closing the tap would not stop the leakage through the cylinder, but leaving it open would accelerate exhaustion, as it would at once empty the main pipe, and the empty condition of the main pipe would also have an influence in assisting the escape of air through the cylinder into the atmosphere. In the opinion of men who have had years' constant experience in the working of the Westinghouse brake, half an hour would be quite sufficient to exhaust the air in the reservoirs beneath two of those seven carriages if the packing was in any degree worn, and that the air would, of course, have escaped in less time if the pressure was below the maximum. These seven carriages remained there for fully half an hour. But it would appear that all the air had not escaped from the reservoir of one carriage. Stead noticed the blocks of one carriage slightly rubbing—of one carriage only. That could not have been caused by the driver. Further on the rubbing of the blocks acting against the power of the engine in ascending a grade, and Clissold noticing it for the first time jumped down and took off the blocks of this particular carriage by turning the release valve. The exact position of that carriage has not been shown in evidence. If it was any carriage behind the first it only shows that on that particular carriage only the small air-reservoir had not at that time been completely exhausted. Stead is certain that the blocks were only rubbing slightly, indicating that the air was almost gone. Had the brakes been hard on, he, no doubt, would have drawn attention to the fact, and the probabilities are that the driver himself would have noticed it. Undoubtedly it must be plain, after this explanation, that the air had expended itself from one of the reservoirs, and not altogether from the other, and thus Wilson got away from Hornsby under the impression that the air-connection was complete.

One would really imagine from the dramatic way in which it has been shown that a driver can exhaust his air, that the Westinghouse brake in the hands of an unskilful driver can become the cause of a fearful railway accident in a few seconds. And we have a vivid picture drawn of what might possibly have happened in the darkness of the third tunnel when Wilson, in his nervous excitement, might have turned the brake off and on several times unknown to the fireman. Both suppositions are absolutely impossible. The Westinghouse brake cannot be made to act in that way, even if placed in the hands of a raving maniac. It is perfectly true that it can be applied instantly, but it cannot be released under eight seconds. A driver or madman can turn back the valve-handle as often as he likes, but eight seconds must elapse before the brakes come off. How many times could the brakes have been released while the train was rushing through the third tunnel, the distance of which is 140 yards? The act of turning the brakes on and off so vividly portrayed would only mean keeping them tightly on all the time.

If it is admitted, as it must be, that Wilson had his donkey working, he could only reduce the pressure by two or three pounds at each application at the end of eight seconds, and it would require much longer time than elapsed before the collision occurred to bring his pressure down to an inoperative force. In the absence of one tittle of evidence that he acted in this frantic fashion, and without even the most meagre trace of such conduct, no wonder that railway engineers and skilled locomotive drivers are unanimous in declaring that the theory propounded by the Board, and only suggested by two in an army of witnesses, is absolutely untenable.

Then, much is made of the evidence that the wheels on the first two carriages show no signs of skidding. True, several witnesses stated that the wheels of the first two carriages were hot and all the others cold after the accident—conclusive evidence that the brakes had been on these two vehicles alone. Yet had they skidded any distance unquestionable signs would have remained. They would have been worn at the parts brought into contact with the iron brake-blocks and rails. The answer is simply that the leverage placed on the air-brake would not allow the wheels of the carriages to skid at the maximum brake force if the train went beyond 25 miles an hour. Every witness who alluded to speed stated that it was from 50 to 60 miles an hour. Of course the brake-power which will cause wheels to skid at 10 miles an hour will be insufficient for such a purpose at a much greater speed. No good object can be attained by skidding wheels. It has been demonstrated that the momentum of a train on an incline with the wheels skidding is greater than by their revolution; more than that, the skidding of wheels means the rapid injury of wheels, therefore the leverage of the Westinghouse brake has been so adjusted that drivers have no difficulty to keep the wheels from skidding at a low speed, while at any speed over 25 miles an hour it is impossible. So much for that argument.

We venture to think that the more the air-exhausting theory of the Board is analysed the greater will appear its absurdity. It is unsupported in evidence; it can be undeniably destroyed by experiment. Experts who have had their explanation of the accident, founded on corroborated testimony, upheld by twelve disinterested jurors, and, we think, universally accepted by the public, invite experiments, if only to convince the Railway Board and others guided by their conclusions. Surely they have everything to lose and nothing to gain by these experiments.

Practically, they say: Fill the reservoirs of these uninjured carriages with air, provided the packing has not been renewed; turn off the main-pipe and leave them in the same state and for the same time as they remained at Hornsby, and see how quickly the air is exhausted by leakage. Fit up a train composed of these carriages and two others to correspond with those destroyed, and try the air-exhausting theory on a down grade, followed by a corresponding up grade where no possible accident can result; or, if accident is feared, have a train abundantly supplied with hand-brakes to be used in case of emergency. Ascertain in this practical way how the air can be wasted by unskilful manipulation of the brake-valve, or how quickly the train can be brought to a standstill. If the grade is not heavy enough, keep on steam. The challenge is made. It can be carried out without risk. Query: Will it be accepted?

Minute by The Commissioner for Railways.

Accident at Peat's Ferry.

THERE is a letter in to-day's *Telegraph* on this subject, evidently written either by an employé of the Department or by some one who has been furnished with the information he gives by an employé. The criticism upon driver evidence is sufficient to show that this surmise is correct. Put letter with this.—CH.A.G., 29/9/87. Done.—A.R., 29/7/87.

Register and put with papers. I have annotated the paper. The writer does not understand the working of the brakes. He has misstated, in fact fabricated a certain piece of evidence to serve a conclusion which he has forced. He says the fireman stated in his evidence that driver Wilson put his valve in the feed position. There is not only no evidence of this, but there is the fireman's evidence to the contrary, supported by the circumstantial evidence that the valve was found in the brake's applied position—(see evidence.)

If the unfortunate driver had had his wits about him he could have pulled up his train even after he had exhausted his air, if instead of keeping his valve in the position of "brakes on" he had reversed it to the feed position. With 75lb. of compressed air in the main reservoir and pipes, he could have got, in less than a minute, sufficient air into the auxiliary reservoir, which would, on placing the valve in the "brakes on" position, have stopped the train.

The train should not have been wrecked—would not have been wrecked in the hands of a man who had readiness of resource in times of emergency. Many drivers might lose their air (it is an inherent defect in the apparatus), but few, I hope, on our lines, would act so injudiciously as driver Wilson did.

The general public will not be satisfied till the facts I have mentioned are demonstrated by trials. A train in all respects similar to the wrecked train should be taken over the road:

1st in the position in which the "shut tap" theorists describe, and in disproof of their theory, the train shall be given a speed of 30 miles an hour at the place where she first broke away and where the driver whistled for the guard's brake, and it will be shown that the train will be brought to a stand with the engine-brake, the air-brake in the tender, the air-brake on first carriage, and the guard's-brake on second carriage.

2nd. Under the conditions which the Board say existed, and then it will be shown that by pulling the valve in the feed position, and checking the train as far as possible by the hand-brakes, (though the speed should be accelerated to 50 miles an hour) the train could be stopped.

The actual way in which the accident occurred need not be demonstrated, nor any effort made to represent it, as the risk would be too great. CH.A.G., 29/7/87.

[From the *Daily Telegraph*, 29/7/87.]

THE CAUSE OF THE PEAT'S FERRY DISASTER.

(To the Editor of the *Daily Telegraph*.)

Sir,—The conclusions arrived at by the Board appointed by the Department to inquire into the causes which led to the Peat's Ferry disaster appear to me to be quite irreconcilable, either with the probabilities of the case, or with the sworn facts as elicited at the inquest.

The first statement, to which exception may be taken, is:—"That there was sufficient hand-brake power on the train to have taken it safely to its destination." This is only true subject to two important qualifications—the first being that all the hand-brake power was available for use in an emergency. As the only two vehicles on the train which were supplied with hand-brakes were placed in different parts of the train, and there was only one guard, the statement is misleading in this most essential particular. The second condition was that the speed of the train when descending the heavy gradient would not be allowed to exceed say 15 miles an hour, it being a well-known fact that the momentum of a train, and consequently the amount of retarding power necessary to control it, increases as the square of the speed. As the driver would naturally rely on the other brake-power which he believed he had at his disposal, this condition was not likely to be carried out.

The theory of the Board, that the failure of the brake was due to injudicious action on the part of the driver in completely exhausting the air from the small reservoirs, will be received with considerable hesitation by those who are conversant with the practical working of the brake. According to the description given of the road, the first 2 miles of the descending gradient range from 1 in 55 to 1 in 50, and the evidence goes to prove that the driver lost all control over his train immediately after getting off this on to the heavier gradient of 1 in 40. Assuming as the Board does that all the brake connections were perfect, to have exhausted all the air from the auxiliary reservoirs at such an early period of the descent the driver must have applied his brake and released it seven or eight times in rapid succession. This on the part of a man who had had considerable experience in the use of the Westinghouse-brake, would have been not merely injudiciousness, but an act of madness or folly, which no one will believe the unfortunate driver could have been capable of. Again, the speed of the train on this comparatively easy gradient would be so much reduced by each application of the brake that the interval which would elapse

Not 7 or 8, say 5.

This is presupposing that it was used judiciously.

elapse before it would be again necessary to apply it would allow sufficient time for the small reservoirs to be charged with air of the same pressure as shown on the air gauge. The fireman's statement that when the driver, finding his brakes were apparently not acting on the train, placed his brake-handle in the release position in order to re-charge the small reservoirs, and that the air gauge then showed a pressure of 75lb. proves conclusively that the reservoirs were not then in the state of exhaustion, assumed by the Board. Had such been the case the gauge would have registered that pressure for an instant only and then the indicator would have fallen back rapidly, as the air stored in the main reservoir and passing through the brake-pipe expanded into the small reservoirs. Air at this pressure would have an effluent velocity into air of the ordinary atmospheric pressure of about 1,200 ft. per second, and after making due allowance for the resistance of friction, the whole train should have been charged with air of about 48lb. pressure in about 15 seconds. Professor Warren and Mr. Kirkaldie's statements as to the number of manipulations required to reduce the pressure a given amount are wanting in one important element. They do not give the number of brake cylinders in communication with the main reservoir, which in this case was only five.

I have not seen the formula on which Professor Warren has based his calculations as to the amount of brake-force necessary to stop a train at different speeds, but as in his results the percentage of retarding power increases as the square of the speed, it is evident that he has used a constant co-efficient of friction between the brake-block and the wheel. The learned professor is probably unaware that in an elaborate series of experiments, conducted by Captain Galton, on the London and Brighton railway, the remarkable fact was demonstrated that, the speed and pressure remaining the same, the co-efficient of friction diminished rapidly during the time the surfaces remained in contact. Thus, at a speed of $37\frac{1}{2}$ miles per hour, the pressure on the brake-blocks being the same throughout the experiment, the co-efficient of friction at the commencement was .152, after 5 seconds .096, after 10 seconds .083, and after 15 seconds only .069, or less than one-half the normal amount, which may be taken as .15. It was also discovered that the speed had a great influence on the result—a speed of 60 miles an hour showing at the commencement a co-efficient of .072, after 5 seconds .063, and after 10 seconds .058. A most forcible illustration of the immense difference between what can be accomplished in theory and the results obtained in actual practice is to be found in the statement made by one of the witnesses—that, with a similar amount of brake-power, he could safely take a train of twenty vehicles down the gradient. Yet this same individual when in charge of a lighter train, every carriage of which was supplied with brake-power, came into collision with the buffer stops on one of the Zig Zags.

It is difficult to see how the Board can reconcile their opinion that the air connections were complete with the evidence of Mr. Shell-shear as to the position in which he found the tap at the rear end of the first carriage. The mere fact of the brakes having apparently worked all right between Sydney and Ryde proves nothing, as it was scarcely possible for the driver to discover that the brake was not acting on the last vehicle on the train. In proof of this, it may be pointed out that neither driver, fireman, guard, examiner, nor anyone else connected with the train was aware at any time during the journey that the first carriage on the train as it left Sydney had the air shut off at the tap leading to the triple valve, thus rendering the brake on that vehicle inoperative.

The fact of the train after it was remade at Hornsby having to stop at the first gradient, and that some of the brakes then had to be released, at a time when, according to the fireman's evidence, the air pressure was steadily increasing, points unmistakably to the fact that the air connections were then incomplete. Observe with what extreme accuracy the circumstances connected with this stoppage dovetail into this theory, and the utter impossibility of accounting for them from the point of view assumed by the Board. When the train was re-coupled at Hornsby the air pressure stored in the then fourth and fifth carriages would endeavour to rush into the empty reservoir of what had originally been the last but was now the second vehicle of the train, and this of course would apply the brakes on the first-mentioned carriages. The guard, getting down, released the brake—not, as stated by him, on a close second-class, on which the brake had never been working, but on the carriages nearest to him—namely, the fourth and fifth. The fireman, going back to meet him, found the brakes apparently released by the driver; the true state of the case being that the first carriage was in communication with the main reservoir, the second had never had any air in the small reservoir, and the third was shut off at the tap leading to the triple valve, and thus the brakes on these three vehicles would be off.

This is pure fabrication; the fireman gave no such evidence; it was what the driver should have done, but he did not do it.

No more than that.

The man was right; twenty carriages could be taken down safely with the amount of brake-power on the train.

This has nothing to do with it, even if it be true. The facts are not stated correctly.

It has not been at all difficult to explain this, or to reconcile it.

Perhaps not during the journey. Had he not tried the air before leaving? But this he did, proving that it went to the last end of the last carriage.

That is no proof.

Why?

This conclusively shows that "Triple valve," with all his assumed knowledge and learned talk about "co-efficient of friction," is a mere charlatan. His ignorance, as here shown of the direction the air stored in the auxiliary reservoir takes, is evidence of his incapacity to write on the subject.

No; the fourth. He was riding at the time on the fifth, and it was another carriage he went to—transparently the fourth.

The first carriage in communication with the main reservoir—does other writer mean, "supplied direct without the aid of the auxiliary reservoir!"

After

27

After mature consideration of the facts adduced in evidence, and carefully weighing all the probabilities of the case in the light of an intimate acquaintance with the practical working of the brake, the conclusion is irresistibly forced upon us that the accident was due to the fact that the tap on the rear end of the first carriage had been closed all the time, and thus the brake was acting on that vehicle only when the train left Hornsby; and that the driver, naturally relying on what he believed to be an efficient brake, and probably worried by the repeated cases of "sticking-up," allowed the ill-fated train to acquire such a speed on the gradient that all the brake-power then available was utterly unable to control it.

July 27.

Yours, &c.,

TRIPLE VALVE.

If, for the sake of argument, the shut tap theory is admitted, the inquiry which follows immediately explodes it again. The inquiry is: Would there have been sufficient brake-power on the train to have stopped it with the tap closed? The answer is: More than sufficient at any speed.

No. 11.

Minute by The Commissioner for Railways.

Peat's Ferry Accident.

THERE is an article contributed to the *Daily Telegraph* to-day—contributed, it is obvious, from its tone, argument, and concluding challenge—by some one who has a direct interest in the Westinghouse brake, respecting what the writer is pleased to call "the exploded theory of the Board." I should like to have the report of the Board upon that article.

The writer apparently sees that the fact that the brakes were taken off the carriages at Hornsby, when the train was reunited, must be met in some way, or else the "closed-tap" theory is exploded, so he ingeniously suggests that the brakes were not taken off by the action of the driver, but "leaked off" in consequence of loose packing.

The author of the analysis published in the *Telegraph* did not explain how the brakes were taken off at Hornsby, and he, apparently, did not see how fatal to his theory of the "closed tap" the circumstance that the brakes were taken off from the engine really was. He has, perhaps, seen it since.

The experiment suggested by the writer in regard to the alleged facility for exhausting air in the auxiliary reservoir has already been made by the Board. There are tables attached to the Board's report showing the number of applications of the brake required when the donkey-engine is not working and when it is. The result conclusively supports the theory of the Board. That it is a new idea suggested to meet the special case under review is contradicted by several authorities—see book by "Hercules," and also the "Art Journal" for March last.

Ch.A.G., 22/7/87.

Report herewith.—D.V., 30/7/87.

IN compliance with the Commissioner's desire, we beg to submit the following observations upon the article referred to in his minute of 22/7/87:—

This newspaper contribution bears unmistakable evidence of having been written in the interests of the Westinghouse Brake Company, and, as might be expected, is full of inaccuracies and strained interpretations of the evidence given at the coronal inquiry.

The writer of the article commences by a transparent misrepresentation of the basis of the Departmental Board's conclusions regarding the cause of the accident, and hazards the assertion that their theory "is apparently entirely based on the fact that no air was found in the reservoirs of the uninjured carriages after the accident."

Either the *bonâ fides* or his intelligence may here be challenged; if the former be not permissible by the canons of good taste, then it can only be said that this case affords another illustration of a person's judgment being warped by self-interest.

The Board merely inferred from the fact that the brake-blocks of the two undamaged eight-wheeled carriages were found to be quite loose immediately after the accident (notwithstanding that the pipe between the first and second vehicles had been severed when they telescoped, and that all the taps between there and the vehicles in question were found to be open and the connections complete) that the reservoirs of these two carriages must have been empty, or practically so, and *it is not possible to draw any other inference*. Our critic himself sees clearly enough that the looseness of those brake-blocks and the consequent empty condition of their reservoirs is indisputable, and must, therefore, be accounted for in some way.

It was not, however, as he represents, the condition of those reservoirs at the time of the accident which alone constituted the premises of the Board's conclusions; three other circumstances were (and are still), in their opinion, fully borne out by the evidence taken both at the Departmental and Coronal inquiries, viz., that the air-brake connections were complete and the taps all open throughout the train (except, of course, the rearmost one, which was properly shut, up to the time of the accident; that the pump which supplied the air was in working order; and that, in the absence of its failure, there was abundance of brake power upon the train. It was all these facts taken together which guided the Board in arriving at the conclusions embodied in their report.

The *Daily Telegraph* contributor is simply trying to blind the eyes of the public to a defect in the Westinghouse brake, which is, no doubt, mainly noticeable on long and deep descending gradients, where the frequent application of the brake is necessary to check the speed of a train; but the safety of public life and limb is of so much more importance than the reputation of any brake, that if, in showing the unreliable character of the writer's arguments and conclusions, we shall have occasion to refer to the deficiencies of the Westinghouse brake, it will be more with a desire to ensure that object than to speak in disparaging terms of a brake which has some admirable qualities.

In his desire to save the reputation of the brake, our critic is apparently indifferent whether he attains his object at the expense of the servants of the Railway Department in relation to the performance of their duties or not.

He cannot, surely, seriously mean that it is not a defect for brakes to "leak off" in a few minutes, or even in half an hour, as he wishes us to believe must have been the case on this particular train; but having eagerly adopted the "shut-tap" theory, which precludes the possibility of the brakes having been released

released from the engine, he sees perfectly well that he must account for their release in some other way; hence he assumes (and it is purely an assumption, for there is not a shred of evidence to support it) that they must have *leaked* off.

To give some colour to his idea, he says he has "reason to believe" that the leather packing in the cylinders would, if examined, be found to be so worn that the cylinders could not retain the air. This, too, is purely an assumption, for the fittings on each vehicle were overhauled within the period recommended by the Westinghouse Brake Company themselves, and found to be in good order; and he apparently fails to see how much, under these circumstances, he imperils the reputation of the brake by urging such an argument, because if we grant that what he says be true, it necessarily follows that the difficulty and expense of maintaining it in efficient condition become so great as to make it a most extravagant brake to use.

Our critic jumps to the conclusion that the brakes on one of the vehicles taken to Hornsby in the first division of the train must have leaked off, while, to use his own words, "it would appear that all the air had not escaped from the reservoir" of the other, "for," he goes on to say, "Stead noticed the blocks of one carriage slightly rubbing—of one carriage only. That could not have been caused by the driver. Further on the rubbing of the blocks, acting against the power of the engine, and Clissold, noticing it for the first time, jumped down and took the blocks off this particular carriage by turning the release valve. * * * * * Stead is certain the blocks were only rubbing slightly, indicating that the power was almost gone. Had the brakes been hard on, he, no doubt, would have drawn attention to the fact, and the probabilities are that the driver himself would have noticed it."

We are only too glad to agree with our critic's conclusions when they are within the bounds of probability, and we readily do so as far, at all events, as the latter portion of the extract we have just given is concerned. We think it is in the very highest degree improbable that the driver would have failed to notice it if a brake had been "hard on" when leaving Hornsby, and the best proof that there was nothing of the kind is that every witness who gave evidence on the subject said that, after the two divisions were coupled together, the train got away *quickly* and *easily*. It is perfectly true that Stead said he saw the blocks on one carriage "rubbing slightly" as the train passed out of the siding at Hornsby, but it is equally true, according to the evidence, that the wheels on the carriage from which Clissold released the air about $1\frac{1}{2}$ or 2 miles beyond Hornsby were "skidding."

On the "leaking-off" theory, coupled with the existence of a shut tap between the vehicle in question and the engine, it is impossible to conceive how brakes which were only "rubbing slightly" at Hornsby could, after the train had travelled between 1 and 2 miles further, have begun to skid, even if we admit that Stead and Clissold referred to the same vehicle, which there is no evidence to show. If, by any chance, it was the same vehicle, where, upon the "leaking-off" theory, did the increased pressure of air come from, if not from the engine; and if it came from the engine, what becomes of the "shut-tap" theory.

On the other hand, it is by no means an unfrequent occurrence, after an application of the brakes by a driver, for a triple valve to "stick," and so cause the blocks to remain hard on upon that particular vehicle, even when the connections with the engine are complete. This, we think, is the only reasonable interpretation to arrive at as regards the vehicle from which guard Clissold released the brakes.

If the "leaking-off" theory cannot be established, it follows that the driver must, when he left Hornsby, have released the brakes from the engine, in which case the "shut-tap" theory is absolutely worthless; and if the "shut-tap" theory cannot be maintained, then the leakage, which our critic is so anxious to establish, would only facilitate the exhaustion of the carriage reservoirs, which the Board is of opinion took place.

Both theories must be upheld to support the case of our critic, and the difficulty of doing that, taken either in connection with the evidence or the whole of the surrounding circumstances, appears to us to be insurmountable. Certainly, the evidence, fairly considered, favours neither.

Now, bearing in mind that the only tap found improperly shut upon the train after the accident was between the first two carriages next the engine—which two carriages were at the rear of the train when it left Sydney—we shall see how the evidence bears upon the "leaking-off" and "shut-tap" theories.

Several men proved positively that from the engine (which, by the way, was not placed upon the train until the whole nine vehicles were coupled together) to the very last vehicle the air-connections were complete, and the brakes tested, consequently there could not have been an improperly shut tap when the train left Sydney. One witness, indeed, who was *hand-braking* the seven vehicles (which, when the train was finally made up, formed the rear portion from Sydney), says he was using the hand-brake upon the seventh (afterwards the ninth), and that the brake-wheel was twisted out of his hand by some one opening the tap at the first (afterwards the third) vehicle. Stronger evidence than this that there was not a shut tap, where it was found after the accident, it is impossible to get.

At Beecroft, where the train was divided, the two last carriages were left behind with brakes of *both* hard on, while the engine took the front portion of the train to Hornsby. Here we have the evidence of three other men (which was given without the slightest idea of its bearing upon the present question) that *the blocks of these carriages were still hard on when the engine returned from Hornsby for them*; the "leaking-off" and "shut-tap" theories certainly cannot be reconciled with the facts that the brakes had *not* leaked off, and that, at that time, *there could not have been a shut tap between those vehicles*.

When the first lot of carriages were left at Hornsby the air-brakes were left *hard on* upon the two eight-wheeled vehicles by Stead, the officer in charge, who uncoupled them from the engine. On this point Stead is quite certain, *for he tapped one of the blocks with a sprag to see if it was acting, and found that it was*.

The evidence also establishes in the clearest and most positive manner that when the two divisions of the train were recoupled at Hornsby the connections were properly made and the taps turned, the clearest proof of which is, not only that the train has no difficulty in getting away, but *immediately after the accident those connections and taps were found to be as stated*.

Where, then, is there anything to support the assertion that the tap which was found closed on the day after the accident must have been shut before the accident? Except, indeed, the opinion of Mr. Shell-shear, which opinion is very strongly differed from by Mr. Kirkcaldie and Mr. Laughry, as well as by the members of the Board, all of whom inspected the vehicles, as the one with the shut tap lay telescoped inside the other.

Not one witness said that the air-brake did not act upon the train after leaving Hornsby. Although one did say that he did not feel it applied to the carriage he was in—then the fourth from the engine—*after passing through No. 1 tunnel*, while another said that he did not feel it on the second carriage from the

the engine *after passing No. 2 tunnel*, both of which statements are in complete accord with the theory of the Board, that it was at the first or between the first and second tunnels that the air was exhausted and the control of the train gone.

It was, however, in the second carriage from the engine that Mr. Garrard was sitting, and his evidence—upon which all attempt to shake him during his examination at the inquest failed—was very strong to the effect that he distinctly felt the air-brake applied to that carriage after passing the top of the hill which descends to Peat's Ferry; the commencement of that descent being about 7 miles beyond Hornsby, and at least 5 from where the train had come to a stand, and the guard had released the brake from a carriage. Unless evidence of this kind is to be utterly disregarded, there is no alternative but to abandon the "shut-tap" theory, and, without it, the "leaking off" is of no avail for the purpose for which it has been suggested.

If the tap which was found after the accident to be shut was open when the train left Sydney, and when the two carriages stood at Beecroft, as the evidence incontestably proves, where was it shut if not by the concussion at Peat's Ferry? Guard Clissold said, in reply to the Coroner, that "from the time the train left Sydney till the time the accident occurred I never touched that tap, nor had I occasion to go near it," and certainly no one else had occasion to do so, as he, and he only, uncoupled the train at Beecroft, and recoupled it at Hornsby.

It was perfectly clear to the Board that although the final and formal test of the continuity of the air-connections was not gone through by the driver and guard before the train left Hornsby (which, had it been performed, would have precluded "shut-tap" and "leaking-off" theories, and its omission is to be regretted, and not excused), still the connections did, as far as can be ascertained, and according to the evidence, receive the careful attention of those concerned; and it is impossible to say that the driver may not have satisfied himself by the release of the brakes on the carriages that the air-connections were complete with the engine.

Our critic disputes the assertion of the Board that the controlling power (in the carriage reservoirs) of the Westinghouse brake can be exhausted in the hands of an unskillful driver, and so become the cause "of a fearful railway accident"; and he goes on to say that "we have a vivid picture of what might possibly have happened in the darkness of the third tunnel when Wilson, in his nervous excitement, might have turned the brakes 'off and on' several times, unknown to the fireman." We may dismiss his remarks upon the latter point by saying that there is nothing in the evidence to justify them, and that the Board never entertained such an idea, for in their opinion the air was practically exhausted from the carriage reservoirs, and, consequently, the mischief done, long before the third tunnel was reached.

But as regards the possibility of an unskillful use of the brake leading to accident, and the writer's assertion that the supposition is "absolutely impossible," and his insinuation that that theory has been suggested for the first time to meet a difficulty which, to the Board, is otherwise unexplainable, we may state that there have been approaches to very serious accidents which, in their opinion, have clearly pointed to the same cause. As a matter of fact it is no unusual thing for our own drivers over the mountains, when descending the long, steep gradients, and when they have reason to fear that their controlling power is becoming exhausted to get their trains well under control, then put on their hand-brakes as tightly as they can, and release the air-brakes for the purpose of recharging their carriage reservoirs.

As an instance in which the danger of such a thing has been recognized, we may refer to a paper read by Mr. Marshall, a member of the Institution of Civil Engineers in England (an engineer of high repute, and a gentleman who for many years was secretary to the Institution of Mechanical Engineers in England) before the Society of Arts in London in March last, on the "Railway Brakes" question, and which deals very exhaustively with the merits and demerits of the various brakes.

Mr. Marshall said, in dealing with the Compressed-air Non-automatic Brake:—"The necessity for this has arisen from the circumstance of the very steep and long inclines that have to be worked on the railways in the mountainous districts of that country (America). I have had an opportunity recently of seeing the working of these railways, and in one case of particular interest I travelled on an engine over a pass in the Rocky Mountains having 15 miles ascent on one side and 22 miles descent on the other side of the pass. This 22 miles was a continuous deep descent, averaging 1 in 40 inclination, with a portion as steep as 1 in 22, and the line was complicated by numerous sharp curves. The train was worked with a compressed-air continuous brake applied to all the vehicles, and gave an interesting illustration of the working of the two systems of automatic and non-automatic brakes. The two engines were in front in going up, and the brake was worked automatic, so that if any portion of the train happened to become detached it would be prevented from running back by the brakes being put on automatically by the act of separation of the connecting air-pipe, and the brakes would be kept on firmly until released by hand in each carriage separately. At the summit of the incline the brakes were all changed to non-automatic by reversing a cock in the brake apparatus of each carriage, which caused the brakes to be then directly controlled by the engine-driver, who kept the whole of the brakes on during the descent, partially easing or increasing their presence every minute or two by a slight movement of the brake-handle, and thus keeping the brakes constantly in gentle play; and the train was eased down the whole mountain-side at a steady uniform speed of about 15 miles an hour."

This, it will be seen, was Mr. Marshall's personal experience.

On his return to England, that gentleman wrote to the Westinghouse Brake Company, informing them what he had observed upon the line in question, and received the following answer:—

"The use of the non-automatic brake for descending long inclines is not at all necessary. On some lines in the United States *there is still the practice of using the non-automatic brake for descending grades*; but we think this is owing to the fact that the direct-pressure brake was very largely used there before the automatic form was adopted."

As this reply did not accord with what had been observed by Mr. Marshall, he applied to the locomotive engineer of the line, asking the reason for the intermediate valves being thrown out of action in descending the incline, and his answer was:—

"Auxiliary reservoirs cannot be recharged without releasing all the brakes on the train, and the train will, during the short time of release—fifteen to twenty seconds—gain such a speed on a down grade of $21\frac{1}{4}$ feet to the mile—or 1 in 25—that it is nearly impossible to regain control over it, especially when the rail is bad." For this reason the triple valves and auxiliary reservoirs are cut out on steep grades down."

All this information will be found in the *Journal for the Society of Arts*, of England, dated 11th and 18th March, 1887.

Nor is this "exhaustion" theory new to Railway Authorities in America, for at a meeting of the Western Railway Club, held at Chicago, on the 15th July, 1885, for the purpose of discussing automatic brakes, the question of "*losing of the compressed air by careless handling of the engineer's valve*" formed one of the subjects of discussion.

Notwithstanding all that the Westinghouse brake advocate may assert to the contrary, we firmly adhere to our theory as the only reasonable one; and, instead of ignoring it, and saying that it is an "impossible" theory, it would be better if the Company were to grapple with and overcome what is unquestionably a serious defect.

It will be remembered that a Board was appointed several months ago to inquire into and report upon the brakes question, and in their report, which was submitted some weeks before the Peat's Ferry accident occurred, they drew attention to the loss of power which frequently repeated applications of the Westinghouse brake would involve, as well as to the disadvantage of its high-pressure system, because of the constant liability of bursting the connections.

The terrible accident which occurred two or three months ago on one of the Melbourne suburban lines, and the more recent one at Peat's Ferry, furnish a sad confirmation of the Brake Board's opinion in both respects.

The writer of the newspaper article states that "much has been made of the evidence that the first two vehicles showed no signs of skidding," whereas, as a matter of fact, *the Board did not make the slightest allusion to skidded wheels*; and he continues to say, "True, several witnesses stated that the wheels of the first two vehicles were hot, conclusive evidence that the brakes had been on these two vehicles alone"; but he does not say who the "several witnesses" were, and, unfortunately for his argument, we cannot find that even *one* witness gave such evidence; therefore, we may say with him, "So much for that argument."

In the concluding paragraph of the article in question the writer "ventures to think that the more the exhaustion theory of the Board is analysed the greater will be its absurdity," and says "it is unsupported in evidence, it can be undeniably destroyed by experiment," to which we need only reply that while the advocate of the brake would doubtless wish it to be as he says, the members of the Board are confident that *the more their theory is analysed the more positively will its correctness be demonstrated*.

The whole of the evidence points to their conclusion, and, in the opinion of the Board, their conclusion and its feasibility and reliability have already been indisputably proved by experiments, the results of which appear in the evidence taken at the coronal inquiry.

If a more probable theory than that of exhaustion can be advanced, without ignoring or unfairly straining evidence which has been given, or manufacturing evidence which has not been given, or building upon misrepresentations in regard to certain other matters of fact, the Board will be found amongst the first to appreciate it; but as the case stands they cannot conceive what more probable theory can be brought forward, and they may fairly claim not only to have a knowledge of the subject with which they were called upon to deal, but to have given the fullest and most careful consideration to it in all its bearings, without straining a point in favour of, or against, any person or persons.

And now suppose, *for the sake of argument*, that we adopt the theory of our critic, that the tap on the rear of the carriage next the engine was shut when the train left Hornsby, and that the braked vehicles behind leaked off; let us see what it means:

Mr. Laughry said at the inquest that 21 tons was the minimum amount of brake force required to control the train on a descending grade of 1 in 40, from which we shall assume that he meant that the speed of the train should never have been allowed to exceed 15 miles an hour, a speed similar to that referred to by Mr. Marshall as having been run down the descent on the Rocky Mountains in America; and, next, let us take the evidence of Professor Warren when he said that a brake force of 43·146 tons would be necessary to stop the train in question *in 400 yards when running at the rate of 25 miles per hour* (and it should certainly not have been allowed to exceed that speed) *on a descending grade of 1 in 40*, and compare it with facts.

On the engine there was	15 tons of hand-brake power.
On the tender	13 ,, of hand or air do.
On the carriage next the engine.....	10 ,, under air-brake.
And on the American car	10 ,, hand-brake.
—	
Total	48 ,,

Here we have 48 tons to do what, according to Professor Warren, it was only necessary to have 43·146 tons on a falling grade of 1 in 40 *in 400 yards*, and yet, according to all the evidence, the train had got away *before* or immediately it reached the 1 in 40.

Why was that? It is inexplicable if the hand-brakes were at work upon the engine and the American car, as well as the air-brakes upon the tender and the carriage next the engine; *but it is not at all inexplicable if the theory of the Board is correct*—THAT THE AIR WAS NOT WORKING ANYWHERE, and that consequently *the engine and American car hand-brakes were all that were operating—the total brake force being 25 tons.*

30th July, 1887.

D. VERNON,
Chairman.

Since writing the foregoing we have seen in the *Daily Telegraph* of yesterday the letter signed "Triple Valve," and in the issue of to-day that of Mr. James Hoskins; and, although they are in the main answered by what we have already written, they contain several inaccuracies which it may be as well to correct.

Regarding the statement of the Board, "That there was sufficient hand-brake power on the train to have taken it safely to its destination," "Triple Valve" says, "this is only true, subject to two important qualifications—the first being, that all the hand-brake power was ready for use in an emergency. As the only two vehicles on the train which were supplied with hand-brakes were placed in different parts of the train, and there was only one guard, the statement is misleading in its most essential particular." "The second condition was, that the speed of the train when descending the heavy gradient would not be allowed to exceed 15 miles an hour," &c.

To this we can only say that "all" the hand-brake power which was on the train was not necessary to prevent it from getting beyond control. We have already shown that 21 tons would have controlled it if

if the speed had not been allowed to exceed 15 miles an hour, and that 26 tons would have controlled it at 25 miles an hour, while 43·146 tons would have stopped it *in 400 yards*, even if running down a grade of 1 in 40 at 25 miles an hour. Now, as we have previously stated, the speed should certainly not have been allowed to exceed 25 miles an hour on that incline, and it was not necessary to stop the train in 400 or even in 800 yards; and yet on the engine, tender, and one American car there were 38 tons of *usable* hand-brake force, and that, we still contend, was ample to control and stop the train if it had not been allowed to attain a very excessive rate of speed.

"Triple Valve" further says: "The fireman's statement that when the driver, finding his brakes were not acting, *placed his handle in the release position*, and that the air-gauge then showed a pressure of 75 lb., proves conclusively that the reservoirs were not then in the state of exhaustion assumed by the Board." This is a pure invention of the writer's. What the fireman really did say—and it is just as well to use a witness's own words whenever possible—was that "he (the driver) drew out and shut it (the valve) several times just for an instant; when I saw he had to reverse the gear I noticed the gauge, and found that we had about 75 lb. pressure; but when he opened the valve it flew round to zero, and on shutting it again I saw it run up to about 75 lb."

Now, even assuming that the fireman is correct in stating that the gauge indicated 75 lb. (although we are of opinion that on this point he is mistaken, and that, as a matter of fact, it did not show nearly so much) that fact is in no way irreconcilable with the "exhaustion" theory of the Board; for the gauge, as is well known, indicates the pressure in the main pipe, and affords necessarily no indication of the pressure in the carriage reservoirs, from which alone the air comes to apply the brakes, and which, every time he opened and shut his valve, he was exhausting.

The gist of the fireman's evidence, both at the inquest and before the Board of Inquiry, was to the effect that after passing through No. 2 tunnel the driver opened his valve, and left it open (and reversed his engine and applied the steam) until within about three-quarters of a mile of Peat's Ferry, when he again appears to have shut and opened the valve.

"Triple Valve" goes on to say, "Had such been the case, the air-gauge would have registered that pressure for an instant only, and then the indicator would have fallen back rapidly, as the air stored in the main reservoir and passing through the brake-pipe expanded into the small reservoirs."

Well, we have already seen from the fireman's evidence that the driver drew out and shut the valve several times "just for an instant," and can any reasonable person doubt that it was in one of those "instants" that he (the fireman) noticed the gauge? Did he not also say at the inquest that "he (the driver) applied the brake again immediately after releasing it, and it was then he said the train had got away from us."

That part of "Triple Valve's" remark about the air passing through the brake-pipe and "expanding" into the small reservoirs is not easy to understand, when we consider that the brake-pipe is an inch, and that the hole in the triple valves through which the air has to "expand" into the reservoirs is only *one-sixteenth of an inch* in diameter.

Then, again, "Triple Valve" says that, "after making due allowance for the resistance of friction, the whole train should have been charged with air of about 48 lb. pressure in about fifteen seconds." It is quite evident from this that "Triple Valve" knows very little of the subject he has ventured to rush into print about, for we have, for our own satisfaction, made several tests, and commencing with a pressure of 25 lb. in the carriage reservoirs, and with a high steam pressure, and the donkey going at full speed, it took from fifty to sixty seconds to increase the pressure to 50 lb.

Continuing, he says, "Professor Warren and Mr. Kirkcaldie's statement as to the number of manipulations required to reduce the pressure by a given amount are wanting in one important element. They do not give the number of brake cylinders in communication with the main reservoir which, in this case, was only five." Neither witness was asked the question; but it may not, even now, be too late to say that if Mr. Kirkcaldie had been asked he would have said that the test made under his observation was upon a train precisely similar to the one which met with the accident.

The most remarkable proposition of all, however, is contained in the sixth paragraph of "Triple Valve's" letter, which we take leave to quote *in extenso*:—

The fact of the train, after it was remade at Hornsby, having to stop at the first gradient, and that then some of the brakes had to be released at a time when, according to the fireman's evidence, the air was steadily increasing, points unmistakably to the fact that the air-connections were then incomplete. Observe with what extreme accuracy the circumstances connected with this stoppage dovetail into this theory, and the utter impossibility of accounting for them from the point of view assumed by the Board. When the train was recoupled at Hornsby, the air pressure stored in the fourth and fifth carriages would endeavour to rush into the empty reservoir of what had originally been the last but was now the second vehicle of the train, and this, of course, would apply the brakes of the first-mentioned carriages. The guard, getting down, released the brake—not, as stated by him, on a close second-class on which the brake had never been working, but on the carriages nearest to him, namely, the fourth and fifth. The fireman, going back to meet him, found the brakes apparently released by the driver; the true state of the case being that the first carriage was in communication with the main reservoir, the second had never had any air in the small reservoir, and the third was shut off at the tap leading to the triple valve, and thus the brakes on these three vehicles would be "off."

Evidently "Triple Valve" is not aware that it is a *mechanical impossibility for air stored in one carriage to pass into the reservoir of another carriage, or of the fact that when it does leave a reservoir it must pass into the atmosphere through the brake cylinder and triple valve of the same carriage.*

Nor is there a tittle of evidence to show that the fireman got down from the engine when the train came to a stand on the bank beyond Hornsby, or, indeed, after he left Beecroft with the first division of the train. And as regards the second vehicle from the engine when the train left Hornsby, "never having had any air in the reservoir," it is only necessary to refer to the evidence for overwhelming proof to the contrary. Here, it will be seen, "Triple Valve" has invented an impossible theory, and manufactured evidence in order to get his ideas to "dovetail" into each other with such "extreme accuracy."

As regards Mr. Hoskins, we feel quite sure that he will be glad to be put right on matters upon which he has evidently been misled, and we will, therefore, only point to the misapprehensions contained in the following extracts from his letter:—

(1) I believe the Westinghouse automatic brake is in general use on the Midland Railway, and that line is considered by many travellers as the best railway in England, as combining the essential merits for passengers who desire to travel—namely, punctuality in transit, speed, excellent, even luxurious, accommodation in its carriages, together with every reasonable precaution being taken to prevent accidents. The London and North-Western Railway Company used the continuous chain brake for some time after continuous brakes were first brought into general use with passenger trains; but I was given to understand in England that that Company was about to have the Westinghouse brake fitted to their passenger carriages, as they found the continuous chain brake too severe on the rolling stock.

Now,

Now, in reply to this, we may state that while the Midland Railway Company of England was the first to introduce the Westinghouse brake into that country, *it was also the first, or amongst the first, to abandon it at an enormous cost*, and to substitute the Vacuum brake.

It certainly cannot be held as speaking well for any brake that "the best railway in England" should have superseded it.

Reference to the Board of Trade returns for the latter half of last year will show that the Company in question had forty-seven engines, and 390 other vehicles still fitted with the Westinghouse brake, so that they have evidently not yet had time to finish the work of substituting one brake for the other, that work, as may be imagined, requiring much time to accomplish.

In addition to those mentioned, the Company had eighty-five Scotch joint stock vehicles fitted with the Westinghouse for the purpose of running over the Glasgow and South-Western line, which line, however, is also substituting the Vacuum for the Westinghouse, so that it would appear that the time is not very far distant when the Westinghouse brake will disappear from both lines. On the 31st December, 1886, the Midland Company had 710 engines and 3,651 other vehicles fitted with the Vacuum brake.

As regards the London and North-Western line, it is quite true that the chain brake is being superseded; but by the Vacuum, not the Westinghouse, brake.

The Board of Trade returns for the period already named show that that Company had 627 engines and 5,158 other vehicles fitted with the Vacuum, and of these there were 457 also fitted with the Westinghouse, for the purpose of running over other lines where the Westinghouse is used; but they had not one engine fitted with the latter brake.

(2.) Some years ago very exhaustive trials were made in England under the supervision of the officers of the railway department of the board of Trade, with the view of testing which brake was in their opinion the most efficient for the purposes required, in using a continuous brake controlled by the engine-driver of a passenger train, and they reported that the Westinghouse brake had been the most successful in these trials, and recommended its general adoption on the railways in Great Britain.

We do not dispute that trials of the various brakes have been made in England by the officers of the Board of Trade, but we are quite sure that they never recommended either the Westinghouse or any other brake for general use on the railways in Great Britain.

D. VERNON,
Chairman.

The Department cannot enter into controversy with writers in the Press; but if the Press would like to make use of this special report I do not see any objection to it.—CH.A.G.

No. 12.

Extract.

[From *The Daily Telegraph*, Saturday, August 6th, 1887.]

THE HAWKESBURY RAILWAY ACCIDENT—OUR REPLY TO THE BOARD.

WE have been the innocent means of exposing the besetting weakness of the Railway Board of Inquiry into the cause of the Hawkesbury railway accident. Had we been prompted in our criticisms by that delightful little nursery fable of the "Spider and the Fly," we could not have more neatly inveigled or more completely entrapped them. Lions and other wild beasts of the forest, school-books once taught us, are captured in meshes by their own rash plunging to get out. That is the picturesque position of these gentlemen, the only difference being that they have laid their own meshes. They have now plunged so madly and rashly that honorable or dignified extrication is impossible. Having annihilated what appeared to us to be the only ground on which the Board's theory of the disaster could be based, we are now informed that "This newspaper contribution bears unmistakable evidence of having been written in the interests of the Westinghouse Brake Company." Then follows the outcome of a stupendous effort to prove what the Board expected to find—that it was full of inaccuracies and strained interpretations of the evidence given at the coronial inquiry. The Commissioner for Railways, too, was convinced, from the tone, argument, and concluding challenge, that the article was contributed by some one who has a direct interest in the Westinghouse brake. Both are in absolute unison on that point. If called upon that would be their pronounced verdict no doubt, and it would be proved as humiliating to themselves as that they have given on the accident. What we have said about the Hawkesbury accident has been in accord with the great preponderance of evidence; with the verdict of twelve disinterested jurors; with, we believe, the experience of nearly every engine-driver accustomed to use the Westinghouse brake; and, above all, with public opinion. But, forsooth, it has not been in accord with the remarkable theory of the Board, supported by only two unimportant witnesses—therefore it bears unmistakable evidence of having been written in the interests of the Westinghouse Brake Company! We simply laugh at the insinuation.

Our object is to reply to the Board's exhaustive observations on our article, and in appreciation of the compliment bestowed on us by the Commissioner for Railways in instructing his principal officers to make this departure from officialism, we shall deal mercifully with them. They are more to be pitied than blamed, and although they occupy the extraordinary though somewhat unenviable position of being ridiculed by their subordinates from one end of the country to the other, it will be admitted that if they were biassed in their conclusions it was in the financial interests of the Railway Department. We even hope to win their promised appreciation by our candour and good tone. Of course, the able correspondent, "Triple Valve," will be left to hold his own; and whether he lashes them to scorn or is also merciful to this minute minority we are not responsible. Possibly confidence will beget confidence in Mr. Hoskins' reply.

We are accused of inaccuracies and strained interpretations of the evidence given at the coronial inquiry. Candidly, we admit having, though quite unintentionally, made several inaccuracies, and that the Board have done likewise. In extenuation we plead that it is beyond the bounds of human possibility to remember every detail of the evidence, the bearing of which extended over three weeks. In the main, these inaccuracies have been trivial. The most important is that several witnesses testified to the wheels of the first two carriages being hot. Upon further reference we find that this statement was made by several

several persons after the accident, but was not sworn to at the inquest. No one seems to have been examined on the point, which, like several others of importance, was omitted. Hume, the engine-driver, said he found the wheels of all the broken cars behind the first two cool, implying that he could not get at the others.

The Board will admit that much of the evidence requires interpretation, and it is quite natural to suppose that almost any interpretation made by those who believe in one theory would be regarded as strained by those who believe in the other. Unfortunately we are not in a position to know the character of the Board's interpretation of their evidence. Possibly they have most potent evidence to substantiate their "injudicious" air-exhausting theory. The continued concealment of their evidence does not, however, favour that view. This strange proceeding of producing their report, furnishing other reports, and holding back the evidence, creates the suspicion that the theory has been advanced by themselves and, is unsupported by the evidence.

Let us examine the three other circumstances besides the empty condition of the reservoirs which carried the Board to their conclusions.

The first is, the air-brake connections were complete and the taps open throughout the train up to the time of the accident. Then, does the admission of Weirick, the brake examiner, that he did not properly examine the train go for nothing? Is it evidence of the complete examination that not one man of the several who attended the train before leaving discovered the inoperative carriage on which was written in large chalk letters "air leaking," implying that the carriage was not to go out; and if such a vehicle went out unobserved might not also a small closed air-tap almost at the end of the train. Before this accident it was the practice of the officials to run down the side of the train to see if the blocks were on the wheels. Since the accident they have been carrying out the more sensible plan of turning the last tap on the train to ascertain if the air issues through. One practice required the exercise of keen sight to tell whether the blocks were on or off; the other is an easy and conclusive means of proving that the air-connection is complete. Why has the practice been altered if the theory of the Board is accepted without doubt? Surely we had some reason for dismissing this circumstance. It could not be accepted without ignoring the verdict of the jury.

That the air-pump was in working order we always regarded as evidence against the Board's theory rather than in support of it, inasmuch as it would take three or four times as long for the driver to exhaust his air with the donkey working than without it, and with it working down that incline it would be absolutely impossible for him to exhaust his air. Time and distance would not allow it.

The third ground, that in the absence of its failure there was abundance of brake power upon the train, is a nonsensical absurdity, upon which we shall have something to say.

Then we are told that *The Daily Telegraph* contributor is simply trying to blind the eyes of the public to a defect in the Westinghouse brake, which is no doubt mainly noticeable on long, steep, descending gradients, where the frequent application of the brake is necessary to check the speed of a train. It would also appear that we have been the means of compelling the Board to refer to the deficiencies of the Westinghouse brake. Such was not their first intention, but now the public safety and the unreliable character of our arguments demand it. With regret they are forced to speak in disparaging terms of the brake. And this is the way they do it. They declare there have been approaches to very serious accidents from the same cause—"injudicious manipulation"—without citing a single instance. A nice general statement, truly, which precludes any locomotive driver's denial. Then follows a long quotation from Mr. Marshall's paper on railway brakes read before the Society of Arts in London in March last. It so happens that this extract from the paper is identical with that in a circular issued and extensively circulated by another brake company during the recent inquiry. Much is made of this authority, but it would have shown better taste, if not judgment, to have taken the extract from the *Journal of the Society of Arts* instead of from the other brake company's circular. Perhaps it was taken from the journal, though we can hardly think so. If it had been, their instincts of fairness would, we feel sure, have prompted the Board to have intimated at any rate that Mr. Marshall's paper was very vigorously condemned in the long discussion which followed its reading, and a report of which appeared in the same issue of the journal.

We will supply the omission—quite innocently made, we feel assured:—Mr. G. A. Gutch said: "Although Mr. Marshall might have studied the Westinghouse brake in America, he did not think he would find any automatic vacuum brake such as he described there; he certainly would not find any working on mountain grades such as the Westinghouse worked on. He thought, therefore, that some of his information had been obtained second-hand, and that he was rather hasty in coming to the conclusion that the vacuum brake was likely to be of service on long down grades. There was no record of their having been worked on such grades. The Westinghouse was not only in America, but in Europe, on grades of 1 in 30 and 1 in 40 for 10 to 15 miles at a stretch. There seemed a deal of theory about the paper, and it would have been more satisfactory if Mr. Marshall had been able to give the practical experience of those who had worked the brakes. He said in one place that it was not within the scope of the paper to say which was the best brake, and in another place he stated that the automatic vacuum brake met all the requirements of railway work, which the Westinghouse did not, and this was rather a contradiction; the vacuum always seemed to come out the best when he was comparing the two. Again, his description of the Westinghouse was not correct. The triple valve was assumed to do certain things which it did not, and the things which it did do it did not get credit for. If he had really wanted to understand all about the triple valve, he might have gone to the company's works and seen, and he would then have found that what he had described as purely imaginary, the graduating on inclines, was really a fact. He said you could not see into the interior of a triple valve, but there was one specially constructed and shown at the Inventions Exhibition which you could see into. The graduation was most perfect. To say that it was put on intermittently in going down an incline was absurd; it was equivalent to saying that, when used to its utmost efficiency, you could stop at a certain speed in 100 yards, but you could not continue to make it stop in 200 yards or 300 yards. You could put it on as gradually as you liked. He (Mr. Gutch) maintained that in all trials which had ever been made the Westinghouse brake had never been beaten. It complied with all the requirements of the daily work of railways better than any other, could be put on quicker and taken off quicker than other.

The defect of the Westinghouse we are now told is mainly noticeable on long and steep descending gradients, where the frequent application of the brake is necessary to check the speed of a train. One would imagine from this that the Westinghouse must always be put on full, and when on must after be released

released in descending a long grade, whereas it can be applied at any degree between its minimum and maximum force, increased at will, and kept on as long as necessary. Therefore poor Wilson would have just as much reason in making frequent applications of the brake in descending the grade as he would in taking the brake off altogether.

In the succeeding number of the *Society of Arts Journal* the report of the discussion on Mr. Marshall's paper is continued. Again Mr. Marshall's paper is trenchantly dealt with. It is not our desire to lengthen this controversy with extracts: we only wish to counterbalance that prominently and somewhat unfairly submitted by the Board. We agree with the Victorian Commissioner for Railways, Mr. Speight, that there have been disputes as great about the merits of the different classes of brakes used as about the broad and narrow gauge question, but, adds Mr. Speight, "I am convinced that the weight of testimony is in favour of the Westinghouse brake." Sir Henry Tyler, C.B., M.P., said Mr. Marshall, in referring to the compressed-air non-automatic brake, "seemed to think that it had come after the automatic compressed-air brake, and he said the necessity for this had arisen on the steep lines in a certain mountainous district of America, where the non-automatic Westinghouse had to be marked. So far from that being the case, there was now only one instance, and that on a short line, of non-automatic brake working in this country. In reference to the Rocky Mountains, he took Mr. Marshall's word that it was on these inclines turned into a non-automatic brake on the descent as he had described, but if so he ventured to say it was quite unnecessary to adopt such an expedient; and with regard to the statement that the automatic form was not as well fitted for running down long steep inclines he must differ from him in toto. There was no brake so well adapted for a long steep incline, whether going up or down, as the Westinghouse automatic brake. This was not mere theory, as a good deal of the paper appeared to be, but the experience of actual practice. He could instance many long inclines in America where the automatic brake worked every day with the most perfect success, and with the result which Mr. Marshall had so well described when he said the train seemed to float smoothly and easily down the incline of the Rockies. What he saw done with the non-automatic brake on the Rocky Mountains was done every day and every hour on the Alleghenies in working the Pennsylvania railway with the automatic brake, and his glowing description would apply equally well to it. The triple valve, of which a model was placed on the wall, though it looked complicated, was the most simple device in working he had ever come across. Mr. Westinghouse was one of the cleverest mechanics he had ever met, and this valve was a masterpiece of ingenuity. Its simplicity of working was absolute."

At last we arrive at the Board's attempt to answer our simple explanation of the empty state of the air reservoirs. They are exceedingly careful not to deny it. We say plainly they dare not deny it. It was never said that it was not a defect for a brake to leak off "in a few minutes." What was said was, that when new and in perfect order the air will leak through the cylinders in the course of three or four hours, and when the packing is worn, as we believe that of these cylinders was, half an hour is sufficient. Purely an assumption, indeed! It is an absolute and universal truth. Not one man in the army of their subordinates who knows anything of the Westinghouse brake will deny it. We challenge any member of the Board to do so. Not a shred of evidence to support it, we are told. The answer is that not one witness was questioned on the subject. But if the professional members of the Board made no effort to elicit any evidence on the point, there is not so much excuse for them. Why dispute the matter by evasion? Put the same carriages together and see how quickly the air will leak away.

It is a matter of perfect indifference to us whether it is pronounced a defect in the brake or not; we only know that what we have alleged is true, and can be and has been proved at the railway sheds.

Assuming that it is a defect—which we deny—for the air to leak through the cylinders of stationary carriages, a remedy has been found in no other brake. Will not the rubber roller packing of the vacuum cylinder act in exactly the same way, and is not its leakage accelerated by hot weather? Will not the force of a steam brake, when separated from the engine, condense and thereby exhaust itself? Woods' water-brake would no doubt remain on longer than any.

Really, we did not think the members of the Board were capable of giving utterance to such nonsense as this:—And he apparently fails to see how much under these circumstances he imperils the reputation of the brake by urging such an argument; because, if we grant that what he says be true, it necessarily follows that the difficulty and expense of maintaining it in efficient condition becomes so great as to make it a most extravagant brake to use." Imperil the reputation of a brake because it will not act for all time when its source of supply has been withdrawn—when the locomotive on which the compressed air is made and controlled is absent! Such a model brake has never been invented, and it is certainly quite beyond the ingenuity of the Board to produce one.

The Westinghouse brake, when supplied, will retain the air on stationary carriages for several hours. The annual cost of keeping the leather packing in good order and general maintenance of the brake appliances, including the iron blocks, on the principal railways of England and America is 12s. 2d. each carriage fitted with the brake. An artisan can renovate the cylinder packing of a whole train in a day, and once in three months would be able. So much for their idea of extravagance. A little more of this sort of argument and the public will very much doubt whether the Board can fairly claim to have a knowledge of the subject with which they were called upon to deal.

Of Clissold, the guard, the Board, in their report, specially mentioned that the effect of the accident had been a severe shock to him, and it had evidently affected his memory of some of the events and of the order in which they took place. Albeit, they appear to gladly avail themselves of the literal interpretation of his statement that he saw one of the wheels "skidding" after the train left Hornsby, and that he went forward and released the brake from the side valve, but we can readily understand that term being applied to wheels on which the blocks were rubbing. "Skidding," as is well known, is a term often used in that sense. One would be inclined to give the Board the benefit of this, coming as it did from the confused Clissold, had they not followed it up by remarking that "it is by no means an unfrequent occurrence, after an application of the brakes by a driver, for a triple valve to stick, and so cause the blocks to remain hard on upon that particular vehicle." It will be seen by the Board of Trade returns that the two Westinghouse triple valves stuck in six months, during which 15,000,000 miles were travelled.

Assuming that the figures given of the brake force required to control the train at certain speeds given by Mr. Laughry and Professor Warren are correct, they do not affect the matter in the material degree one would at first imagine. It all depends upon the time of its application and the speed the train

had

had reached before it was fully applied. Their figures respectively apply to a speed of 15 and 25 miles an hour, while the evidence of two or three witnesses is that the speed was very great before the first tunnel was reached. Readily we admit this to be the strongest point in the Board's observations. Mr. Dodds, a passenger on the train, noticed steam being kept up at the first tunnel, and the man engaged at the tanks stated that the train passed there at the rate of some 35 miles an hour. This is clear testimony that Wilson was rushing down the hill thinking all was safe and with a desire to regain time. If so, his 30 tons of brake power would be practically useless when he applied it. Moreover, Clissold, did not use the hand brake, applying another 10 tons, until he heard the continuous whistling. The inference is that he was running with the engine brake alone until he got to the 1 in 40 grade, and when he applied the air-brake the train was beyond control simply because he had no brake-power beyond the first carriage. Was it not at this moment that he exclaimed to Pye, "She's got away from us," and immediately afterwards the whistle was heard and Rennie seen waving his hand. Had he exhausted his air at this time, would not Pye have noticed his eccentric conduct—which the Board describes as injudicious manipulation—if anything, it should be called "wilful wasting."

Let this Board nurse their pet but impossible theory as long as they please, it will have no weight whatever in the public mind. Already we have good reason to believe its impossibility on a grade of this length has been clearly proved. Will the Board be surprised to learn that a number of engine-drivers have tried the "injudicious manipulation" theory, with one result—that it is impossible. In all seriousness the Board even recommend the Westinghouse Brake Company to grapple with and overcome this defect in their famous invention—a defect which only exists in the minds of the Board and a few others they have influenced. Our recommendation is one which will settle the whole matter in a day. We repeat our challenge. It was quite ignored by the Board. Strange that they paid no heed to the two main features of the article in their lengthy report. We make it again, careless whether it will please or displease the Westinghouse Brake Company, but in the interests of the public safety. It had been laid down that the air reservoirs will leak off when new in 3 hours; in 30 minutes when the leather packing requires renewing. The answer is, try it. We have submitted that the force of the Westinghouse-brake cannot possibly be exhausted or brought down to an inoperative pressure in a grade as continuous as that at Peat's Ferry with the donkey working. Try it. Will the Board again remain discreetly silent?

Can the Board explain away these facts:—

That the engine-drivers examined at the inquest without exception believed that the accident was the result of incomplete air connection.

That Pye, the fireman, distinctly and repeatedly stated that he did not see Wilson turn the brake on and off at short intervals; that everything appeared to be going well until they reached the 1 in 40 grade; that he observed 75lb. pressure on the gauge; that the donkey was working, and that the only conclusion he could possibly arrive at was that other air couplings were not complete. In the death silence of Wilson and Rennie, must the valuable testimony of the living fireman who was on the engine beside them remain a dead-letter for the sake of the superior inductive intelligence of the members of the Railway Board? Observe how it asserts itself. Pye says he saw the gauge showing 75lb. pressure. The Board say they are of opinion that on this point he is mistaken, and that as a matter of fact it did not show nearly so much.

Is not the closed tap, which, in its protected position beneath the carriage remained uninjured and unmoved, living *prima facie* evidence of all the mischief? If the collision closed that particular tap, how was it that all the others escaped?

Is not the changed position of the train at Hornsby strong circumstantial evidence that the tap was unnoticed in its previous almost unaffected position?

Did not one passenger declare that he never felt the air-brakes on the last carriage at any part of the journey between Sydney and Beecroft? Did not another positively assert that he saw unmistakable evidence that the blocks were on the first two carriages only when descending the gradient?

Was not Mr. Garrard's statement that he left the air-brake on the American car after leaving Hornsby made under the impression that the guard was not applying the hand-brake, and has it not been clearly shown by several witnesses, including Clissold himself, that he was working the hand-brake there?

Is not Werrick's statement that he only examined the first seven carriages and made no examination of the last two carriages, evidence that he could not have made any examination at all of the completeness of the air connections when the engine was on? It has been proved that the engine which took the train away was not placed on the train until the nine vehicles were coupled.

Why have the Board not produced their tables attached to their report showing the number of applications of the brake required when the donkey is not working, and when it is to exhaust the air? The Commissioner says the result conclusively supports the theory of the Board. Perhaps they can furnish some tables of the time necessary to exhaust the air-reservoirs on stationary carriages. Perhaps, also, the Board are afraid of the production of the results taken by numerous other persons.

No. 13.

Extract.

[From the *Daily Telegraph*, 10th August, 1887.]

"TRIPLE VALVE" IN REPLY.

To the Editor of the *Daily Telegraph*.

Sir,

I certainly have no desire to enter into a controversy on a subject which has already been worn nearly threadbare, but I cannot refrain from making a few remarks in reply to that portion of the last report of the Departmental Board which deals with my former contribution on the Hawkesbury railway accident.

The first point raised by the Board is the question as to the sufficiency or otherwise of the available hand-brake power to properly control the train on a gradient of 1 in 40, and in support of their contention the Board refers to the evidence given by Professor Warren and Mr. Laughrey as to the minimum amount

amount of brake force necessary. As the opinions of these two gentlemen were probably—nay, I should say certainly—based on the assumption that the co-efficient of friction between the brake block and the wheel was an unvarying factor in the calculation, and as I have shown in my previous letter that Captain Galton's experiments conclusively demonstrated that this co-efficient diminished to half the normal amount after 15 seconds of contact, and that the speed had an important influence in determining its value, it is scarcely necessary to say that had these "experts" been acquainted with the facts as verified by actual experiment they would have considerably modified their opinions on the subject. I suppose it will be generally admitted that on our heavy gradients it is desirable to have as much brake force as can be used without skidding the wheels, and it will certainly interest and probably surprise the gentlemen named above to learn from Captain Galton's experiments (*see* Reynold's Continuous Railway Brakes):—"When the adhesion between the wheel and the rail equals $\cdot30$ of the weight a pressure equal to $1\cdot2$ of the weight would skid the wheel at $7\frac{1}{2}$ miles an hour, while a pressure equal to $4\cdot14$ times the weight would be required to do so at 60 miles an hour. Again, if the adhesion be only $\cdot15$, the brake force necessary to skid the wheels is $\cdot60$ of the weight at $7\frac{1}{2}$ miles an hour, and $2\cdot08$ times the weight at 60 miles an hour." Thus on this particular train, weighing 170 tons, in the former case, a brake force of nearly 204 tons could be beneficially applied at a speed of $7\frac{1}{2}$ miles an hour, and nearly 703 tons at 60 miles an hour, while with the lower adhesion at the lower speed nearly 102 tons could be used, and at the higher speed nearly 353 tons. The value of the evidence given on practical questions of this nature by a mere theoretical expert may be gathered from Professor Warren's statement before the jury that "such an engine was capable of taking such a train up a gradient of 1 in 40 at a speed of from 20 to 25 miles per hour." This cannot be accomplished either in theory or practice, and even the Departmental Board, consisting of men having a practical knowledge of the power of locomotives of all classes, admit in their first report that the engine was "slightly overloaded, and had more vehicles on than could be easily hauled up such a long gradient." Yet they unhesitatingly accept his dictum on a matter much more difficult of calculation; a question in which the influences exercised by the generated heat and the lubricating action of the finely triturated iron dust between the blocks and the wheels are practically unknown quantities.

The Board characterises as a "pure invention of the writer's" the following assertion in my letter:—"The fireman's statement that when the driver, finding his brakes were not acting, placed his handle in the release position and that the air gauge then showed a pressure of 75lb." This statement occurs several times in the fireman's evidence at the inquest, as a perusal of the daily papers will show; and even in the quotation given by the Board—"using the witness's own words"—it is twice repeated, so I leave the public to decide whether there is any "invention" in the case.

My statement that with an initial pressure of 75lb. "in the main reservoir, and making due allowance for the resistance of friction, the whole train should have been charged with air of about 48 lb. pressure in 15 seconds," is met by the Board (I pass over the personal remarks) asserting "that for their own satisfaction they have made several tests, and commencing with a pressure of 25 lb. in the carriage reservoirs, and with a high steam pressure and the donkey going at full speed, it took from 50 to 60 seconds to increase the pressure to 50lb." This test has no bearing whatever on the question at issue. The capacity of the main reservoir is about 10 cubic feet, the five small reservoirs each about 1 cubic foot, and the brake pipe about 1 cubic foot, total 16 cubic feet; and consequently in this experiment the donkey would be required to double the already existing pressure in this space against a constantly increasing resistance. In the case of the runaway train the main reservoir would contain 10 cubic feet of air at 75lb. and this being expanded to 16 cubic feet, the pressure of air being inversely at its volume, the resultant pressure would be 46·8lb., and this is independent of any work done by the donkey. As to the time occupied, the Board quotes in this very report, apparently with approval, a statement by an American locomotive engineer:—"Auxiliary reservoirs cannot be recharged without releasing all the brakes on the train, and the train will, during this short time of release (15 to 20 seconds)," &c. And it is, perhaps, fair to assume that even this estimate applied to a much larger number of small reservoirs than were on the train in question. It appears, therefore, that I have the good fortune to err in distinguished company.

Referring to another statement of mine the Board says, "Evidently 'Triple Valve' is not aware that it is a mechanical impossibility for air stored in one carriage reservoir to pass into the reservoir of another carriage," &c. Those who have read my letter carefully will see that I never asserted anything of the sort. The words I used, and which are quoted by the Board are, that it "would endeavour to rush into the empty reservoir," and this is exactly what happens. When two vehicles having different air pressures are coupled together, the brake is applied on the vehicle having the higher pressure, the reason being that, in obedience to natural laws, the fluid having the higher pressure "endeavours to rush into" the fluid of lower pressure, and forcing the triple valve down, uncovers the opening to the brake cylinder and applies the brake. The same thing occurs when a pipe bursts, or a tap is opened to the atmosphere, or when the driver opens his brake valve and allows the air to escape from the brake pipe, so that there is decidedly "no mechanical impossibility" about my statement.

But it certainly appears to me to be a "mechanical impossibility" for a pointed iron tap, $\frac{1}{2}$ in. in diameter and 6 in. long, standing at right angles to a line of piping $1\frac{1}{4}$ in. in external diameter, to be closed in such a way by two carriages telescoping as to bring it exactly parallel with the pipe, without in any way damaging the tap or pipe, and yet this is what the Board asks us to believe.

After reading the evidence over carefully, I must candidly admit that I was in error in stating that the fireman got down to release the brakes after the train left Hornsby, having been under a misapprehension as to the part of the road where this occurred; but this error in no way invalidates the conclusion arrived at as to the cause of the accident. The board apparently attaches great importance as supporting their theory to the evidence of Mr. Garrard, to the effect that he distinctly felt the Westinghouse brake being applied in a spasmodic manner to the second carriage, in which he was then sitting. The value of his evidence is considerably discounted by the fact that although he "was taking particular notice of the brake, as he was sure there was going to be an accident," he was not aware, and "would be surprised to learn," that the guard was applying the hand brake with all his power on that particular carriage.

After all that has been said and written on the subject, the stubborn fact remains that with such a train, and assuming the brake connections to be perfect, a pressure of 80lb. to commence with, and the donkey working fairly well, the air could only be exhausted from the small reservoirs by using the brake in such an erratic and idiotic manner as to attract the attention of every passenger in the train; and on a
gradient

gradient of 1 in 50, which is where the board assumes this to have been done, the train would probably be so much steadied by each full application of the brake, as to allow ample time to re-charge the small reservoirs, especially when we consider that the main reservoir still contained 75lb. air pressure.

In conclusion, I may state that my only object in "rushing into print" on this matter has been to assist in arriving at a correct solution of a question fraught with the greatest importance to the railway department and the travelling public, and I need scarcely say that I have no interest, direct or indirect, in the Westinghouse brake; and that while acknowledging its many advantages, I am nevertheless fully alive to its many grave defects as applied to everyday railway work on our lines.

August.

Yours, &c.,
TRIPLE VALVE.

No. 14.

The Peat's Ferry Railway Accident.—The Departmental Board and the *Daily Telegraph*.

To the Commissioner for Railways,—

When the Board in their report of the 30th ultimo stated that the article which appeared in the *Daily Telegraph* on the 23rd idem, and headed "The exploded theory of the Board," bore unmistakable evidence of having been written in the interests of the Westinghouse Brake Company, and that the author of it was simply trying to blind the eyes of the public to a defect in that brake, they thought, and think still, that the article itself furnished the strongest possible proof of the assertion; but if any further proof were necessary, a perusal of the article which appeared in that journal on the 6th instant, and headed, "Our reply to the Board," should remove any vestige of doubt that may exist in the mind of any reasonable person on the point.

In a matter fraught with such importance it would have been naturally thought that the only endeavour of the whole of the public press would be to render every assistance alike to the public and to the department in arriving at a true solution of the lamentable accident; but, although in one or two of its editorials the *Daily Telegraph* has professed to do this, let any unprejudiced person carefully peruse the articles in question, and say whether they are written in an impartial manner, or whether the whole of that journal's energies have not been directed to the upsetting of the theory of the Board, for no other apparent reason than that, in the opinion of the latter, the accident was caused by the exhaustion of the air in the carriage reservoirs, in consequence of which the application of the air-brakes became impossible.

The Board will not of course attempt to imitate the flippant tone adopted by the writer of the article, of the 6th inst., which is particularly noticeable in the two first paragraphs, but when he asserts that "what we (the writer) have said about the Hawkesbury accident has been in accord with the great preponderance of evidence," we differ with him entirely.

In the third paragraph the writer goes on to say, "We are accused of inaccuracies and strained interpretations of the evidence given at the coronial inquiry. Candidly we admit having, though quite unintentionally, made several inaccuracies, and that the Board have done likewise. In extenuation we plead that it is beyond the bounds of human possibility to remember every detail of the evidence, the hearing of which extended over three weeks," &c. However important or unimportant it may be, it is something to know that the author of the article in question admits having made "several inaccuracies;" but it is of more importance to know that, although he accuses the Board of having "done likewise," he has failed to specify a single inaccuracy made by the Board.

If our critic trusted to his memory when he penned his article of July 23, as, according to his own words, he appears to have done, no wonder he made many mistakes. There was no necessity, however, for him to "remember" the evidence when he could have referred to it, and whatever excuse there may have been for him on that occasion, there can be none for the inaccuracies in his later production, since, in addition to the evidence, he had the report of the Board on his previous article to refer to, and yet the inaccuracies in the article of August 6 are even more glaring than those of July 23. For instance, he says, "upon further reference we find that this statement (the statement about the wheels of the first two carriages being hot) was made by several persons after the accident, but was not sworn to at the inquest. . . . Hulme, the engine-driver, said he found the wheels of all the broken cars behind the first two cool, implying that he could not get at the others." Upon further reference to whom or what? The Board has no evidence whatever that any wheels were found after the accident to be hot, nor was any such evidence taken at the inquest, and Hulme did not make the statement imputed to him by our critic. What he did say was:—"On reaching the train, after the accident, I saw the brake blocks on the third carriage from the engine hanging loose. I felt the tires of that carriage and the one behind (No. 4), and found they were as cool as they could be by running without the brakes being applied to them." Not a word was said either by Hulme or anyone else about "having found the wheels of all the broken cars behind the first two cool;" as a matter of fact, there was only one slightly damaged vehicle behind the two that were telescoped, and that was the third from the engine, the tires of which, Hulme says, he felt. Nor is there the slightest reason to imply that the wheels of the smashed carriages could not be got at; indeed, there was no difficulty in getting at every wheel on the train, except, of course, those on the engine and tender, which were in the river.

Then our critic goes on to say:—"The Board will admit that much of the evidence requires interpretation, and it is quite natural to suppose that almost any interpretation made by those who believe in one theory would be regarded as strained by those who believe in the other. Unfortunately, we are not in a position to know the character of the Board's interpretation of their evidence." The Board does not admit that the evidence requires interpretation; it is sufficiently clear without it; and the writer must again have been trusting to his memory when he asserted that he was not in a position to know the Board's interpretation of the evidence, because if he will look at the Board's first report (dated July 1) he will find the following words:—"After the most careful consideration we think that the evidence points conclusively to certain facts from which the cause of the accident is not difficult to gather," and then those facts are clearly stated. Again, in their last report, dated July 30, he will find it stated that "It was not . . . the condition of those reservoirs (on the fourth and fifth carriages) at the time of the accident which alone constituted the premises of the Board's conclusion; three other circumstances were (and are still) in their opinion fully borne out by the evidence taken both at the departmental and coronal inquiries—

inquiries—viz., that the air-brake connections were complete and the taps open throughout the train (except of course the rearmost one, which was properly shut) up to the time of the accident; that the pump which supplied the air was in working order; and that in the absence of its failure there was abundance of brake-power upon the train. It was all these facts taken together which guided the Board in arriving at the conclusions embodied in their report." Surely nothing can be plainer than these remarks.

As far as holding back the departmental evidence is concerned, there is really nothing to hold back, although the *Daily Telegraph* seems to think otherwise. When the first report of the Board was published, the question of submitting the coroner's evidence to an expert had not been even mooted, consequently there seemed to be no reason to withhold either the report or the evidence from publication; but when the Government decided to have the verdict of the jury thoroughly inquired into and compared with the evidence, it must be evident to everyone that departmental evidence could have no bearing whatever upon that verdict, and probably the *Daily Telegraph* would have been the first to condemn its publication on the ground that it would be likely to prejudice the mind of the expert selected by the Government.

As regards the alleged insufficient examination of the train before leaving Sydney, and our critic's assertion that the words "air-leaking" written on one carriage implied that that carriage was not to go out, it is hardly necessary to say that those words implied nothing of the kind. When a vehicle of any kind is withdrawn from the traffic, the plain words "Not to go out" are written upon it.

Our critic ignores the statement in the Board's last report to the effect that one witness, who was hand-braking the seven vehicles (which when the train was finally made up, formed the rear portion from Sydney) had the wheel twisted out of his hand by some one opening the tap at the first vehicle. If, in the face of such evidence, our critic still hazards the opinion that the tap which was found to be closed after the accident was in reality closed before the train left Sydney (and his words bear no other inference), we can only say that he is evincing no desire to get at the true cause of the accident, but is, on the contrary, misleading the public.

The Board is not aware of any alteration of the practice and mode—indeed there has been none—of examining trains before they start on their journey.

The *Daily Telegraph* writer proceeds to say "That the air-pump was in working order we always regarded as evidence against the Board's theory rather than in support of it," &c. Why he should have thought that the fact of the pump being in "working order" was against the Board's theory we cannot see, but even if it were, the Board's only desire was to get at the truth. Of course, if the pump was working at full speed all the way down the incline, it would take three or four times longer to exhaust the air than if the donkey was at rest. Still it must not be forgotten that Mr. M'Kirkcaldie stated in evidence that, even with a high pressure of steam and the donkey going at full speed, he had seen the pressure in carriage reservoirs reduced from 88 to 40lb. in seven and half minutes by six manipulations of the driver's brake-valve, while it would take about ten minutes for the train to run from the top of the hill to the second tunnel, where it got beyond the driver's control; so that even under the most favourable conditions the exhaustion theory is perfectly possible. But now comes the question, was the donkey working at full speed all the way down the hill? We are strongly inclined to believe it may not have been, and our opinion is based upon the fireman's evidence, who alone is able to give any testimony on the subject. He said that he saw the driver ease the steam to the donkey before the train reached the top of the hill, but he did not say that he saw him (the driver) put on the steam again afterwards. If he forgot to do that (and whether he did or not there is no evidence to show), the exhaustion would take place all the more rapidly.

"The third ground," the writer proceeds to say, "that, in the absence of its failure, there was abundance of brake power upon the train, is a nonsensical absurdity upon which we shall have something to say." But he did not say anything, and perhaps it would be wise for him to think the matter well over before he commits himself to a "nonsensical absurdity." And then he seems to think that he has fairly demolished the Board's references to the paper on railway brakes which Mr. Marshall read before the Society of Arts in London in March last, and continues:—"It so happens that this extract from the paper is identical with that in a circular issued and extensively circulated by another brake company during the recent inquiry. Much is made of this authority, but it would have shown better taste, if not judgment, to have taken the extract from the *Journal of the Society of Arts*, instead of from the other brake company's circular. Perhaps it was taken from the *Journal*, though we can hardly think so. If it had been their instincts of fairness would, we feel sure, have prompted the Board to have intimated, at any rate, that Mr. Marshall's paper was very vigorously condemned in the long discussion which followed its reading, and a report of which appeared in the same issue of the *Journal*," and immediately following upon this we are treated to lengthy extracts from the speeches of Mr. G. A. Gutch and Sir Henry Tyler.

Now, although we know that it is a common practice for rival companies to avail themselves of every opportunity to advance their own interests at the expense of their neighbours, and we suppose the *Daily Telegraph* will admit that even the Westinghouse Brake Company is not blameless in this respect, we can positively assure our critic that every word of the extract was copied from the *Journal of the Society of Arts*, and that not one member of the Board has seen or heard anything of the circular he refers to up to the present time, and they do not even know that such a circular exists. The Board's "instincts of fairness" prevented them from quoting from any of the speeches which followed the reading of Mr. Marshall's paper, but the *Daily Telegraph* writer has no such delicacy, for he has the audacity to assert that the paper was "vigorously condemned" during the discussion which immediately followed its reading, whereas the real facts are, as may be seen on reference to the *Journal*, that while four members of the society took part in the discussion at that particular meeting, only one of them (Mr. Gutch) said a disparaging word of Mr. Marshall's conclusions, because he considered that that gentleman had not done the Westinghouse brake justice; and he (perhaps our critic is not aware of the fact) is engineer for the Westinghouse Brake Company, and a shareholder in that company as well. With regard to the only other authority quoted by the *Daily Telegraph*, viz., Sir Henry Tyler, perhaps, again, the writer was not aware that when some nine or ten years ago the Board of Trade in England determined to recommend the different railway companies to provide automatic air-brakes for passenger trains, Captain (now Sir Henry) Tyler was its senior officer; consequently the duty of preparing the required conditions would naturally devolve upon him. These conditions were such that it was thought at the time that the Westinghouse brake was the only one which could comply with them, and not long after they were adopted by the Board of Trade, Captain Tyler resigned his position to become the paid vice-president of the Westinghouse Brake Com-

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pany, a position he held until a short time ago; and the share-list of that company shows that he holds shares of the value of £15,750. Does our critic seriously mean to ask us to accept as entirely unprejudiced the statements of such gentlemen as these?

That, we venture to think, would be as absurd as it would have been unfair on our part to have quoted from the speech made by Mr. Harold Brown at the following meeting, from the tone of which it was evident to the Board that he was interested in a rival brake; therefore we refrained from quoting from any speech which seemed to have the slightest taint of prejudice.

But so far as we know, Mr. Marshall has no interest, either pecuniarily or otherwise, in any brake, so that there are no grounds for believing his statement to be prejudiced; indeed, his paper, as everyone must admit who reads it, shows unmistakably how impartial he was; and, to use the words of Sir Frederick Bramwell, the Chairman, when he proposed a vote of thanks to Mr. Marshall for his paper—which, by the way, was carried unanimously—“No one acting as arbitrator in a dispute could hope to satisfy both sides, and if he dissatisfied both it was probable he had done substantial justice. No one writing such a paper as Mr. Marshall’s could hope to satisfy everyone, and as everyone seemed to think his own particular brake had not been done complete justice to, it was pretty good evidence of the impartiality of the paper.”

And since our critic has chosen to introduce the name of Sir Henry Tyler as an authority, we may perhaps be pardoned for quoting from a report of Colonel Yolland (who succeeded him as senior officer for the Board of Trade) on an accident which happened at Blackburn, in England, in 1881, when seven people were killed and sixty-four injured, and we may mention that we would not have drawn attention to it but for the introduction of Sir Henry Tyler’s name, for which the Board is not in anyway responsible. Colonel Yolland who, by the way, continued in his position in the Board of Trade until his death a few months ago, and consequently was precluded from having any pecuniary interest in any brake, says in reference to that accident that—“The Westinghouse automatic air-pressure brake is a very clever, ingenious piece of mechanism, made up of a very great number of separate parts, to give it the automatic action; but, as is well known, the greater the number of parts in any piece of mechanism, the greater is the liability of failure, and I consider that the liability to apply itself when not required and when there is no accident, and to fail to act or go on when absolutely required by an engine-driver, constitute two grave defects in its present construction.”

In another part of the same report he says: “I informed Mr. Westinghouse that I would delay making my report for ten days, as he was obliged suddenly to go on the Continent before my inquiry had finished. Ultimately I was told that they would call the persons they desired to examine at the inquiry before the Coroner, and they only called one of their inspectors before me to explain some conversation which had passed between him and the driver, Stanfield, of the Manchester express, which the latter had interpreted as a suggestion that he should go to America and avoid attendance at the Coroner’s inquest.” We agree, as readily as our critic, with Mr. Speight, that there have been disputes as great about the merits of the different classes of brakes as about the broad and narrow gauge question, and with reference to his (Mr. Speight’s) remark that he was “convinced that the weight of testimony is in favor of the Westinghouse brake,” it can only be said that if every one held the same opinion no other brake would be able to make headway against the Westinghouse, and yet it was the Midland Railway Company in England, the line on which Mr. Speight was assistant general manager before he came to Australia, which was the first to introduce the Westinghouse brake into that company, and amongst the first, if not the very first, to abandon it for another.

And now we come to that part of the newspaper article where it is stated—“At last we arrive at the Board’s attempt to answer our simple explanation of the empty state of the air reservoirs. They are exceedingly careful not to deny it. We say plainly they dare not ‘deny it.’”

It is rather difficult to know whether to be amused at this statement or surprised at its audacity, for, far from denying or attempting to deny the empty condition of those reservoirs, the Board held that the accident was caused by their being empty. Had they not been empty, or practically empty, the Board believe that the accident would not have happened.

With regard to the “leaking off” theory, we should prefer that our critic would make up his mind on the subject before making any further communication to the *Daily Telegraph*. In his first article (23rd July) he says that even when everything is in first-class order the brakes will leak off in three hours, whereas in one part of his last article he says, “three or four” hours, and in another, “several” hours; but to make out his case they must all be supposed to have leaked off in half an hour, which the evidence positively contradicts.

In a very elaborate defence of the Westinghouse brake the writer, commenting on the remarks of the Board respecting the cost of maintaining the brake in efficient condition if it requires so much attention as he stated, makes use of the following remark:—“An artizan can renovate the cylinder packing of a whole train in one day, and once in three months would be sufficient.” In reply to this we can tell him that one of the vehicles on the train was overhauled exactly three months before, another two months and seventeen days, a third twenty-four days, and the fourth nineteen days before the accident. Therefore, even on his own showing, it is exceedingly difficult to understand how they can be reasonably supposed to have leaked off.

“Of Clissold the guard,” our critic continues, “the Board in their report specially mentioned that the effect of the accident had been a severe shock to him, and it had evidently affected his memory of some of the events and of the order in which they took place. Albeit, they appear to gladly avail themselves of the literal interpretation of his statement that he saw one of the wheels skidding after the train left Hornsby, and that he went forward and released the air from the side valve, but we can readily understand that term being applied to wheels on which the blocks were rubbing. Skidding, as is well known, is a term often used in that sense.”

Skidding is not known amongst railway men in any other sense than that of wheels ceasing to rotate when a vehicle is travelling; and the Board, in their last report, would not even have made reference to Clissold’s evidence if our critic had been fair enough to have quoted it correctly. Either he (our critic) should have left Clissold’s evidence alone, or he should have taken it as it stands. He should not have taken that that only which suited him and was misleading to the public, and left out that which did not suit him, particularly when both portions of the evidence bore upon the very same point; and as regards the assertion that only two Westinghouse brake triple valves will be found, on reference to the Board of Trade returns, to have stuck in six months, it would be interesting to know from what returns

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our critic obtained his information, for on reference to those for last year we find that thirty-three were reported to have stuck in the first and twenty-eight in the latter half of the year. And who will venture to say that they were all, or anything like all, reported? Take the evidence of fireman Pye, where he says "it often happens that the blocks after being applied by a driver at a station won't release themselves, and someone else has to release them." What is that but triple valves "sticking?" Indeed, reference to his evidence will show that when the train stuck on the bank at Beecroft, the driver was unable to get away with the first seven carriages until the fireman got down and released the air from one carriage on which the brakes were then "hard on." That could only have been caused by a triple valve sticking.

The *Daily Telegraph* writer can have no knowledge whatever of railway working, or he would not be so ready to quote the evidence of Mr. Dodds—a passenger who was in the fourth carriage from the engine—to the effect that he "noticed steam being kept up at the first tunnel." No railway man would believe such a statement, seeing that without any steam whatever the train would, by its own momentum, have attained a dangerously high rate of speed on the down grade of 1 in 50 if it had not been controlled by the brakes. Why not take the evidence of Pye who was on the engine? He says the driver shut off steam at the top of the hill, and that is about 3 miles before the first tunnel.

We can only characterise it as a misrepresentation when our critic asserts that "the inference is that he, the driver, was running with the engine-brake alone until he got to the 1 in 40 grade," because a very cursory glance at fireman Pye's evidence would have shown him that Pye said he saw the driver working the air-valve as the train was going down from the top of the hill, and that it was immediately on the grade of 1 in 40 being reached that the driver said to him, "She has got away from us." And the writer asserts that the exhaustion theory of the Board is a "pet and impossible theory." Let us see what the local agent for the Westinghouse Brake Company is reported to have said to the representatives of the *Daily Telegraph* a few days after the accident:—"It is said that the train was examined and found to be in good order before the train started. If that was so, the brake could only have been prevented from acting either by the driver totally exhausting his air, or rather, allowing it to exhaust itself, or the connections between the carriages being wrongly coupled." Surely a statement of that kind, coming from such a quarter, will satisfy our critic, since he evidently will not believe in the correctness of the tests that have been made by the Board since the accident. We repeat that drivers, when descending long steep grades on the mountains, and when they have reason to fear that their controlling power is becoming exhausted, get their trains well under control, then put on their hand-brakes as tightly as they can, and release the air-brakes for the purpose of recharging the reservoirs. For obvious reasons again, our critic chooses to take no notice of our reference to the discussion which took place at Chicago in July, 1885, on the "losing of the compressed air by careless handling of the engineer's valve." And he is evidently not aware that precisely the same difficulty was experienced on some of the Hungarian lines on grades of 1 in 40, and that it was only overcome by substituting unusually large donkey pumps and reservoirs.

The *Daily Telegraph* also chooses to take no notice of our statement that, even assuming their shut-tap theory to be correct, there was even then more than sufficient brake power to control and stop the train, instead of which the speed appears, from the evidence, to have kept on increasing, whereas, if there was no air in any of the auxiliary reservoirs, as the Board believes, the power was not sufficient, and the increasing speed of the train is at once accounted for. This is a most important feature in the case and is better than mere theorising.

The following sentence also appears in the *Daily Telegraph* article:—"Is not the closed tap which in its protected position beneath the carriage remained uninjured and unmoved, living *prima facie* evidence of all the mischief. If the collision closed that particular tap, how was it that all the others escaped?" The reply to this is, that if all the carriages had telescoped inside each other it is more than probable that all the taps would have been found closed afterwards, but as the one under which the shut-tap was found was the only one that telescoped, it will perhaps be clearer to our critic now why it was that that was the only one which was found shut.

Then the question is asked, "Is not the changed position of the train at Hornsby strong circumstantial evidence that the tap was unnoticed in its previous unaffected position?" Most decidedly not, otherwise what becomes of the evidence of (1) Werrick, that he saw the air working on the last vehicle before the train left Sydney; (2) of McCarthy, that the wheel of the hand-brake was twisted out of his hand by a man releasing the air from the main pipe seven vehicle lengths away; (3) Clissold, Gaylead, and Rice, who asserted that the brakes of both vehicles were hard on while they stood at Beecroft; and (4) of Mr. Garrard, who was most positive that he felt the action of the Westinghouse brake upon the carriage he was in (the second from the engine) while descending the hill? Mr. Garrard, it is true, said he was not aware that the guard was applying the hand-brake on that particular vehicle, but even when he was told such was the case, he maintained that it was the Westinghouse and not the hand-brake he felt; and no one who knows one brake from another could make any mistake in that respect—the sensation is too apparent.

Another question is: "Did not one passenger declare that he never felt the air-brake on the last carriage at any part of the journey between Sydney and Beecroft?" Neither a passenger nor anyone else said anything of the kind, so that we must put this down as another "inaccuracy."

Another: "Did not another positively assert that he saw unmistakable evidence that the blocks were on the first two carriages only when descending the gradient?" Of course our critic means the engine and tender as well as the two carriages.

To this we may reply that Mr. Dodds, the passenger who said he "noticed that steam was shut off in the first tunnel," while the fireman says it was shut off 3 miles before, also said that there seemed to him to be dust-coloured smoke coming from under the first and second carriages, as if the wheels were skidding, or the brakes very hard on; but as the brake-blocks on those vehicles were made of iron, will our critic consider how their rubbing on the wheels could give rise to dust-coloured smoke? And when he has done that, perhaps he will explain how it was that, if the brakes were working on the engine and tender and two carriages, which, together, represented 48 tons of brake force, the driver lost all control of the train; because it must be remembered that it was between the first and second tunnels that the guard put the hand-brake of the American car hard on, and it was not until just after passing through the second tunnel that the driver told the fireman that the train had got away.

To the question: "Is not Werrick's statement that he only examined the first seven carriages, and made no examination of the last two carriages, evidence that he could not have made any examination at all

all of the completeness of the air connections when the engine was on? It has been proved that the engine which took the train away was not placed on the train until the nine vehicles were coupled," we reply that, if the questioner was conversant with his subject, he would know that his last sentence answers his first. The very fact that Werrick did not tell the driver to try the air until the train was complete is the best proof that the air was working then from the engine to the last vehicle, since Werrick saw it working on the last vehicle. Although he did not examine the two carriages next the engine, he had practical proof that the air couplings had been made good, and that all the main pipe taps were open, otherwise the air could not have got to the last vehicle.

And to our critic's last question: "Why have the Board not produced their tables attached to their report showing the number of applications of the brake required when the donkey is not working, and when it is to exhaust the air?" we can only repeat in reply that, if he will refer to Mr. Kirkcaldie's evidence, he will find with a high steam pressure and the donkey going full speed the air pressure in the auxiliary reservoirs was reduced from 88 to 40lb. by six manipulations of the driver's valve in seven and a half minutes; and with the donkey stopped, the pressure in the same reservoirs was reduced from 64lb. to 20lb. in two minutes by the same number (six) of manipulations of the valve.

It has now been shown how unfairly the evidence has been strained and misinterpreted to suit the views of our critic, and it is to be hoped that if he again ventures to write upon the subject he will at least take some pains to be accurate in his assertions. So long as he lays his views before the public in accordance with the evidence the Board will have nothing to complain of.

In glancing over this report, we find that there is one paragraph which for the moment was overlooked. That paragraph contains the statement that Pye, the fireman, distinctly and repeatedly stated "that he did not see Wilson turn the brake on and off at short intervals." The incorrectness of this statement is truly astounding. It is simply manufactured evidence. It does not exist. Pye did not say once, much less repeatedly, that he did not see Wilson turn the brake on and off at short intervals. The whole of his evidence bearing upon that point is directly opposed to such a statement; indeed, he said at one place that "he (meaning the driver) drew out and shut it (the valve) several times just for an instant."

At another place he said, "the air-brake was working on the tender after we passed through No. 2 tunnel, and I saw the driver release brake, and the air-gauge showed 75lb. pressure. He applied the brake again immediately after releasing it," &c.

A REPLY TO "TRIPLE VALVE."

And now as regards the letter signed "Triple Valve," which appears in this morning's issue of the *Daily Telegraph*.

It may, perhaps, ease "Triple Valve's" mind to know that when Mr. Loughrey gave his evidence he was fully acquainted with Captain Galton's formulæ respecting the varying conditions of the brake-power, and it would be impertinence to assume that Professor Warren was not also fully conversant with it; indeed, it will be found that Mr. Warren's evidence on that particular point was based upon Captain Galton's formulæ. And the Board still characterises as a pure invention of "Triple Valve" his assertion with reference to the fireman's statement—that "when the driver finding his brakes were not acting placed his handles in the released position, and that the air-gauge then showed a pressure of 75lb." This was so fully replied to in the Board's last report that it is perfectly unnecessary to repeat what was then said. And the Board is as firmly convinced as ever that "Triple Valve's" statement respecting the charging of a whole train with about 45lb. pressure of air in 15 seconds is as ridiculous as it is incorrect. There is no need to go to elaborate mathematical calculations in a matter of this kind; the thing has been practically demonstrated over and over again. His reference to the American locomotive engineer who stated that "auxiliary" reservoirs cannot be recharged without "releasing all the brakes on the train, and the train will during this short time of release (15 to 20 seconds)," &c., is easily explained. Without doubt the locomotive engineer in question referred to the recharging of the auxiliary reservoirs after one application of the driver's valve. If, however, "Triple Valve" should still be in doubt about the real time occupied in charging auxiliary reservoirs, perhaps he will communicate with the Westinghouse Brake Company and get the information from them direct.

And now we come to his assertion that "when the train was recoupled at Hornsby the air-pressure stored in the then fourth and fifth carriages would endeavour to rush into the empty reservoir of what had originally been the last, but was now the second vehicle of the train, and this, of course, would apply the brakes on the first-mentioned carriages." These are his own words, and we are rather pleased than otherwise that he has repeated his assertion, for it gives us another opportunity of telling him that it is a mechanical impossibility for air stored in any carriage to find its way into the empty reservoir of another carriage; and, even if it were possible, how would air passing from one reservoir to another put any brakes on? To put a brake on, air must pass into a brake cylinder, and the only outlet from the cylinder is into the atmosphere. When the pressure in the main pipe is greater than that in the auxiliary reservoirs, the triple valve is up and the passage from the reservoirs to the cylinders closed; but when the converse happens the triple valve falls, and the air can only pass from the reservoirs to the cylinders and then only from the reservoirs to the cylinders fixed on the same carriages, not from a reservoir on one carriage to a reservoir or cylinder on another carriage.

Until "Triple Valve" thoroughly understands this he should lay aside his inappropriate *nom de plume*. There is another portion of "Triple Valve's" letter which we regard as such arrant nonsense that we think it would be merely a waste of time to reply to it. This is the gentleman whom the *Daily Telegraph* writer referred to in his article of the 6th instant as likely to "lash to scorn" the Board's reply to his first communication. Still we must give him credit for candidly admitting that he made one error in his first letter, although it is very difficult to see how he could have done otherwise in the face of the evidence. If he thinks the point on which he made the error is an unimportant one, we are quite prepared to agree with him, but it was nevertheless a point he eagerly seized upon to get his opinions to "dovetail" into each other with such "extreme accuracy."

In submitting this to the Commissioner, we have to express the hope that this report will be communicated to the press, in justice not only to the Department but to the Board who held an inquiry into the circumstances which led to the accident, and whose opinions have been so unjustifiably attacked in the columns of the *Daily Telegraph*.

D. VERNON,
Chairman.

10/8/87.

No. 15.

Extract.

[From the *Daily Telegraph*, Saturday, 13th August, 1887.]

THE PEAT'S FERRY RAILWAY ACCIDENT.

To the Editor of the Daily Telegraph.

Sir,

Pressure of other duties, and a reluctance to extend my last letter to an inordinate length, prevented me from dealing with a few points raised by the supplementary report of the Departmental Board, to which, with your permission, I shall now refer.

The evidence given at the inquest, in connection with what occurred from the time that the train was divided on the incline until it again came to a standstill beyond Hornsby, is so full of discrepancies and apparent improbabilities that any attempt to arrive at a common understanding as to the facts of the case must be abandoned as a hopeless undertaking, and, in saying this, I distinctly disclaim any wish to impute intentional inaccuracy to any of the witnesses. The adherents of either theory will implicitly accept all statements favourable to their view of the question, and reject as improbable everything tending in a contrary direction. Thus, when the train was divided the guard asserted that the brakes were left on the two vehicles which were left behind. He does not, however, state in what way the brake was applied to these carriages, nor why, having a hand-brake on the last vehicle, which he was using for the time being as a brake-van, he neglected to use it. The Station-master at Hornsby states, that when he uncoupled the engine from the seven vehicles which first arrived, he did not shut the tap on the train. This is a most unusual mode of applying the brakes, and generally only happens through forgetfulness on the part of the person uncoupling. Mr. Stead does not remember shutting the cock afterwards; yet that it must have been shut when the other portion of the train was backed on is proved by the guard's statement, corroborated by the porter Rice, that he turned both taps open, in which position they were found after the accident. Mr. Stead further states that he touched the blocks with a sprag and found they were on. Any person intentionally applying the brake in this manner would naturally examine the vehicle immediately under his eyes, and yet on this particular vehicle the brakes had never been acting. Again, the guard states the vehicle from which he released the brake when the train stopped beyond Hornsby was, he believed, neither an American car nor a Redfern carriage; but, as these were the only vehicles on the train on which the brake could be applied, he was evidently mistaken.

The Board draws attention to the fact that wheels, on which the blocks were said to be only slightly rubbing when the train left Hornsby, were found to be skidding some distance further on, and they triumphantly ask—Where did this increased pressure come from, if not from the engine? and they lead us to infer that the “only reasonable interpretation to arrive at” is that the triple-valve was sticking on that vehicle. This view of the case is untenable for a single moment. Any increase of pressure then coming from the engine—and that the pressure was increasing at this particular time is proved by the fireman's statement—would, if it moved the triple-valve at all, immediately release the brake, and if it did not move the triple-valve it could not get into the small reservoir, since it is a “mechanical impossibility” for the opening between them to be uncovered without at the same time closing the communication from the small reservoir to the brake-cylinder and opening the latter to the exhaust. A “Shut Tap” advocate could, however, account for it by explaining that it is extremely difficult for a bystander to estimate the degree of force with which blocks are pressed against the wheels, and a force not quite sufficient to skid the wheels on a straight and level road might readily do so at a low speed on a curve and incline, or at a place where the adhesion between the wheel and the rail was lower than the point started from.

Mr. Garrard's evidence that he felt the Westinghouse brake working “in a spasmodic manner” on the carriage in which he was travelling is exactly balanced by Mr. Barrie's, also a passenger in the same carriage, and “accustomed to the action of the brake,” that he knew it was the hand-brake which was working, through feeling no “spasmodic catching.”

If we examine the “exhaustion theory” in the abstract it can be conclusively demonstrated that with an air pressure of 75 lb. showing on the gauge, and therefore in the break-pipe, it involves another “mechanical impossibility.” It is, perhaps, generally known that air of ordinary atmospheric pressure flows into a vacuum at a speed of 1300 ft. per second; but many people may not be aware that air of all pressure has only this effluent velocity into a vacuum. The reasons for this are that the elasticity of air causes it to have a repellant as well as a propulsive force, and thus the escaping particles are pushed back with the same elastic force as they are urged forward with, and that, no matter how great the pressure may be, a column of air 5 miles in height and of a uniform density equal to that due to the pressure would produce that pressure. Now, let us accept the Board's statement as to the size of the feed-opening from the triple valve to the small reservoir, and in return I will ask them to admit that it is at least as large as the orifice in the triple valve, through which the exhaust air from the brake-cylinder escapes to the atmosphere. From what has been said above, it is evident that during all the time the brake-cylinder is being exhausted into the atmosphere the small reservoir is being re-charged from the main reservoir through the brake-pipe and small opening in the triple valve, and thus what is being lost in one way is being regained in the other. Any movement of the driver's brake-handle or triple valve, which stops the recharging of the small reservoir at once, stops the exhaust from the brake cylinder. So that we have only to compare the velocity with which the air escapes from the brake cylinder, and the velocity with which air enters the small reservoir. The capacity of the small reservoir is about 1,800 cubic inches; that of the brake cylinder, with the piston forced forward, about 300 cubic inches. Commencing with 75 lb. pressure in the small reservoir and applying the brakes, the pressure is reduced to $\frac{4}{5}$ ths, the original amount, or 64 lb. When the brake is released air of this pressure escapes from the brake cylinder at an initial velocity of 1,170 ft. per second, and the air of 75 lb. pressure contained in the brake pipe rushes into the small reservoir at an initial speed of 456 feet per second. It will, of course, be urged that the speed of this last-mentioned air gradually diminishes as the pressures are equalised, but the speed of the escaping air from the brake cylinder is at the same time being reduced as the pressure in the brake cylinder decreases. Continuing this calculation, when the brakes are applied with a pressure of 25 lb. in the brake cylinder, the velocity of escape is about 1,025 feet per second, and air of

75 lb. pressure would rush into the small reservoir at a speed of 970 feet per second, or nearly equal. It is, therefore, abundantly evident that so long as the gauge showed a pressure of 75 lb. when the handle was in the release position, it would be morally impossible to reduce the pressure in the small reservoirs and brake cylinders below 25 lb., and even this could only be effected by re-applying the brake as soon as the brake cylinder completed exhausting. This, of course, would be equivalent to keeping the brake on the whole time, and, given sufficient brake power, the train would be stopped over and over again before this low pressure could be reached.

The remarks of the Board as to the practice of the drivers descending the mountains when they have reason to fear that their controlling power is becoming exhausted only apply to cases in which the air-gauge shows a low pressure each time the handle is placed in the release position, and, I am confident, has never been resorted to at any time when the gauge showed a pressure of 75 lb.

Yours, &c.,

TRIPLE VALVE.

No. 16.

Extract.

[From the *Daily Telegraph*, Tuesday, 16th August, 1887.]

THE PEAT'S FERRY RAILWAY ACCIDENT.

To the Editor of the Daily Telegraph.

Sir,

In a letter which appeared in your paper of the 10th instant, signed "Triple Valve," it is stated that my calculations on brake pressure were based upon an assumption that the co-efficient of friction between the brake-blocks and wheels was a constant quantity for all speeds. It is also stated that I was incorrect in stating that such an engine as the one in question was capable of taking such a load up a gradient of 1 in 40, at a speed of from 20 to 25 miles per hour.

Now, sir, I am very reluctant to engage in a newspaper correspondence, as I have my time fully occupied, and I am still more reluctant to reply to a man who shields himself under a *non de plume*; but since the statements made, either ignorantly or wilfully, may tend to mislead the public, I have decided to write this one letter. I shall not, however, answer any further correspondence on this subject from anyone who is ashamed to sign his name. With regard to brake pressure. When I handed in my calculations in the witness box I stated that they were based upon experiments made by Captain Galton, and I now add that I had before me when making these calculations, not only a table of co-efficients of friction determined by Captain Galton for speeds varying from 1 to 60 miles per hour, and showing the decrease in the co-efficient due to the increase in the speed of the train, as well as for the time the brake-blocks are in action, but also the increase in the co-efficient due to the reduction in the speed of the train, which "Triple Valve" appears to have lost sight of. I have now before me a graphical representation of all the experiments made by Captain Galton on this subject, showing by the abscissa and ordinates of curves the speed and corresponding co-efficients of friction. From such diagrams it is possible to deduce the average co-efficients due to the effect of the various causes above referred to in a far more satisfactory manner than by any other means I am acquainted with. This co-efficient, taken in conjunction with the minimum retarding effect for the various cases in question, gives the necessary minimum brake pressure.

With regard to the tractive force of the engine, I stated generally that such an engine as the one in question ought to have been able to have taken such a train up a gradient of 1 in 40 at a speed of from 20 to 25 miles per hour. I have since been informed that the boiler pressure of this engine was reduced from 140 lb. per square inch to 130 lb. per square inch, so that under these circumstances the engine was slightly overloaded for the speed in question. "Triple Valve's" reference to me as a mere theoretical expert is answered by the fact that I had 16 years' practical experience in engineering before my appointment at the University, 6 years of which were spent with one of the largest railway companies in England.

Yours, &c.,

W. H. WARREN.

University of Sydney.

No. 17.

Extract.

[From the *Daily Telegraph*, Wednesday, 17th August, 1887.]

THE PEAT'S FERRY RAILWAY DISASTER.

In writing this article we have not the time or inclination to waste words in replying seriatim to all or even half of the statements made by the Railway Board in answer to our last article on the Peat's Ferry railway accident. Having already proved our case to our own, and we believe the public satisfaction, we shall not allow ourselves to drift any further into a discussion of the working of the Westinghouse automatic brake. Whatever we have said in defence of the Westinghouse brake was because of the unworthy condemnation it has received from the members of this Board in the attempt to shield the department from censure in connection with a deplorable disaster. Their insinuation that in our efforts to get at the truth we have been writing in the direct interests of the Westinghouse Brake Company has had as little weight with us as their exploded theory has had with the public.

As long as this Board of railway officials, through their Chairman, evade our two main points we shall not occupy our time in setting them right in small matters. In the article entitled "The Exploded Theory of the Board" we explained how it was that the small air reservoirs were found empty after the accident. That simple explanation has been verified by a number of professional men. Engine-drivers who use the Westinghouse brake every day have declared that everything stated in the article is true. We dared the Board to deny the explanation. More than that, we asked that the seven uninjured carriages on which the reservoirs were found empty should be coupled and left in the same condition as they were at Hornsby, for the purpose of ascertaining in what time the small reservoirs would leak away and the brakes become released.

Now,

Now, mark how the Board misunderstands what was explicitly stated :—

And now we come to that part of the newspaper article where it is stated that—"At last we arrive at the Board's attempt to answer our simple explanation of the empty state of the air reservoirs. They are exceedingly careful not to deny it. We say plainly they dare not deny it."

It is rather difficult to know whether to be amused at this statement or surprised at its audacity, for, far from denying or attempting to deny the empty condition of those reservoirs, the Board held that the accident was caused by their being empty. Had they not been empty, or practically empty, the Board believe that the accident would not have happened.

This is positively extraordinary. Did we ever say that the reservoirs were not empty? Was not the article written to explain how the reservoirs became empty? We might go on pointing out numerous other misconstructions. We fail to see its necessity. If the public, or engineers of acknowledged ability, or engine-drivers in daily use of the Westinghouse brake were divided on the two distinct verdicts concerning the accident, the time might be well employed. As, however, we have abandoned all hope of reclaiming the members of the Board from the mire into which they have plunged, we must allow them with Mr. Kirkaldie, the Assistant Traffic Manager, to stand alone and bear the odium attached to the persistent advocacy of an impossible theory.

It is rather difficult to state definitely whether the Assistant Traffic Manager should be classed with the Board. We would gladly rescue him, if possible. His evidence at the Coroner's Court was a remarkable anticipation of the Board's report. There he professed a knowledge of the working of the Westinghouse brake. His theory, heard for the first time at the inquest, was that the driver, by an injudicious manipulation of the brake, had not sufficient air to put the brakes on when he got on to the heavy down grade. When asked by Dr. Sly, "How do you or can you account for there being no air in the reservoirs at Peat's Ferry?" He replied: "I cannot account for it; there is only one theory—that the air was exhausted going up the bank." Then Dr. Sly asked how could the air be exhausted, and the witness answered: "By too frequent use of the brakes to stop the train," afterwards admitting that if the driver attempted to use the brake going up the bank the train would have been brought to a standstill at once.

Did the Board expect that their wonderful theory would have been proved to the jury by Mr. Kirkaldie's evidence? Did they expect the jury to believe that, because Mr. Kirkaldie saw the air pressure in the auxiliary reservoirs reduced from 88 lb. to 40 lb. at Redfern, by six manipulations of the driver's valve in $7\frac{1}{2}$ minutes with the donkey working, Driver Wilson must have done the same thing? Mr. Kirkaldie's object was to see how much the pressure could be brought down by six manipulations of the valve? Wilson's was to stop the train. Had he even acted, like Mr. Kirkaldie, for the purpose of his test, the train would have stopped long before the sixth manipulation of the valve. How was it that this exhaustion theory was never shown to the jury, who went several times to the Redfern station?

Is it any answer to the question—Why have the board not produced their own tables?—to refer us to Mr. Kirkaldie's evidence? Weeks have elapsed since the report of the Board was furnished, and yet no copy of the evidence on which that report is supposed to be based has been distributed. The Commissioner for Railways in his minute, referred to the results of experiments attached to the report; these are also still concealed from the public eye. A promise was made that when the report was published the evidence would be available. Moreover, it is invariably the custom to issue both simultaneously. Why has that practice been departed from? Will public curiosity remain satisfied by the statement "There is really nothing to hold back" without advancing the shadow of a reason for still keeping it back? Perhaps it is considered a safe thing to keep it back until Parliament re-assembles. There are people so inquisitive that they would like to know the character of the evidence on which this most remarkable theory has been based. Others there may be who think it possible that the Board elicited evidence bearing directly upon it—evidence which did not come before the jury. The holding back of what the Board thinks "really nothing" has a tendency to support the latter view. What has the submitting of the Coroner's evidence to an expert to do with the continued concealment of the departmental evidence? We respectfully request the Board to produce it, and must respectfully decline to continue this controversy until they do. Unlike the Coroner's Court, the evidence given before the Board was, so their report states, taken by a shorthand writer—questions and answers, we presume—therefore, it is all the more valuable. It is to be regretted that this was not done at the inquest, of which necessarily summarized reports were published. The depositions, too, which a legal gentleman has been engaged to analyze, were necessarily taken in a summarized form. Little wonder, then, that we have divers statements of what this and that witness really said. In all sincerity, we assure the Board that we have applied no remark to any witness without every possible inquiry, and in no instance have these statements of evidence been contradicted by the witnesses themselves.

Again we find that the two main points of our first article have been evaded. Not the slightest answer is given to our request that the carriages should be coupled together to prove the leaking off explanation. The challenge we made that a trial would prove it impossible to exhaust the air in the time at the disposal of Wilson without stopping the train, is again treated in silence. Surely nothing could afford an easier settlement of the matter. If the brakes leaked off at the Hornsby Station they will leak off elsewhere. When the brake appliances were overhauled has nothing to do with the suggestion made. It is not usual to test the pistons when overhauling the brakes. Would the Board find it "exceedingly difficult to understand how they can be reasonably supposed to have leaked off" if no appreciable quantity of air were found in the reservoirs in half an hour? Well, try it with the same carriages. Three times we have made that recommendation, and no attempt has yet been made to answer or adopt it. If the Board thoroughly believe in their theory, why not try to exhaust the air of the Westinghouse brake on a running train? We have claimed that it is impossible into the time and distance in which it is alleged to have occurred. The Board reiterate its possibility. Settle it by a trial which can be easily arranged and conducted with perfect safety. Three times, also, we have made this suggestion—each time it has been received in silence. One would think that the Board would have made some reply. Almost every other point taken up by us has been carefully, some even elaborately, answered. Much space has been occupied in matters of detail, but these two important recommendations have been treated as if never made.

This matter cannot rest where it is, for however little the public may think of the Board's theory, it is blocking the way of the Jury's rider. Its final statement is, we think, more likely to be hastened by the trials we have recommended than the controversy into which the Board have entered with ourselves.

At

At one moment we are told that we imperil the reputation of the Westinghouse brake by stating that the brakes will leak off on standing carriages; at another that the article is penned in the direct interests of the Westinghouse Brake Company. Hence, the members of this bewildered Board prove our honesty of purpose. Our judgment of the Westinghouse brake has been more from results than anything else. We found from the Board of Trade returns, the official accuracy of which cannot be questioned, that the Westinghouse brake is used more extensively in the United Kingdom than all the other brakes put together. Inquiry proved to us that it is used on over 500 railways in America, where it has an almost complete monopoly, which the company also enjoy in the greater part of the world, throughout which they have considerably over 150,000 sets of brakes in active use. Curious we were to know whether this great monopolising brake could exhaust its power in the time and distance indicated by the Board, and from anxious and minute inquiry we came to the conclusion that it was impossible. That conclusion is largely based on the experience of engine-drivers accustomed to its use. And we say, if the engine-drivers of this Colony are allowed the liberty of the Press, the great majority of them will declare that the theory of the Board is against their experience as well as evidence.

In the last article we ventured to assert that we had spoken in accord with the great preponderance of evidence, and as the Board say they differ from us entirely we take it that they are convinced that the coroner's jury gave a verdict against evidence.

We are glad to have the Board's assurance that they did not quote an extract of Mr. Marshall's paper from a circular issued by a rival brake company, but from the *Journal of the Society of Arts*, in which the paper originally appeared; but the fact that the extract was the same must either be regarded as a remarkable coincidence or that serious allegations against the working of the brake are wonderfully scarce. The Board also deny that any change has been made in the examination of the brake connections at the Redfern Railway Station, but we must prefer to believe our own eyes. When we noticed the air being turned off at the last car, and had the assurance of railway officials that this is now the practice, we admired the change as a very sensible one.

We now propose to relegate this subject to the New South Wales Engineering Association. They have already taken up the question of continuous railway brakes. We know of no association better able to discuss the Board's theory. Let them analyse it, examine it, in all its bearings, sift the evidence—that elicited by the Board, if it can be obtained—and pronounce a deliberately formed opinion as to the cause of this lamentable accident.

No. 18.

Extract.

[From the *Daily Telegraph*, Wednesday, August 24, 1887.]

THE PEAT'S FERRY RAILWAY ACCIDENT BOARD AND "TRIPLE VALVE."

To the Editor of the *Daily Telegraph*.

Sir,

I have not been altogether able to divest myself of the slightly uncomfortable sensation that I have been endeavouring to knock out an opponent whose hands were practically tied behind his back, and, therefore, I had not intended to trouble you with any further comments on what has been from the beginning a most deplorable and soul-vexing business; but there are two or three points in the supplementary reports of the Board which must be dealt with.

Professor Warren's corrected estimate as to the minimum amount of brake force gives a percentage of 25.38 for a speed of 25 miles an hour and 64 per cent. for a speed of 40 miles an hour, and it will be apparent that this proportion varies almost exactly as the square of the velocity. In the Board's reply to my first letter they state: "We have already shown that 21 tons would have controlled it if the speed had not been allowed to exceed 15 miles an hour, and that 26 tons would have controlled it at a speed of 25 miles an hour." It certainly should not require any elaborate mathematical calculation to prove that, as the kinetic energy, or accumulated force of a moving mass, increases as the square of the speed, if the Board's estimate of 21 tons for a speed of 15 miles an hour be correct 58 tons would be required for a speed of 25 miles an hour. There is certainly a want of harmony about these varying statements which amply justifies my drawing attention to them, and which clearly proves that the calculations have been conducted on different bases.

I regret that the Board, in their last communication, have not emulated that candour for which they have given me credit, by unreservedly withdrawing their accusation that my assertion in reference to the fireman's statement was "a pure invention of the writer's." My assertion, it will be remembered, was, "the fireman's statement that when the driver, finding his brakes were not acting, placed his handle in the release position, and the air-gauge then showed a pressure of 75lb., &c." I have no option, under the circumstances, but to ask your readers to be patient with me while I reproduce the evidence bearing on that point. To avoid any charge of "manufacturing evidence," so freely made by the Board, I will quote from the *Echo*, of July 5, evidence given by the fireman, John Pye, on the previous day:—"After the driver applied the air-brake and found it would not act, he reversed the engine and whistled to the guard 'Brakes down' . . . After the engine was reversed the driver had the air-brake full on all the time. He shut it only for an instant. Witness took particular notice of the air-gauge" (it was a question of life or death with him), "it showed 75lb. pressure. When the driver opened the valve full it went round to zero, and when he shut it it flew up to about 75lb. . . . When he saw the gauge at 75lb. he came to the conclusion that the brakes were not working somewhere." Again, on July 12 (I quote from the *Echo* of that date), "he remembered seeing the air-gauge showing 90lb. pressure at the brow of the hill when they were commencing the descent; he saw it afterwards showing 75lb. . . . The air was working after they passed No. 2 tunnel. He then saw the driver release the brake, and the pressure gauge showed 75lb. The driver applied the brake again immediately after releasing it, and it was then the driver said the train had got away. . . . The gauge showed 75lb. just after they got through the second tunnel, with 90lb. at the top of the hill and 75lb. at the second tunnel, and with the engine reversed and the donkey working it would not be possible to exhaust all the air from the main reservoir in his opinion." If, in the face of the above, where my assertion is once literally and seven times

times substantially confirmed, the Board will not retract what I cannot regard as other than a most offensive imputation, which they have deliberately reaffirmed in their last report, I must only leave the public to judge between us. And in connection with the above, it is a fact curiously overlooked, but susceptible of immediate verification, that the momentary shutting and opening of the driver's brake-valve exert no appreciable effect on the pressure in the small reservoirs and brake cylinders after the brakes are first applied, as the interval is too short to allow any air from the brake cylinder to escape through the exhaust opening.

The Board "easily explains" away the opinion of the American locomotive engineer, whom, by the way, they first introduced to our notice, by airily remarking, "Without doubt the locomotive engineer in question referred to the recharging of the auxiliary reservoirs after one application of the driver's valve." But if recharging means, as it obviously does, a restoration of the original pressure, it would appear to the ordinary intellect that the operation could be repeated *ad infinitum* as long as the source of supply remained unimpaired.

The fact that the donkey was working the whole of the time does not merely tell against the theory of the Board; it is the withdrawal of the foundation stone on which they have reared their edifice of "exhaustion and injudicious action." Apparently recognising this the Board has made a laboured attempt to prove that the driver may have forgotten to again put the steam on to the donkey after easing it before reaching the brow of the hill. A drowning man will proverbially clutch at a straw, but the exigencies of justice require that even this frail support must be remorselessly plucked away in the present case. The fireman's evidence was to the effect that the donkey was working all the way down to Peat's Ferry, and drivers Frame and Perkins saw it working after the engine fell into the water, and the latter shut off the steam from it.

If we accept as nearly approaching the actual conditions of the wrecked train—with the important exception that we are not told if the air-gauge still showed 75lb. in the main-pipe at the end of the experiment—the test made by the Board, that "with a high pressure of steam, and the donkey going at full speed, the pressure in the carriage reservoirs was reduced from 88lb. to 40lb. in 7½ minutes by six manipulations of the driver's brake-valve," it is the strongest argument which could be adduced against their theory. It may fairly be assumed that running the 3½ miles from the top of the incline to where the train got beyond control did not occupy more than about 8½ minutes, as a speed of 25 miles an hour would be attained within 200 yards after turning the hill, and thus after working the brake in such a manner as to practically keep it on almost the whole time, there was still left in the reservoirs a fairly effective pressure. And then there is the evidence of Mr. Garrard, to which the Board apparently attaches such importance, that the brake seemed to be applied only once or twice and then taken off altogether. How do they propose to reconcile this with the fact that it required six manipulations to reduce the pressure to 40lb.?

Then, again, there is the fact that one witness believed the tender wheels to be skidding when the train ran into Peat's Ferry, and the small reservoir on the tender should have been in precisely the same condition of exhaustion or otherwise as the reservoirs on the carriages. If it be contended that this may have been caused by the fireman screwing the tender hand-brake down, it only tells more strongly than ever against the Board's theory, since, if this was the case, it would require a very effective pressure indeed in the tender reservoir to lift the handle of the brake, as the fireman states he saw done about half-a-mile before running into the station.

As I did not state at any time that air stored in one carriage would find its way into the reservoir of another, or that air passing from one reservoir to another would put any brakes on, the Board's assurance that such a thing is impossible, is, to say the least, rather superfluous. What I did state in effect was that if a carriage containing air in the small reservoir and brake-pipe were coupled to a carriage containing no air, and the taps opened, the triple valve on the first carriage would be forced down and the brake applied on that carriage through the action of the air in endeavouring to rush into the empty space. The Board may say that the triple valve falls through the pressure in the small reservoir being greater than that in the brake-pipe, but as the meaning is identical, it is scarcely worth while to quibble about the exact terms in which it is conveyed.

I cannot, of course, but feel grateful that the Board should have so magnanimously refrained from exposing what they have politely designated as arrant nonsense; but, at the same time, I have a lurking suspicion that if they had been able to prove that any portion of my second letter could be so classed, the task would have been too congenial, and the opportunity too tempting, to be lightly thrust aside.

I am quite prepared to admit that there may be more cases of triple valves sticking than are reported, but in the cases referred to by the Board, when the brake has to be taken off at stations, by opening the release valve at the back end of the brake cylinder, it is caused ninety-nine times out of 100 not by the triple valve sticking, but by the pressure in the brake-pipe being lower than that in the small reservoir.

The Board appears to labour under a slight feeling of disappointment at the absence of any attempt on my part to "lash them to scorn;" but let inform them that I consider the occasion too serious, and the questions at issue too momentous to justify any indulgence in biting sarcasm or withering irony, and that while doing them the justice of believing that they are actuated by an honest, conscientious conviction, that their view of the matter is the right one, I have a right to claim similar consideration at their hands. My only object in approaching the question has been an earnest desire to place the facts and the probabilities of the case fairly before your readers, and to assist in removing an impression which must cause considerable doubt and anxiety to prevail in the minds of the travelling public. It cannot be denied that if the theory of the Board be accepted as the true explanation of the Peat's Ferry railway accident, a widespread feeling of insecurity will always exist when descending our heavy gradients, arising from the knowledge that although there is a sufficiency of brake-power on the train and that all the brake appliances are in perfect order, a little injudiciousness on the part of an acknowledged careful driver, fairly conversant with the working of the brake, may at any moment result in a most disastrous accident, or that through an inherent defect in the principle of the brake, the same lamentable result may be brought about, despite the most careful handling of the driver's brake-valve.

Yours, &c.,
TRIPLE VALVE.

Chairman of Board to Commissioner.

THE PEAT'S FERRY ACCIDENT.

To the Commissioner for Railways,—

From a remark made in the articles which appeared in the *Daily Telegraph* on the 17th inst., we concluded that as the question of the brakes (and with it that of the cause of the Peat's Ferry accident) had been taken up for discussion in the New South Wales Engineering Association, it was not the intention of that journal to allow any further correspondence to be conducted through its medium until, at all events, the opinion of the members of the association had been expressed.

In yesterday's issue, however, there is another communication from "Triple Valve," and as we are fully in accord with him as regards the importance of the subject, we now take the opportunity of replying as briefly as possible to it, as also to his letter of the 13th inst. and the *Daily Telegraph* article already alluded to. From the outset the board of inquiry has been deeply impressed with the gravity of the subject, involving, as it does, that all-important feature, the safety of the travelling public, and throughout they have been actuated by one desire only—to elicit every circumstance which could by any possibility be regarded as contributing in any way to the cause of the accident. They feel that they cannot too often or too strongly repeat that if they could have seen any grounds whatever for adopting the "leaking off" and "shut tap" theory, so persistently put forward by the *Daily Telegraph* and "Triple Valve," their task would have been of the easiest description, for they could have fixed the responsibility without difficulty; most certainly they would not, in view of the serious loss of life which occurred, have allowed any false sentiment to deter them from expressing an opinion adverse to any officer or servant of the Department, if they could have seen any just grounds for doing so. But there is not, as was stated in a previous report, a tittle of evidence in support of this theory; on the contrary, the whole of the evidence taken by the Board (and of course it was upon that evidence alone that the conclusions of the Board were based) most strongly favours the conclusions expressed in their original report, and it is scarcely necessary to say that that opinion was only given after very full and careful consideration.

In the letter which appeared in the *Daily Telegraph* on the 13th instant, "Triple Valve" states that "when the train was divided the guard asserted that the brakes were left on the two vehicles which were left behind." But "Triple Valve" continues—"He does not, however, state in what way the brake was applied to these carriages, nor why, having a hand-brake on the last vehicle which he was using for the time being as a brake-van, he neglected to use it." "Triple Valve" appears to forget that on one of the carriages in question it was not possible to put on the brake except by air, while on the other it must of necessity have been put on by air too, if the guard did not use his hand-brake. It was therefore utterly superfluous for the guard to say (although doubtless he would have done so if he had been asked) how the brakes were put on those two vehicles; but if "Triple Valve" will refer to fireman Pye's evidence he will find it stated there that "when we stopped at Beecroft the driver put the air-brake on before separating the train." And with respect to the uncoupling of the first division of the train from the engine at Hornsby, "Triple Valve" states that the officer in charge "did not shut the tap on the train," and that that officer "did not remember shutting this cock afterwards." It is perfectly immaterial whether he shut the tap or left it open; if he shut it, it was certainly opened by the guard when he recoupled the two divisions subsequently, because it was found opened immediately after the accident; if he did not shut it, then it was not necessary for the guard to open it when he recoupled.

Again, with reference to the wheels on which the blocks were said to be only slightly rubbing when the train left Hornsby, which wheels were found to be skidding some distance further on, and to the Board's contention that this skidding must have been produced by an increased pressure of air which could only have come from the engine, "Triple Valve" pronounces the Board's interpretation to be "untenable for a single moment." Any increased pressure coming from the engine would, he says,—“If it moved the triple valve at all, immediately release the brake, and if it did not move the triple valve it could not get into the small reservoir, since it is a 'mechanical impossibility' for the opening between them to be uncovered without at the same time closing the communication from the small reservoir to the brake cylinder and opening the latter to the exhaust. A 'shut tap' advocate could, however, account for it by explaining that it is extremely difficult for a bystander to estimate the degree of force with which blocks are pressed against the wheels, and a force not quite sufficient to skid the wheels on a straight and level road might readily do so at a low speed on a curve and incline, or at a place where the adhesion between the wheel and the rail was lower than the point started from.”

Surely, however eager "Triple Valve" may be to prove the correctness of his "shut-tap" theory, he will admit that there is a very great difference in the degree of force applied when brake-blocks only rub slightly at starting and when that force is so great as to make the wheels "skid," no matter how low the speed or sharp the curve. We can characterise it as nothing short of an absurdity to assume that brake-blocks which only rubbed slightly when leaving Hornsby should cause the wheels to skid $1\frac{1}{2}$ or 2 miles further on, especially if there was a shut-tap between that carriage and the engine. Doubtless any increased pressure from the engine would, if it moved the triple valve at all, force the valve up and release the brake, but we are now dealing with a case where the valve, for some reason or other, refused to move, hence the blocks would not release; therefore to put the brakes on harder than they were when the train left Hornsby it is self-evident that the pressure in the reservoir of this particular carriage must have been increased, and if so, "Triple Valve" will not surely deny that such increase must have come from the engine. It was no doubt after this increased pressure was effected from the engine that the driver, finding the pressure in the air-gauge getting too high, opened his valve for a moment to allow some of the air to escape, and that, on its being again shut, the triple valve on the carriage stuck. That the application of the brake, which was released by the guard on the ascent beyond Hornsby, was caused by a triple valve sticking is as certain as that the fireman had to release the brake from one of the carriages of the first division at Beecroft before the engine was able to start, and owing to the same cause. It is indeed highly probable that the carriage Chssold referred to was the same as that from which the fireman had to release the brakes at Beecroft before the driver could start from there with the first seven carriages.

With respect to "Triple Valve's" acceptance of the Board's statement regarding the size of the feed opening from the triple valve to the small reservoir, and his request that the Board should "admit that it is at least as large as the orifice in the triple valve through which the exhaust air from the brake cylinder

cylinder escapes to the atmosphere," there will be no hesitation in reciprocating his generosity; but evidently he cannot or will not see that when a brake is on there must necessarily be a high pressure of air in the cylinder, and that when it is released this high pressure rushes into the atmosphere at a very much greater rate of speed than it can possibly pass through a hole even of the same size into a small vessel like a reservoir, where there is already a high pressure. Every pound requiring to be added to an already high pressure necessarily occupies very much more time than when that pressure is low, and consequently the escape of the air to the atmosphere is much more rapid than the charging of a reservoir. Indeed he admits this himself when he says that "when the brake is released, air of this pressure (60lb.) escapes from the brake cylinder at an initial velocity of 1,770 ft. per second, and the air of 75lb. pressure contained in the brake-pipe rushes into the small reservoir at an initial speed of 456 ft. per second.

Then "Triple Valve" goes on to say that "It is therefore abundantly evident that so long as the gauge showed a pressure of 75lb. when the handle was in the release position, it would be morally impossible to reduce the pressure in the small reservoirs and brake cylinders below 25lb., and even this could, only be effected by reapplying the brake as soon as the brake cylinder completed exhausting. This of course, would be equivalent to keeping the brake on the whole time, and, giving sufficient brake-power, the train would be stopped over and over again before this low pressure could be reached." He thus practically admits that it is possible to have 75lb. indicated on the air gauge while there may be only 25lb. in the carriage reservoirs, although he adds that to effect this "would be equivalent to keep the brakes on the whole time." It is needless to point out that if the brakes were kept on the whole time the train would very soon be brought to a dead stop if there was anything like 75lb. pressure in the reservoirs, but to control the train the driver would have to apply and release the brakes frequently, and of course every such application would reduce the pressure in his auxiliary reservoirs.

In the concluding paragraph of his letter of the 13th instant, "Triple Valve" states that "the remarks of the Board as to the practice of the drivers descending the mountains when they have reason to fear that their controlling power is becoming exhausted only apply to cases in which the air-gauge shows a low pressure each time the handle is placed in the release position, and he is confident it has never been resorted to at any time when the gauge showed a pressure of 75lb." Now, notwithstanding his qualifying remarks, here is a tacid admission that auxiliary reservoirs can be exhausted; therefore it is really of no importance whether the gauge shows a low pressure or not each time the handle is placed in the release position, although we contend that when the valve is placed in the release position the gauge may indicate a high pressure in the main pipe while there is only a low pressure in the reservoirs. The Board's contention was that the carriage reservoirs can be practically exhausted, and their firm belief is that such was the case on the train which met with the accident.

With respect to "Triple Valve's" letter, which appeared in yesterday's issue of the *Daily Telegraph* there is but little to say.

The Board will not, of course, be expected to deal in any way with his comments upon the evidence given by Professor Warren at the coroner's inquest; and in reply to the quotations from fireman Pyc's evidence, which are admittedly taken from an evening newspaper, we have only to say that the point at issue was fully dealt with in a previous report, in which we quoted this witness' evidence as we have quoted the evidence of all other witnesses to which we have referred, not from any newspaper, but from the Coroner's depositions, which, being the only legal documents, are undoubtedly the most reliable.

"Triple Valve" expresses regret that the Board "have not emulated that candour for which they give him credit by unreservedly withdrawing their accusation that his statement was a pure invention." The Board equally regret that they cannot withdraw the charge, for it is true, although "Triple Valve" has disingenuously left out of his last communication the assertion he made in his letter of July 29 that the brake handle was placed in the release position "in order to recharge the small reservoirs." Of course, the Board know that if the brakes were taken off at any time the handle must have been placed in the release position, but they positively dispute that it was placed in that position for the purpose of recharging the small reservoirs. If such a course had suggested itself to and been adopted by the driver, in all probability it would have prevented the accident.

As regards the Board's interpretation of the expression made use of by the American locomotive engineer, to whom reference has been made, "Triple Valve" states that "if recharging means, as it obviously does, a restoration of the original pressure, it would appear to the ordinary intellect that the operation could be repeated *ad infinitum* as long as the source of supply remained unimpaired." So it would, no doubt, but he evidently does not see this difference, that when a train is running on a practically level road the brakes are very much longer off than on, consequently there is so much more opportunity of keeping a high pressure in the carriage reservoirs; but when the train is descending a gradient, and particularly a long and steep gradient, precisely the converse is the case, for the brakes are necessarily more on than off for the purpose of keeping the train under control, and there is therefore but little opportunity of recharging the reservoirs, hence the frequent application of the driver's valve exhausts the air at a much greater rate than the donkey engine can maintain the supply. This will be very apparent when we remind "Triple Valve" that, according to his own admission, air escapes from the cylinder at about four times the velocity that it passes from the brake-pipe into the auxiliary reservoir. And this writer makes much of the fact that the donkey was found working after it fell into the water. So it was, but the man who went into the water and shut off the steam informed the Board that it was just moving. This fully accords with the Board's opinion that after easing the steam to the donkey (*see* fireman's evidence) before topping the hill, the driver did not afterwards increase the steam pressure again.

Then it is said by "Triple Valve" that "it may be fairly assumed that running the $3\frac{1}{2}$ miles from the top of the incline to where the train got beyond control did not occupy more than about $8\frac{1}{2}$ minutes, as a speed of 25 miles an hour would be attained within 200 yards after turning the hill, and thus after working the brake in such a manner as to practically keep it on almost the whole time there was still left in the reservoirs a fairly effective pressure." That gentleman's statement would be perfectly right if the speed of the train was not checked at all after running over the top of the hill, but unfortunately for his argument every witness says it was under control for at least 3 miles after beginning the descent. What kept it under control for those 3 miles if the air-brakes did not? Certainly the engine and tender brakes alone could not have done it unless the speed was kept very low, and we have it in evidence that the guard did not put on the car brake until the train was between the first and second tunnels, and it was not until after passing through the second tunnel that the driver found the train had got away from him.

And

And since "Triple Valve" persists in saying that he "did not state at any time that air stored in one carriage would find its way into the reservoir of another, or that air passing from one reservoir to another would put any brakes on," we feel compelled to quote his own words, so that the two statements can be compared: "When the train was recoupled at Hornsby, the air pressure stored in the then fourth and fifth carriages would endeavour to rush into the empty reservoir of what had originally been the last, but was now the second vehicle of the train, and this, of course, would apply the brakes on the first-mentioned carriages." Comment is unnecessary.

Now, however, that he has seen the difficulty he is in, he wishes to make out that what he did "state in effect was that if a carriage containing air in the small reservoir and brake-pipe were coupled to a carriage containing no air, and the taps opened, the triple valve on the first carriage would be forced down, and the brake applied on that carriage through the action of the air in endeavouring to rush into the empty space." Not a word was said in his previous communications about air being stored in the brake-pipe; indeed, "Triple Valve" made much of the evidence of the officer in charge at Hornsby, where he stated that he had no recollection of shutting the tap after uncoupling the first division of the train from the engine. Whether he shut it or not, the pressure in the main pipe must of necessity have been much lower (if it was not quite at zero) than the pressure in the reservoirs, otherwise the brakes would not have gone on; still the coupling of any other vehicles to those standing at Hornsby could have no effect whatever as regards air pressure passing between reservoirs or cylinders of separate vehicles.

There is just one more remark in "Triple Valve's" last letter to which we think it at all necessary to draw attention, and it runs thus:—"I am quite prepared to admit that there may be more cases of triple valves sticking than are reported, but in the cases referred to by the Board when the brake has to be taken off at stations by opening the release valve at the back end of the brake cylinder, it is caused ninety-nine times out of 100, not by the triple valves sticking, but by the pressure in the brake-pipe being lower than that in the small reservoir."

This is an absurd statement, and the best way to show its absurdity will be to take a case in point. Assuming that the pressure in the main pipe and the auxiliary reservoirs to be 60lb., we know that there must be 70lb. in the main reservoir, since the spring in the driver's valve is equal to a pressure of 10lb. With the pressure in this condition all the brakes are off, and to put them on the pressure in the main pipe must be reduced below that in the auxiliary reservoirs, so that the triple valve may fall. When this happens the air in the auxiliary reservoirs expands into the brake cylinders, thus reducing the pressure in the reservoirs by something like 20 per cent., according to the stroke of the piston, while to take the brakes off again the 70lb. air pressure (which, with the donkey working, has meantime been increasing) contained in the main reservoir is admitted into the brake-pipe. In the face of this, how can it be that in ninety-nine cases out of 100 the sticking of the triple valve is due to the pressure in the main pipe being lower than in the small reservoir? And why does it invariably happen that only one or, at the most, two triple valves stick out of a whole train of carriages? If "Triple Valve" wants us to believe that the sticking of the valve beyond Hornsby was due to the cause assigned by him it would be interesting to know why none of the others stuck as well.

And now for a few words in reply to our other critic. Undeterred by the experience he certainly ought to have gained by the exposure we have had to make of his previous inaccuracies, he has again been unwise enough to write statements even more reckless and absurd than formerly, and although we would fain be spared the thankless task, we deem it to be our duty to draw attention to every mis-statement which he has made, calculated, as each one has been, to deceive the public. For instance, he writes that "it is rather difficult to state definitely whether the Assistant Traffic Manager should be classed with the Board. We would gladly rescue him, if possible. His evidence at the Coroner's Court was a remarkable anticipation of the Board's report. There he professed a knowledge of the working of the Westinghouse brake. His theory, heard for the first time at the inquest, was "that the driver, by an injudicious manipulation of the brake, had not sufficient air to put the brakes on when he got on to the heavy down grade."

Now, this, we must say, looks remarkably like an unworthy insinuation that Mr. Kirkcaldie's evidence at the Coroner's inquest was given for the purpose of forecasting the Board's report, whereas, if our critic will refer to the *Daily Telegraph* of June 22, he will find it reported that Mr. Kirkcaldie was interviewed by a representative of that paper while returning from the scene of the accident, a few hours after it occurred; and although the account of what he said is somewhat garbled and contradictory, which is not perhaps to be wondered at, considering that the reporter was dealing with a subject which must have been strange to him, Mr. Kirkcaldie is nevertheless reported to have said: "The only surmise I have been able to form on the subject is that possibly the driver may have been a little late in applying the brake, and in his attempts to put it on subsequently may have allowed the air to escape. Every time the lever is moved there is more or less escape of air, and if this were done too often there would not be enough to work the brake, and he would not be able to make pressure fast enough to control the train." And this was precisely the nature of the evidence he gave at the inquest, having in the interim taken means to test the accuracy of his previous statement. At that time the Board had not even been appointed, consequently Mr. Kirkcaldie could not by any chance have anticipated its report.

And perhaps when we have said this our critic will admit that we have disposed of his other assertion that Mr. Kirkcaldie's theory was "heard for the first time at the inquest"; if, however, he is even yet unconvinced, we would again refer him to the *Daily Telegraph* of June 27, which contains an admission of the exhaustion theory which that paper alleges to have been made by the representative of the Westinghouse Brake Company. Then we are told that Mr. Kirkcaldie was asked the following questions by Dr. Sly:—1. "How do you or how can you account for there being no air in the reservoir at Peat's Ferry?" 2. "How could the air be exhausted?" Now, although it is not of much importance, these questions were not put by Dr. Sly, but by Mr. Rogers; but Mr. Kirkcaldie's replies were diametrically opposed to those now imputed to him by the *Daily Telegraph*. For the purpose of comparison we give side by side the answers imputed to him and those actually copied from the depositions:—

According to the Daily Telegraph writer—

- (1.) I can't account for it; there is only one theory—that the air was exhausted going up the bank.
- (2.) By too frequent use of the brakes to stop the train.

Copied from depositions—

I cannot account for the absence of the air from the reservoirs at Peat's Ferry, only on the one theory—that it had become exhausted in going down the bank.

It could have become exhausted by a too frequent use of the driver's brake valve while he would be endeavouring to check the train, not to stop it.

And our critic's assertion that Mr. Kirkcaldie afterwards admitted that "if the driver attempted to use the brake going up the bank the train would have been brought to a standstill" will not be found in his evidence at all. If the *Daily Telegraph* is so anxious to get at the true cause of the accident, as it has several times professed to be, what can be its object in misrepresenting matters in this way? Strangely enough, every misrepresentation has been in favour of its own theory, and consequently opposed to that of the Board.

With regard to the exhaustion tests which were made under Mr. Kirkcaldie's observation, our critic says that "Mr. Kirkcaldie's object was to see how much the pressure could be brought down by six manipulations of the valve, while Wilson's was to stop the train"; but it may be said that the tests which Mr. Kirkcaldie saw were made for the purpose of demonstrating whether it was possible or impossible for the auxiliary reservoirs to be exhausted on the descent towards Peat's Ferry, and those tests proved that it was not only possible but probable unless the air was judiciously used; he certainly had no idea of trying "to see how much the pressure could be brought down by six manipulations of the valve." Although that number was quite sufficient to show how readily the air could become exhausted; and Wilson's object was not to stop the train until it got to Peat's Ferry, but simply to keep it under control, which, after running about half way down the gradient, he was unable to do.

The withholding or publication of the evidence taken at the departmental inquiry does not rest with the Board, but the *Daily Telegraph* might have been generous enough to respect the reason given in our last report for its being withheld, as probably it would, under other circumstances, have been the first to condemn its publication. And here, for the very same reason, we may also state in reply to the assertion of the *Daily Telegraph* about the Board being "convinced that the coroner's jury gave a verdict against evidence," that as the coroner's evidence is being analysed by an expert, this is neither the time nor the place to refer to the verdict of the jury.

If the jury had expressed the slightest wish to see the exhaustion theory demonstrated their wish would have been unhesitatingly gratified, but the Board would certainly not think of recommending any test to be made for the satisfaction of any person who has shown such a decided prejudice as the *Daily Telegraph* writer. We said before, and we repeat again, that if our critic is not satisfied with the coronial evidence, and with the assurance of the Board on the subject, let him refer to the statement of the representative of the Westinghouse Brake Company, in the *Daily Telegraph* of June 27, which reads:— "It is said that the train was examined and found to be in good order before it started. If that was so the air could only have been prevented from acting by the driver totally exhausting his air, or rather allowing it to exhaust itself, or the connections between the carriages being wrongly coupled."

When a voluntary statement of this kind comes from such a quarter, it looks remarkably like presumption on the part of a newspaper writer to say that the exhaustion theory is an impossible theory.

And now let us, in conclusion, recapitulate briefly the various points upon which the Board based its opinions:—

1. The evidence of the three men who proved most conclusively that immediately before the train left Sydney the air was properly connected from the engine to the rearmost vehicle. The strongest proof that the brake was put hard on upon this vehicle is that the man who was hand-braking the first seven carriages into the station had the wheels twisted out of his hand by the application of the air.
2. The evidence of the fireman that before the train was divided at Beecroft the driver applied the air-brake upon the train.
3. The statements of three other witnesses that the brakes were left hard on upon the two carriages left behind at Beecroft, and found hard on when the engine returned for them.
4. The evidence of the officer in charge at Hornsby that when he uncoupled the first division of the train from the engine there he left the brakes hard on; he tapped one with a sprag, and found it was on.
5. The evidence of one witness who was in the last of the two carriages which constituted the second division from Beecroft, that he distinctly felt the action of the Westinghouse brake on that carriage as the train drew up at Hornsby. [This evidence was taken by the Board, but was not elicited at the Coroner's inquest.]
6. The evidence of two witnesses that when the two divisions of the train were recoupled at Hornsby they heard the air pass through the pipe.
7. The positive assurance of Mr. Garrard, M.P., as to the action of the Westinghouse brake upon the carriage he was in (then the second from the engine) after commencing the descent towards Peat's Ferry.
8. The fact that all the taps and air connections were found respectively open and continuous, with the solitary exception of the one tap under the only carriage which telescoped (the one near the engine), and which could not possibly have been found in any other than a closed position under the circumstances.
9. The fact that all the brake-blocks were found to be perfectly loose immediately after the accident, notwithstanding the severance of the air-pipe between the first and second carriages.

Now if we are to accept the statement that the tap found shut under the carriage next the engine on the day after the accident was in reality shut before, and is the explanation of the accident, we must, notwithstanding the evidence indicates strongly the contrary, first assume that the whole of the brakes had leaked off before the train left Hornsby, and next must entirely discredit the whole evidence referred to in paragraphs Nos. 1, 2, 3, 5, 6, and 7; and then, supposing these insuperable difficulties surmounted, what has been gained; we have no adequate explanation after all; for, as stated in previous reports, there were 48 tons of brake-force on the engine, tender, and two first carriages, while 43·146 tons were sufficient to stop the train which met with the accident in 400 yards when running down the incline at 25 miles per hour (and it ought never to have been allowed to exceed that speed) on a descending grade of 1 in 40. Yet it was on a gradient of 1 in 50 that it got beyond control, so that it could have been stopped by much less brake force.

The Board is equally satisfied with the *Daily Telegraph* that this subject has been sufficiently ventilated, and they will not therefore consider it necessary to take notice of any further communication which may appear.

August 25.

D. VERNON, Chairman.

[From the *Daily Telegraph*, Saturday, September 10, 1887.]

THE PEAT'S FERRY ACCIDENT.

UNDER cover of a reply to an article appearing in our columns on Tuesday relating to the results of the recent trials which have been made by the Railway Board, Mr. Kirkcaldie is able, in the letter which appears below, to give his version of the results obtained. He states that there were not four trials, but only two. Well, we have Mr. Adams' admission that he attended what appears to us equivalent to a third trial, and we have reason to believe that at least one other of the same character has taken place. Of course if Mr. Kirkcaldie considers nothing less than exhausting the air in the manner pursued by Mr. Laughry a trial, then there were probably only two. Perhaps it was on account of the application received from the representative of the Westinghouse brake for permission to attend the trials that the representative of the vacuum brake did not accompany the Board when the alleged results were obtained.

As to the results of the trial we have two versions. Perhaps it would be better not to accept either until these trials are conducted in a way which will enable us to arrive at the truth.

We readily accept Mr. Kirkcaldie's denial that he worked the brake. It may be that our informant is confounding what occurred some time back with that which happened a few days ago. Evidently the strongest point of Mr. Kirkcaldie's letter is this: that if the statements were true that the blocks were blue with heat after the Board's trial, but were quite cool after the accident (which Mr. Kirkcaldie admits), it would prove:—"Simply that when the tests were made the air was operating satisfactorily, causing the blocks to grip the wheels; while on the day of the accident it was not, because if it was not absolutely exhausted it was sufficiently so to make the brakes inoperative." How many times is it necessary for us to say that they were cool because the blocks had not operated on the wheels at all? Mr. Kirkcaldie does not deny our assertion that Mr. Laughry deliberately worked the brake to exhaust the air. Nor does he state that the wheels were cool, although he says they were not "blue" with heat. Surely the inference is that for the same result Wilson must have used the same means, then how were the blocks cool after the accident? The seconds occupied in running down the grade after the brakes became inoperative would not be sufficient to cool them.

The most important points of our article Mr. Kirkcaldie does not deny or otherwise deal with. That the piston stroke was 7in. on Saturday and 8in. on Wednesday is not denied. How remarkable that the Board should have used the maximum stroke. If the authorized stroke is from 4in. to 8in., common fairness should have caused the Board to use not more than a 6in. stroke, seeing that the quantity of air used at each application is regulated by its length.

Then we take it for granted that the representative of the Westinghouse brake was not allowed to attend the trials; that the representations of the engineer who examined the train used for the trials declared that it was equipped as if to obtain the worst possible results were also totally ignored.

And above all, Mr. Kirkcaldie does not deny that in exhausting the air Mr. Laughry used 12 or 14 full rapid applications—that in so doing he worked the brake as is absolutely unnecessary under any circumstances, and as is never done in any part of the world—in a manner foreign to every engine-driver in New South Wales—that as soon as he found the air recouping itself he would change the position of the valve, and that he made 12 or 14 of these nicely-timed applications. We are prepared to admit that as no mechanical invention is infallible so the air of the Westinghouse brake can be thus exhausted, but as Mr. Laughry, the Board, and Mr. Kirkcaldie himself all well know, such an action in the running of a train would be maniacal.

Letter from Assistant Traffic Manager.

To the Editor of the *Daily Telegraph*.

Sir,—Although my name has been somewhat freely made use of in your columns recently, in writing on this subject, I have not hitherto considered it necessary to take notice of any of the comments that have been made, but for pure invention the contribution in your issue of to-day so thoroughly eclipses all its predecessors that I must ask your indulgence, while I put your correspondent right, if, indeed, it is possible to put him right.

It is not the case that four trials have taken place with running trains. Only two have been made, one on Wednesday and the other on Saturday last, and in each case on the Hawkesbury line, about one-third the length of the one on which the train ran away, and in neither did the representative of any brake accompany the train.

Although there still remained plenty of air in the main reservoir on both occasions, that in the auxiliary reservoir was readily and completely exhausted in about one-third of the time and distance that the train was kept under proper control when descending the gradient towards Peat's Ferry on the day of the accident.

The statement that I manipulated the brake valve on either trial is a pure fabrication, for until yesterday afternoon I had not even been on an engine for a couple of months, but I was in the train on each occasion, and can positively assert that there is not a vestige of truth in the assertion that "the brake had a playful habit of stopping the train so suddenly as to render it quite impossible for the members of the Board to maintain a dignified equilibrium, while sitting could not be continued with any degree of comfort." On the contrary, those who were in the train did not feel the application or release of the brake one iota more than they do under ordinary circumstances when manipulated by the most experienced drivers.

The statement has been very persistently put forward by the *Daily Telegraph*, and recently by the local agent for the Westinghouse Brake Company, that it is impossible under any circumstances to exhaust the auxiliary reservoirs in the time required to run from the top of the hill beyond Hornsby to the second tunnel where the train got away—a distance of about three and a half miles. Every trial that has been made, both standing and running, has demonstrated the absurdity of such a statement.

Nor was this the only test that was made. On both the running trials it was very clearly established that the air brakes on the tender and one vehicle next to it were amply sufficient to control a train of the same weight and running at a speed of over 30 miles an hour on a gradient of precisely the same character as that on which the train ran away on June 21; and even the hand-brake on the engine was not made use of except when the train was brought to a deadstop on a grade of 1 in 40. What,

What, then, becomes of the "shut-tap" theory, seeing that the only shut tap found on the ill-fated train was on the rear of the vehicle next the engine (which, by the way, was upwards of a ton heavier than the one made use of in the tests), and that the hand-brake of a second vehicle was put on between the first and second tunnels and kept hard on?

It is equally untrue that "the brake-blocks were blue with heat after the Board trial," although it is quite right to say that they "were quite cool after the accident."

But, even if both assertions were true, what would they prove? Simply that when the tests were made the air was operating satisfactorily, causing the blocks to grip the wheels; while on the day of the accident it was not, because, if it was not absolutely exhausted it was sufficiently so to make the brakes inoperative.

And, as regards the stroke of the pistons, it is not correct to say that the usual length is from 3in. to 5in.; the Westinghouse Brake Company's own rules specify that the stroke should not be less than 6in. nor more than 8in.; and I am in a position to say that while in none of the vehicles used at the tests were the strokes more than 8in., in every or almost every cylinder it was less.

September 6.

Yours, &c.,
DAVID KIRKCALDIE.

No. 21.

Minute by The Secretary of Railways forwarding particulars of trials of brakes.

Peat's Ferry Accident.

SINCE the report of the Board was submitted there has been, as the Commission is aware, a great display of opposition on the part of the *Daily Telegraph* newspaper and the Westinghouse Brake Company, to the Board's conclusion that the failure of the brake power arose from the fact of the auxiliary reservoirs having been allowed to become practically exhausted.

It has been repeatedly stated that such a thing could not possibly be effected, and the Board have been frequently challenged to prove their case by a practical trial. Seeing, however, the Board had already made known the fact of their having satisfied themselves, by practical tests, of the feasibility of their theory; and, in addition to this, had pointed to the experience of some of our own drivers, and to the undeniable and clear testimony from railway authorities and practice in other countries in confirmation of it, I have been able to see no good reason for recommending the Commissioner to comply with our opponent's unreasonable and reiterated challenge. Apart from this, no good purpose whatever was to be gained by responding to their request, for it must be evident to all parties that it would be impossible to reproduce exactly similar conditions to those which led up to the accident, and any practical trial, to be of value, must be made under conditions approximating as closely as possible to those under which, it may be imagined, the accident occurred. It is perfectly certain that our opponents would never agree with the Board as to what these conditions may have been, and nothing therefore but further dispute and dissatisfaction could result from any attempt to comply with their desire.

In arriving at their conclusions the Board had to be guided by the evidence forthcoming at their inquiry, and any person who will fully and impartially weigh this evidence, will find that it affords no adequate support for any other conclusion than the one come to by the Board. Our opponent's contention that the air reservoirs of the Westinghouse brake cannot be exhausted under any conditions is demonstrably mistaken, and sufficient evidence has already been afforded them in this respect, although they have chosen persistently to ignore it. For the reasons already explained I would strongly advise the Commissioner to make no further concession in regard to practical trials, and, for the same reasons, it would not be of the slightest use to furnish particulars of any experiments which have been made already.

It may be as well, however, to put on record the particulars of some trials which have taken place, and with this object I have requested Mr. Laughry to let me have a report of what has been done since the inquest. This report I will attach as soon as it is to hand. From my own observation I am perfectly satisfied that the drivers on our steep inclines have long ago discovered the necessity for guarding against the exhaustion of their air, and this they do by working up an abnormal pressure and using the engine hand-brakes vigorously. Instead of working at a maximum 60 lb. per square inch, I have noticed they run it up to 90 and 100, and use the engine hand-brakes as well, so that, as a matter of fact, on the steep inclines, we find the Westinghouse brake is not depended upon to do the work by itself, and the Department has still to bear the expense of the wear and tear caused by the use of engine hand-brakes.

It must also be borne in mind that this very high pressure is likely to burst the hose-pipe connections; and if a train became suddenly pulled up from such a cause, and was run into by a following one before everything was made right, the Department would be reflected upon by the public, and the Brake Company, for working at a pressure so much above the prescribed maximum. At the same time I am satisfied that the danger of exhausting their air is practically so well known and recognized that it is questionable whether a driver could be found who would undertake to run a train down from Katoomba at anything like an even rate of speed with the stipulation that his pressure was not to exceed 60 lb. at any time, and the use of his engine brakes to be prohibited.

There is a special feature in connection with the Peat's Ferry train and accident which has not been sufficiently borne in mind by those who have argued in favour of the impossibility of the exhaustion theory, and it is this: that the train ran at a high and increasing rate of speed from the top of the incline to the spot at which the brake was discovered to be inoperative, a distance of $4\frac{1}{2}$ miles, and that during the whole of this time the speed of the train had been more or less under the control of the brake, but without any intention on the part of the driver of stopping the train, or doing more than keep it from what appeared to the driver as a dangerous rate of speed. It is precisely under such conditions that the danger of exhaustion becomes imminent, and requires to be guarded against.

One other remark before I conclude. The *Daily Telegraph* newspaper has made a most unworthy bid for the sympathy of those he terms the "living drivers," by announcing his desire and intention to defend the character of the "poor dead driver" from the unjust and un-English treatment, he would imply, it has met with at the hands of the Board. I have only to say that of the two theories that put forward and upheld by the editor would reflect, if true, more severely on the memory and character of the brave man who went to his death without flinching than does the theory of the Board of Inquiry. In the latter case it amounts to no more than an error of judgment; in the former to an act of careless neglect.

D. VERNON, 7/9/87.

Report received from Mr. Laughry, and forwarded herewith.—8/9/87.

No. 22.

No. 22.

Mr. Laughry's Report.

Government Railway, Locomotive Engineer's Branch, Redfern Station,
8 September, 1887.

I BEG to report having fitted compo. carriage No. 10 with four pressure gauges for the purpose of showing the pressures carried in the various parts of the Westinghouse brake apparatus in ordinary working. One of the gauges connects with the main reservoir on the engine, another with the main train pipe, a third with the carriage reservoir, and the fourth with the carriage brake cylinder.

On Monday, the 29th August, this carriage was run attached to the up tourist train from Katoomba to Sydney. The train consisted of equal to ten four-wheeled vehicles, and was driven by Driver Bradley (engine 373), who, beyond being aware that a record was to be taken of the brake action, had no special instructions whatever as to how the brakes should be worked.

A record of the pressure shown on each gauge was taken every thirty seconds from the time the train left Katoomba until it arrived at Emu Plains. These records show that while descending the mountains the main reservoir pressure rose to over 100 lb. on twenty-two occasions, and was on one occasion as high as 124 lb.

The main-pipe pressure rose over 80 lb. on fourteen occasions, and was as high as 100 lb. on one occasion.

The carriage-reservoir pressure rose over 80 lb. on fourteen occasions, being as high as 90 lb. on four occasions.

The records also show that when running between Wentworth Falls and Lawson the carriage-reservoir pressure was reduced from 70 lb. to 52 lb. in four minutes, this without a stoppage, and with 100 lb. pressure in the main reservoir.

An examination of the tyres at Penrith showed that the engine and tender tyres were the hottest throughout the train, with the exception of those on one six-wheeled vehicle, the brake of which must have been dragging for some distance. It would appear from this that the engine and tender hand-brakes were freely used in controlling the speed of the train down the mountains.

The air-pump in use was new and in splendid working order; the air-brakes when applied were handled in a most skilful manner.

I would specially direct attention to the extraordinary high pressure of air carried, also to the use of the engine hand-brakes for controlling the train when the train brakes were available for that purpose, thus bringing wear on to the engine tyres which properly should be transferred to those of the train.

The practice of using the engine hand-brakes for controlling passenger trains in descending the mountains is, I believe, very general, and is no doubt done for the purpose of saving the air.

On Wednesday, the 31st August, a trial was made with a special train, fitted with the Westinghouse brake, on a falling grade between Thornleigh and Ryde (Hawkesbury line), for the purpose of ascertaining to what extent the auxiliary reservoirs need be exhausted before losing control of the speed. [See attached diagrams of air pressure and section of road over which the trials were made.]

The train consisted of engine No. 166, five American cars, and brake van, the air connections on the latter vehicle being disconnected during the trials. Following are the particulars of the train and brakes:—

Particulars of Air-brake on Engine and Tender.

Size of Air-pump.		Tender Reservoir.		Size of Brake Cylinder.	Stroke of Piston.
Steam Cylinder.	Air Cylinder.	Size.	Capacity.		
Inches. 6 × 9	Inches. 6½ × 9	Inches. 29½ × 11½	Cub. in. 3,063·8	Inches. 10 × 12	Inches. 7¼

Particulars of Train and Brakes.

Carriages.		Size of Reservoirs.		Size of Brake Cylinders.	Stroke of Piston.
Number.	Weight.	Size.	Capacity.		
	Tons cwt. qrs.	Inches.	Cub. in.	Inches.	Inches.
119. 2nd-class car	16 2 0	22½ × 11½	2,336·8	10 × 12	7¼
103. "	16 2 0	29½ × 11½	3,063·8	10 × 12	8
60. Composite car	16 10 0	29½ × 11½	3,063·8	10 × 12	8
65. 1st-class car	16 10 3	22½ × 11½	2,336·8	10 × 12	8
68. "	16 10 3	22½ × 11½	2,336·8	10 × 12	8
82. Brake-van	8 5 0		Not connected with air.		

On the first trial the pump was kept working with a full head of steam, and starting with a pressure of 66½ lb. in the auxiliary reservoirs the train approached the descent at a speed of about 30 miles per hour, which speed was maintained as near as possible (by ten to twelve partial applications of the brake) for a distance of 1½ miles, at which point the brake was applied fully and remained on, but had not sufficient force to keep the speed of the train from increasing.

A few seconds later, finding the speed had increased to about 40 miles per hour, the hand-brakes, which were fully manned, were called for and the train brought to a standstill. Diagram No. 1, dated August 31st, shows the reduction of pressure in the reservoir of the fifth carriage from the engine, as indicated by a self-recording instrument on this trial.

A second trial was then made over the same section of road, and with the same object. This time the pump was worked at half speed. Starting with a pressure of 66 lb. in the train reservoirs, the descent was approached at about the same speed as on the first trial. As before, the brakes were partially applied and released ten or twelve times in a distance of 1 mile 30 chains, and in a period of two and a half minutes. At this junction the air-brake was applied fully and remained on, but, as on the first trial, had not sufficient force to keep the speed from increasing. After the speed had increased to about 40 miles per hour the hand-brakes were again resorted to, and the train brought to a standstill.

Appendix H.

Diagram No. 2, dated 31st August, shows a reduction of pressure in the carriage reservoirs on this trial.

The train was then run to Peat's Ferry, the driver having no special instructions as to how the brakes should be worked. At the top of the incline leading to Peat's Ferry the indicator showed 79 lb. of air in the train reservoirs, which pressure had fallen to 53 lb. by the time the train arrived at the Ferry.

In making the descent the brakes were applied and released from twelve to fourteen times.

On returning to Sydney a third trial was made, while descending the incline between Thornleigh and Ryde, this time for the purpose of ascertaining what could be done in the way of controlling the train with the tap closed at the rear end of the first carriage from the engine. The train on this occasion consisted of five cars, two loaded goods trucks, and brake-van, weighing in all 108 tons, and was controlled without any trouble to the foot of the incline by the use of the air-brake on the tender and one carriage, with a little assistance from the engine hand-brake. The speed averaged from 15 to 18 miles per hour.

On Saturday last, the 3rd instant, further trials were made with a special train over the same section of road, and with the same object as on the Wednesday.

The train on this occasion consisted of engine No. 166, six American cars, and one four-wheeled carriage. Two of the cars were not connected with air during the trials. The following are the particulars of the train and brakes:—

Carriages.		Reservoirs.		Size of Brake Cylinders.	Stroke of Piston.
Number.	Weight.	Size.	Capacity.		
	Tons cwt. qrs.	Inches.	Cub. in.	Inches.	Inches.
191. 2nd-class car	16 10 0	22½ × 11½	2,336·8	10 × 12	7½
40. 1st-class car	16 10 3	29½ × 11½	3,063·8	10 × 12	7¾
65. Composite car	16 10 0	29½ × 11½	3,063·8	10 × 12	7½
63. 1st-class car	16 10 0	22½ × 11½	2,336·8	10 × 12	7¼
2 cars	33 0 0		Air-brake not connected.		
10. Composite (4 wheels)	6 5 0	9½ × 20½	1,453	8 × 12	6½

Since received
Appendix I.

Three trials were made, and the results obtained were practically the same as those obtained on the previous Wednesday. The diagrams of air-pressure, time, and distances taken on these trials are not yet completed. It is worthy of note, however, that, on the third trial, viz., with the tap shut between the first and second vehicles the train descended the incline at a speed of about 25 miles per hour, and was kept under perfect control by the use of the air-brake on the tender and one carriage alone; also was brought to a standstill from that speed on the 1 in 40 grade by adding the engine hand-brakes. The train on this trial weighed 89 tons.

E. A. LAUGHRY.

Loco. Engineer,—

Sir,

Loco. Engineer's Office, Sydney, 7 September, 1887.

I beg to report that yesterday afternoon several experiments were made with the Westinghouse brake on a standing train, consisting of an engine and five large carriages.

Following are the particulars of brakes on engine and train; also results obtained:—

PARTICULARS of Air-brake on No. 166 Engine:—

Size of Air Pumps.		Tender Reservoir.		Size of Brake Cylinder.	Stroke of Piston.
Steam Cylinder.	Air Cylinder.	Size.	Capacity.		
Inches. 6 × 9	Inches. 6½ × 9	Inches. 29½ × 11½	Cubic inches, 3063·8	Inches. 10 × 12	Inches. 7¼

PARTICULARS of Air-brake on Carriages:—

Carriages.		Reservoirs.		Size of Cylinder.	Stroke of Pistons.
Number.	Weight.	Size.	Capacity.		
	Tons cwt. qrs.	Inches.	Cubic in.	Inches.	Average stroke, 6 inches.
83. composite carriages	16 10 0	22½ × 11½	2336·8	10 × 12	
107. 2nd class ,,	16 2 0	29½ × 11½	3063·8	10 × 12	
49. 1st ,, ,,	13 12 0	29½ × 11½	3063·8	10 × 12	
113. 2nd ,, ,,	16 2 0	29½ × 11½	3063·8	10 × 12	
207. 2nd ,, ,, (Redfern type)	16 3 3	22½ × 11½	2336·8	10 × 12	

135

EXPERIMENT No. 1 & 2.

TIME required to charge the train reservoirs up to a pressure of 60 lb.; commencing with a pressure of 75 lb. in the main reservoir and pump working, with full head of steam (135 lb.)

Number of Carriage.	Time.	
	With Driver's Valve in Feed Position.	With Driver's Valve in Release Position.
	Mins. secs.	Mins. secs.
83	4 27	3 13
107	5 35	4 30
49	4 25	2 55
113	3 36	2 45
207	3 30	2 40

EXPERIMENT No. 3.

REDUCTION of pressure (about 60 lb.) in train reservoirs by a frequent application and release of brakes, pump working with, and a full head of steam.

Number of Carriage.	Pressure in reservoirs immediately after each application of brake.									
	First application.	Second application.	Third application.	Fourth application.	Fifth application.	Sixth application.	Seventh application.	Eighth application.	Ninth application.	Tenth application.
83	45	39	33	29	26	24	22½	20	18	15½
107	49	43	39	35	32	30	28	26	24	22
49	49	43	39	36	33	31	29	27	23	21
113	50	43	41	37	34	32	30	27	24	22
207	47	38	32	30	27	24	22	19	17	16

Time between first and last application of brakes, 1 min. 55 sec.

EXPERIMENT No. 4.

GRADUAL application of brakes, commencing with about 60 lb. pressure in the train reservoirs.

Number of Carriage.	Pressure in train reservoirs and cylinders after each reduction of 5 lb. in the main-pipe pressure.							
	First Reduction.		Second Reduction.		Third Reduction.		Fourth Reduction.	
	Reservoir.	Cylinder.	Reservoir.	Cylinder.	Reservoir.	Cylinder.	Reservoir.	Cylinder.
83	53	16½	47½	26½	45	42	43	42
107	55	22	50	35½	47	45	47	45
49	48	22	48	22	43	42	43	42
113	56	46	53	46	.....	.....	.....	.....
207	61	13	49	40	47	47	47	47

EXPERIMENT No. 5.

BRAKE applied eleven times in 5½ minutes, remaining on each time for a period of twenty seconds, commencing with 60 lb. in train, reservoir pump, working with full head of steam.

Number of Carriage.	Pressure in carriage reservoirs immediately after each application of brake.										
	First application.	Second application.	Third application.	Fourth application.	Fifth application.	Sixth application.	Seventh application.	Eighth application.	Ninth application.	Tenth application.	Eleventh application.
83	43	36	30	27	23	21	19	17	15	14½	13
107	47	41	36½	32	27½	25	21½	19	16½	14½	12½
49	47	41	37	33	30	28	26	24	23	22	21
113	48	41½	35	32½	30	28	27	24½	22	19	17
207	45	41	39	34	30	26	22	20½	19	18	17

Pressure in main reservoir, as indicated by the driver's gauge, between the tenth and eleventh application of the brake, 60 lb.

E. A. LAUGHRY.

No. 23.

Excerpts from *Daily Telegraph* asserting the impossibility of air being exhausted from the auxiliary reservoirs while the gauge-glass shows air in the main pipe.

23RD July, 1887.—The Westinghouse brake cannot be made to act in that way, even if placed in the hands of a raving maniac. It is perfectly true that it can be applied constantly, but it cannot be released under eight seconds. A driver or madman can turn back the valve-handle as often as he likes, but eight seconds must elapse before the brakes are off. How many times could the brakes have been released while the train was rushing through the third tunnel, the distance of which is 140 yards? The act of turning the brakes on and off so vividly portrayed would only mean keeping them tightly on all the time.

We venture to think that the more the air-exhausting theory of the Board is analysed the greater will appear its absurdity. It is unsupported in evidence; it can be undeniably destroyed by experiment.

Fit up a train composed of these carriages and two others to correspond with those destroyed, and try the air-exhausting theory on a down grade followed by a corresponding up grade, where no possible accident can result; or if accident is feared, have a train abundantly supplied with hand-brakes, to be used in case of emergency. Ascertain in this practical way how the air can be wasted by unskilful manipulation of the brake valve, or how quickly the train can be brought to a standstill. If the grade is not heavy enough to keep on steam, the challenge is made; it can be carried out without risk. Query: Will it be accepted?

6th August, 1887.—Let this Board nurse their pet but impossible scheme as long as they please, it will have no weight whatever in the public mind. Already we have good reason to believe its impossibility on a grade of this length has been clearly proved. Will the Board be surprised to learn that a number of engine-drivers have tried the "injudicious manipulation" theory with one result—that it is impossible.

We have submitted that the force of the Westinghouse brake cannot possibly be exhausted or brought down to an inoperative pressure in a grade as continuous as that at Peat's Ferry with the donkey working. Try it. Will the Board remain discreetly silent?

17th August, 1887.—If the Board thoroughly believe in their theory, why not try to exhaust the air of the Westinghouse brake on a running train? We have claimed that it is impossible in the time and distance in which it is alleged to have occurred.

29th August, 1887.—Mr. Granlund writes in our columns this morning that "the representatives of the Westinghouse Brake Company never thought the exhaustion theory worthy of consideration, and now, when, after numerous trials, all attempts to establish the theory by practical tests have utterly failed, and have been given up by the Department in despair, it is less worthy of consideration than ever." This may be the mere "bluff" of a man whose machine has been discredited by an official board of inquiry, and who is determined to fight, or it may be the outspoken criticism of a man whose machine is in use on hundreds of railways, and who is convinced that the official theory as to the cause of the Peat's Ferry accident is an absurd and unjust one. After all, what the public are waiting for is the practical tests in support of the Board's theory. Over and over again we have challenged them to accept the risk of actual experiment. We are willing to expose ourselves to all the humiliation of defeat. Surely the Board should show the courage of their convictions.

See Reports. Air exhausted without any difficulty. Theory of the Board thoroughly established.—CHAS. A. G.

No. 24.

Letter from Mr. Driver Moore to The Commissioner for Railways, with marginal notes by Secretary.

Sir, Sydney, 24 July, 1887.

My object in addressing you is to assist, as far as I possibly can, in elucidating the real cause of the late Hawkesbury calamity, and in venturing to lay my opinion concerning the same before you, trust I shall not be deemed intrusive.

1st. I respectfully desire to draw your attention to the facts (proven by evidence) that the brake power on this train was sufficient, and in good working order, until the division of the train took place at Beecroft.

2nd. On the arrival at Hornsby of the first section of the train, viz., seven carriages, Stead, the officer in charge, states that he uncoupled the engine, and, in doing so, he says he applied the brakes by letting the air out of the main pipe, thereby applying the air-brakes to the two carriages (which was all there was working in this section). In doing this the air communication between the supplementary reservoirs and the brake cylinders was direct, and it is here I wish to draw your special attention to what in my opinion actually took place at that time. The brake having been applied by the force of the air contained in the supplementary reservoirs, could only be kept on by that force, but if there was a leakage at the piston, and then the air in the cylinder would become exhausted, and the communication with the reservoir being complete, I venture the opinion that the whole of the air previously contained in this section was exhausted and the brakes released by the time the engine returned from Beecroft with the second section.

1st. I am glad to see that Mr. Moore has no doubt on this point, as indeed there can be none after the evidence given.

2nd. It is scarcely reasonable to suppose this. As for the carriages which remained behind at Beecroft, they certainly had not leaked off when engine returned, and this does not argue well for the reasonableness of the supposition as regards the others.

3rd.

3rd. We have corroborative evidence of the connections between the two sections having been properly made at Hornsby, and we also find that as the train was passing Stead (who was holding the points) that he noticed the brakes rubbing on one of the carriages. The train was also afterwards stuck up on the incline by the brakes being on one of the two front carriages, and its being released by the guard.

4th. The question now presents itself, "What caused that brake to go on?"

There is an answer, and, in my humble opinion, which I herewith respectfully submit for your consideration, it was, the air connection between the engine and that carriage was incomplete, and I now advance the following evidence in support of my opinion.

Assuming that the air had exhausted itself in the first section whilst standing at Hornsby, the two carriages left behind at Beecroft would have the ordinary pressure in them, viz., between 40 and 50 lb. (there being no evidence to show the air had been applied to them while standing at Beecroft). And on the connections between the first and second sections being made complete (engine not included) what would be the result? Answer: The pressure in the main pipe of the front section being reduced would apply the brakes to that section [this is actually what did take place]; but if the connections between the front section and the engine had been complete, this reduction would have been supplied by the extra pressure in the main reservoir of the engine, and would have released the brakes in less than half a minute.

5th. We find the train was actually stuck up some distance from Hornsby by the brake remaining on at least one vehicle in the first section, although the pressure in the driver's air-gauge had risen to 90 lb., and considering the grade on leaving Hornsby is on a slight decline, I come to the conclusion that this brake was on all the way from Hornsby, and when released by the guard, and that the train was then practically empty through the connections being incomplete.

In conclusion, I wish to state that had time permitted me to give my attention to the circumstances, I should have made my views known earlier; but this is the first day I have had to myself since the accident, and I humbly and respectfully submit my views for your consideration.—I have, &c., DAVID MOORE.

Shall we reply to Mr. Moore.—D.V., 15/8/87.

Yes; point out where the evidence contradicts this theory; and express my thanks to Mr. Moore that in a matter where we are all seeking for a true solution he should have contributed his ideas on the subject, which are certainly less demonstratively wrong than the other theory offered to that of the Board which has formed the subject of discussion.—CHAS.A.G., 15/8/87.

Sir,

Railway Branch, Sydney, 18 Aug., 1887.

In acknowledging the receipt of your letter of the 24th ultimo, on the subject of the Peat's Ferry Railway Disaster, I am directed by the Commissioner for Railways to convey his thanks to you for the contribution of your ideas on a matter of which we are all seeking the true solution.

I am also to state that although your ideas are certainly less demonstratively wrong than the other theory opposed to that of the Board, and which has proved the subject of discussion, further consideration will show that the explanation of the Board is the only one consistent with the whole of the evidence given.

I have, &c.,

A. RICHARDSON,
(For the Secretary of Railways.)

Mr. David Moore, Redfern.

Memo. by Secretary of Railway's on Driver Moore's Letter.—Driver Moore's theory of the Peat's Ferry Accident.

In his letter of the 24th ultimo, Mr. Moore communicates his opinion that the accident must have been brought about by the air connections being closed between the engine and the first carriage. I may at once say of this explanation that it would adequately account for the accident if the evidence supported it, and this is far more than can be said of Mr. Shellshear's explanation. Mr. Moore considered it proved that the brake power on the train was sufficient and in good working order until the division took place at Beecroft, and he also is of opinion evidently that the recoupling of the two divisions was properly made at Hornsby.

His theory is this: When the train was divided at Beecroft the two carriages that were left behind for a time were held by the sprag or sapling through the wheels, but their blocks were not applied, the tap at either end of them being shut. In this condition, or at any rate with either one or both taps between engine and first carriage closed, they were taken up to Hornsby and recoupled to the seven carriages which had preceded them, the connection, however, between the engine and the first carriage still being left incomplete. The pressure in the service pipe of the two being let by the process of coupling into the service pipe of the other lot of carriages would reduce the pressure and bring down the triple valves of the former, and put the blocks on their wheels; the blocks, however, did not attract notice owing to the (slightly) down grade which exists leaving Hornsby, but when the train came to mount the

3rd. Mr. Moore has no doubt about this. The evidence is perfectly clear, and he has sense enough to perceive it. So far as can be gathered, it was not, however, one of the two front ones, but must have been the fourth; Clissold's testimony is certainly not clear.

This is starting with what can only be regarded as a somewhat unreasonable assumption.

The evidence (especially the Departmental, which Mr. Moore has not seen perhaps) is very clear and decisive to the contrary.

But any pressure existing there came from engine; for the brakes were, it is clearly enough shown, released at Beecroft before starting.

Rice also swears positively that the air-brake was applied by driver to the last of the two just before the recoupling took place, all of which precludes the idea of there being a shut tap next the engine, without taking into account Mr. Garrard's evidence.

If driver Moore's theory could be established, it would certainly account for the accident, which is more than can be said of Mr. Shellshear's shut-tap theory; but there are serious difficulties in the way of its acceptance. We cannot ignore positive evidence, some of which Mr. Moore may not be aware of.

the first incline Clissold found he had to go and release them, from off one carriage at any rate. The blocks of the other carriages, he assumed, must have leaked off, and therefore gave no trouble.

There are, however, the following difficulties in the way of this theory.

Clissold states that he coupled the engine to these carriages when it returned to Beecroft for them, and that he opened the taps, and his testimony is corroborated decidedly in the case of the carriage tap; and we know that the engine tap was found *open* after the accident. Clissold, Gaylead, and Rice distinctly say that the blocks *were on* these two carriages while standing at Beecroft, and as distinctly say that they were still on when the engine returned, consequently there was no *pressure carried* to Hornsby in the *service pipe* except when the *engine may have put in it* after leaving Beecroft, in which case, of course, there would have been no closed tap between it and the first carriage.

In the next place, Rice distinctly avers that the air brake was working on the last car just before going into siding to be recoupled to the first lot; and again, Stead noticed the train leaving the station, and he would surely have noticed it if any blocks had been on, whereas he says plainly that only *on one* carriage were they slightly rubbing.

It is also not in accordance with evidence to assume that the blocks had so thoroughly leaked off all the carriages save this one. And we have also to take into account the positive evidence we have that the air brake *did* work on the second car from the engine after it left Hornsby. And again, it is by no means clear that it was one of these two carriages that Clissold referred to; the evidence points rather to the fact of its having been the fourth.

On the whole the difficulties are too formidable to permit of this theory being accepted as the true one.—D.V., 19/8/87.

Seen.—CHAS. A. G., 23/8/87.

No. 25.

Mr. W. J. Adams to The Commissioner for Railways.

Sir,

15, Bond-street, Sydney, 20 October, 1887.

Herewith I have the honor to enclose you copy of a letter written by Mr. Neale, the sub-Editor of the *Railroad Gazette*, to Mr. Alfred Sacre, the Consulting Engineer to the Vacuum Brake Company in London.

It is interesting as illustrating that the practice of throttling the exhaust of the triple valves is a common one on railways using the Automatic Westinghouse Brake on steep inclines. Mr. Neale also states that some accidents have happened in America owing to the exhausting defect.

Mr. Neale was at one time Loco. Engineer to the Cape of Good Hope Government Railways, and refers to his experience there. This, however, does not bear on the subject, but I have copied his letter *in toto*.

I have, &c.,

W. J. ADAMS.

[Enclosure.]

To Mr. Alfred L. Sacre, 32, Queen Victoria-street, London, England,—

Sir,

Railroad Gazette Office, New York, 16 April, 1887.

I am much obliged for yours of the 24th ultimo, with little book of instructions.

In answer to your question, the longest heavy grade on the Pennsylvania is from Altoona to Gallitzin, crossing the Alleghanias. Roughly speaking, it is about $9\frac{3}{4}$ miles of 1 in 58. The brake on such inclines is often used as "straight air," that is to say, the cock attached to the triple valve is turned to such a position that the triple valve is inoperative, and the brake is made non-automatic. In this way the speed is more easily regulated down the long incline. When the brake is used automatically it has to be released when the train is going too slowly, and the reservoirs have to be recharged before the brake can be again applied. If the reservoirs are not recharged, the brake, after a few applications, becomes very inefficient, and will not hold the train. The process of recharging the reservoirs is a slow one, and on a steep incline it occasionally happens that a train gains too much speed while this is being done, and runs away. Some accidents, especially with long trains, have happened from this cause, and special appliances have been put, especially in freight cars, to prevent this, and to permit the automatic brake to be used to control the speed of trains down inclines. The pressure-retaining valve is most generally used for this purpose. The exhaust from the cylinders from a certain number of cars is throttled. The apparatus is put into action on as many cars as are thought convenient by the train-men at the top of the incline. The brake on these particular cars will always be on with a pressure of about 10 lb. to the square inch in the cylinders. Thus, when the engineer is recharging the reservoirs, the brake will be lightly on these cars, and will thus prevent the train from gaining an excessive speed while the reservoirs are being recharged.

I enclose exact figures as to the inclines on the Pennsylvania. They are taken from vol. 39, page 84, of the Minutes of the Institution of Civil Engineers.

Yours, &c.,

D. H. O'NEALE NEALE.

P.S.—I may mention that on the western section of the Cape of Good Hope Government Railways the worst incline (Hexy River) is 15 miles of 1 in 40, with curves of 330 feet radius, or considerably worse than the Pennsylvania grades. The tell-tale vacuum brake worked admirably on this grade. It is non-automatic.—D. H. O'N. N.

[*Daily Telegraph*, 29th October, 1887.]

THE PEAT'S FERRY ACCIDENT.

COMMENTS BY THE ENGLISH PRESS.

The Departmental Inquiry Board Condemned.

By the latest English mail copies of the English engineering journals have come to hand containing comments on the findings of the Coroner's jury and the Departmental Board in relation to the Peat's Ferry railway accident. As these journals are recognised world-wide as authorities on engineering matters, and as they are far removed from local influences and jealousies, the impartiality of their comment cannot be questioned. From one of these papers, *Engineering*, we recently took some remarks with reference to the constitution of the Departmental Board. Subsequently, the results of that Board's inquiries and the report therein reached England, and *Engineering* then published the following leading article on the subject:—

Since we made reference to this subject on the 26th ultimo, the final particulars have come to hand. We find that the whole of the points we anticipated have been fulfilled, with but one exception, which is that

that the report of the so-called "Board of Inquiry," selected, as it now appears, by the Commissioner of Railways (the chief official responsible for the safe working of the lines), has been published, in place of being, as we thought probable, and as would have been best for the reputation of the Board, torn up and thrown in the waste-paper basket. All that we foresaw as to the incapacity of a Board, constituted and selected in the way the one in question was, to adjudicate impartially on the cause of the accident, and to place the saddle of blame on the right horse, has been exemplified, and in a manner more complete and astounding than we were prepared for, even in full view of the partisan spirit and the disregard of justice which too frequently mark the conduct of such matters in the Railway Departments of our Australian Colonies.

That this case would have run the usual course, and terminated like preceding instances, had it not been for the fact that owing to the accident being attended by fatal consequences, it necessitated a public inquiry at which the evidence was given on oath, and in the light of day, may be judged from the fact that the Board arrived at a decision which is traversed in every important particular—and with ample reason, as we shall show—by the verdict of the Coroner's jury. The former puts the blame on the unfortunate, helpless, and dead engine-driver, and insinuates fault in a more general way on the Locomotive Department, while, as we anticipated, it distinctly and emphatically acquits the Traffic Department of all blame for the accident. On the other hand the jury say—

"We attribute the accident to the great want of supervision on the part of the officials in the Railway Department in not carrying out the instructions laid down for their guidance, thereby endangering the safety of the railway travelling public. We consider the driver did all in his power to control the excessive speed of the train.

"We are of opinion that the train was not sufficiently powerful to take the train in safety to its destination.

"We are further of opinion that the train was not properly inspected before leaving Sydney (*i.e.*, the station whence the train first started).

"We are likewise of opinion that the train was not properly inspected on leaving Hornsby (the station where it was shunted and remade up shortly before the place of accident).

"We are of opinion the air couplings and taps (of the automatic air-brake) on leaving Hornsby were not complete.

"We are of opinion that the brake-power on the train was not sufficient."

And the jury add the following rider:—"We earnestly request the Government, on behalf of the public generally, to appoint a commission to inquire into the management of the different branches of the Railway Department, so that an organized and more complete system be adopted."

The limited space at our command does not permit of our going more fully into the principal lessons taught by this case now, but we shall take an early opportunity of doing so; meantime, we think, a little consideration will show that the finding of the Board, in view of the evidence taken before the Coroner and published in the Sydney press, a complete burlesque of facts, and a gross injustice on the engine-driver and the Department in which he served. It is said, "Dead men tell no tales," and perhaps the Board of Inquiry thought so. Fortunately, however, for the reputation of the unfortunate driver and for the feelings of those who respect his memory, there are living witnesses and proved facts to show that he was more sinned against than sinning in the matter of this lamentable but inexcusable accident.

We shall also be able to reveal a state of disorganization and mismanagement in the New South Wales Railway Department, which we should say is without parallel in modern times. One sentence taken from the report of the Board—one specially appointed, be it noted, by the Commissioner for Railways, and of which the Secretary and Traffic Manager, as together representing the Traffic Department, were members—will suffice to show how traffic regulations affecting the safety of the public are there treated, and the complacency with which their breach is viewed by the authorities themselves when it implicates their own Department. The sentence we refer to is as follows:—"We must also observe that the formal test of the air-brake connections which, according to the rules of the Department, should have been made by both the driver and guard before leaving Hornsby, was not carried out; the operations, however, gone through (which the evidence shows were not in the slightest degree of the nature of a test) afforded undoubted proof that all was correct in this respect." Yet a fatal accident, evidently due to the neglect of this "formal test" resulted. We should like to see the faces of the chairman and directors of any railway company in this or any civilized country to which the Secretary and Traffic Manager went with such an excuse for the neglect of plain and obviously important traffic rules. This example, however, but touches the fringe of the case with which we purpose to deal fully at an early date.

Regarding the technical details of the accident we can now speak fully, as the papers containing the account of the investigations are to hand. A train of nine carriages, conveying some 400 excursionists, escaped the control of the driver when approaching its destination on a gradient of 1 in 40, and coming into collision with some trucks in a siding, the engine was flung into the river, and the driver and several others were killed. The tender and five of the nine vehicles were equipped with the Westinghouse automatic brake, but as the brake on one carriage was shut off for repairs, there remained only four upon which it was available, and the question as to how the train came to run away was, as we have seen, the subject of investigations for the Coroner as well as for the Board of Inquiry. It should be mentioned that the engine appeared to be quite incompetent for the work it had to perform, and after being "stuck up" five or six times, the driver, when about half-way, was compelled, on account of the heavy gradient, to disconnect the two rear vehicles and proceed some 4 or 5 miles to a station called Hornsby. Leaving the seven he then ran back for the remaining two, and after attaching them to the rest of the train at Hornsby, continued his journey, the two vehicles which had previously been at the rear being now at the front. After the accident the cock in the train pipe at the rear of the first vehicle was found shut, and as these two vehicles had not been uncoupled on the journey, the theory set up on the one hand was that the train left Sydney with this tap closed, and that as at that time this would only cut off the last vehicle in the train, the oversight was not detected by the driver when using the brake up to the place where the train was divided. There was no brake van on the train, as there should have been, and therefore

therefore the guard could not see by an indicator whether the connections were complete or not. On the other hand, the Railway Department, stooping to take shelter behind the smallest shred of an excuse, contended that the closing of the cock was the effect of the collision, the two vehicles having telescoped, and that the accident was due to the driver having "wasted his air by the injudicious use of the Westinghouse brake!" After an inquiry before the Coroner lasting three weeks, the jury stated their belief that the accident was attributable to great want of supervision on the part of the railway officials in not carrying out the instructions laid down for their guidance, adding the several strictures we have quoted above. On the other hand, the Departmental Board found that the train was amply provided with brake-power; that the brake appliances were complete and in good working order when the train left both Sydney and Hornsby; that the train when descending the incline was allowed to attain a very high rate; that then there was a sudden failure of the brake-power, and that this failure was owing to an injudicious use of the brake-power by the driver. As a Sydney contemporary points out, "What the Departmental Board, in effect, did was to clear—absolutely—all the living officials who had anything to do directly or indirectly with the wrecked train, by putting all the blame upon the dead driver. What the jury's finding amounts to is that the driver was one of the victims of the criminal carelessness of these very officials." The findings of the two tribunals are, therefore, diametrically opposed to one another, and what makes the matter worse is that there is absolutely no evidence to justify the Board's assumptions. Indeed, we are bound to say that the whole inquiry reveals a most reprehensible lack of system and good management, and the existence of party feeling, in the Railway Department; if such a condition of things is the result of the railways being under the immediate control of the State, we in this country have more to be thankful for than many persons would have us believe.

Against the theory set up by the Railway Board, and in favour of the finding of the jury, we have the following facts:—After the accident the brakes on the two front carriages were found on, and the tyres were hot, while those on the other vehicles were off, and the tyres cold; it was proved that the guard had applied the hand-brake on the second vehicle, in which he rode after leaving Hornsby, and which, as already stated, had up to that point been the last in the train. The fireman, who escaped, swore that within a few minutes of the collision he saw 75 lb. registered on the air-gauge on the engine, and also that he observed by the lifting of the hand-brake spindle that the Westinghouse-brake was applied on the tender at the same time. Further, the air pump on the engine was found working in the water after the accident. Under these circumstances, it is absolutely certain that the only thing which could have prevented the brake operating on all the vehicles which were fitted was a want of continuity. If there was pressure enough to work the brakes on the tender and one carriage, there was ample pressure for the other carriages also; and if the driver had wasted his air on some vehicles, he must have wasted it upon all. There is no foundation for the theory that the Westinghouse-brake is liable to become short of air, and we have ourselves had ocular demonstration that in practice it is almost impossible to exhaust the pressure, at all events when, as in this case, the air pump is running. Should the reservoir need recharging, this can be quickly accomplished before the brakes are fully released, and this has been daily proved upon inclines much steeper and longer than that of the one in question, both in America and on the Continent. It seems, further, that the train was never tested before leaving Hornsby; that it was some two hours behind time; that the driver had only once before been upon this line; that the fireman and guard were both quite strange to it, and that the engine was running tender first. It is pretty clear that the driver, galled by the long delays and mishaps, having reached a portion of the line where progress was easy, was determined to lose no more time, and therefore allowed his train to attain a very high speed before attempting to check it, and when he did so, found that the brake-power, which under any circumstances could only have acted on his tender and four carriages, was insufficient to stop the train in time. On such a gradient as 1 in 40 the unfortunate man would be run away with almost before he could, with his imperfect knowledge of the line, realise the situation.

Whenever a railway accident occurs it is generally found that the dramatic features of the disaster are greatly enhanced by the announcement that it was due to the "failure of the brakes." Sometimes, as at Penistone, this is of course literally true, but it would appear that there is in general a natural tendency on the part of everyone concerned to blame the brake appliances with a view of protecting themselves. The Blackburn accident in 1881 affords a celebrated case in point, all the Lancashire and Yorkshire officials having done their best to discredit the Westinghouse-brake, in spite of most incontrovertible evidence, of its having worked, and in reality averted, a much worse disaster; and it will be remembered that, as in the Peat's Ferry case, the brake was quite exonerated by the jury. Last week we drew attention to the recent accidents on the Baltimore and Ohio railway, which by many were thought to have been caused by the failure of the Westinghouse-brake, whereas the apparatus turns out to have been what is known as the Loughridge air-brake. The collision at Perth on August 9th last was also said to have been due to the failure of the Westinghouse-brake, whereas investigation shows that the company's servants were alone to blame; and that as in the New South Wales accident, the connections had never been completed after detaching some vehicles on the way.

How long a state of things such as that revealed by this inquiry, which fortunately appears to have outraged public opinion in Sydney, will last, it is impossible to say. Probably the Railway Department in their indecent haste to shield themselves behind the victim of their own mismanagement, have exceeded all permissible limits. Until now it has been notorious that the officials and staff of the non-politically represented, and therefore, in that sense, the weaker branches of the railway system of New South Wales have had to go to the wall when blame for a railway accident has to be allocated. The thorough exposure which a fatal accident of the most discreditable kind has brought about may, it is to be hoped, change matters.

And the well known authority, the *Engineer*, briefly comments on the same subject in a short article under the heading "Railway Management in new South Wales," viz. :—

"Particulars have just come to hand from New South Wales regarding an accident to an excursion train on the Hawkesbury railway near Sydney, by which the engine-driver and several passengers were killed, and between thirty and forty other persons were injured. The evidence given at the Coroner's inquest, which occupied nearly three weeks, reveals a condition of things in the Railway Department of the Colony in respect of mismanagement and injustice which is simply a disgrace to those responsible for
its

its existence. The facts disclosed afford conclusive proof, if any were required, of the necessity for at once placing on the statute book the measure for reorganizing the Railway Department, to which we recently referred as having been introduced in the Legislative Assembly by the present Government; but which, like the similar Bill of their predecessors, has been shelved, after reaching its second reading, by the prorogation of Parliament. But, apart from the injustice to individuals and the general mismanagement in the Department which the incidents connected with the case reveal—injustice and mismanagement intensified, in our opinion, by the finding of the board of officials selected to inquire into and to report to the Government on the subject—and which calls for serious notice, the negligence shown by the traffic officials in the making up and equipment of the train in question, and in the abuse by them of the automatic air-brake with which it was provided, and which, as the evidence shows, was the immediate cause of the accident, necessitates in the interests of the travelling public in the Colony, our dealing with the case at some length. This we propose doing at an early date."

Remarks by the Secretary for Railways.

The foregoing article does not call for any extended notice.

Notwithstanding the claim of "impartiality" made on behalf of its author by the Sydney *Daily Telegraph*, it bears to my mind unmistakable traces of strong prejudice and ill-feeling towards the Department.

In dealing with the articles which have appeared from time to time in the *Daily Telegraph*, I had repeatedly occasion to draw attention to the misquotations, fabrications, and inaccuracies generally which characterized them, all having an important bearing on the question at issue, and which, therefore, I could not afford to let pass unexposed or uncontradicted. The animus of the writer appeared to be too strong to permit of his being able to distinguish between facts and fictions; and it is much the same in the case of the writer of this article in *Engineering*. As a sample, he says that "against the theory set up by the Railway Board and in favour of the finding of the jury we have the following facts:—After the accident, the brakes on the two front carriages were found on and the tyres were hot, while those on the other vehicles were off and the tyres cool."

If these statements were true, they would most certainly destroy the Railway Board's theory, and the writer knowing this, and being carried away by his feeling of hostility to the Department, parades them as "facts" whereas they are absolute fictions.

Not only is the "impartiality" of the writer of this article open to question, but his knowledge of the principles and working of the Westinghouse-brake. He apparently does not understand either the one or the other. For example, he says:—"Should the reservoir need recharging, this can be quickly accomplished before the brakes are fully released, and this has been daily proved upon inclines much steeper and longer than that of the one in question, both in America and on the Continent."

Now, everyone who understands anything about the Westinghouse-brake knows that its release cannot be graduated, and its representatives have never claimed to the contrary. It is perfectly certain that no recharging can take place while the blocks are applied, and, as their release cannot be graduated, it is a gross misstatement to represent that the reservoirs can be speedily recharged before that release takes place.

The *Railroad Gazette*, one of the most important American journals connected with engineering and railway news, has published very full and complete accounts of the Westinghouse-brake as used at the celebrated Burlington-brake trials. In the number for June 10th, 1887, we have a further illustration and description of modifications of the Westinghouse-brake used on that occasion, and among other interesting particulars we find a description of "the pressure retaining valve," which is a special provision to meet the liability of the reservoirs to become exhausted on long and steep gradients as follows:—

* * * * *

"The pressure retaining valve for use on long and steep gradients is simply a weighted valve connected to the discharge part of the triple valve and provided with a small cock, which, in one position, permits the air to escape freely, and in the other forces it to pass under the weighted valve. In descending long grades the cock is turned to the latter position and the weighted valve retains a pressure of 10 lb., which keeps the train under control when the brakes are released to recharge the reservoirs. On slight grades, or a level, the cock must be turned to the first position, permitting the air to escape freely without raising the valve. This valve was used on the first fifteen cars in drifting down grade in two of the Westinghouse stops at the Burlington trials. The speed however rose in one case to 31 miles per hour, and in the other case to 27½."

It is perfectly evident that the writer of the article in *Engineering* could only have had a most imperfect knowledge of the working of the Westinghouse-brake in America or on the Continent, where the same difficulty has been experienced and specially provided for. So much for the *Daily Telegraph's* "world-wide recognized authority."

The writer of the article in question has doubtless before this become acquainted with the fact that the Attorney-General of the Colony has pronounced the verdict of the Coroner's jury to be unsupported by evidence. As regards the verdict itself it contains neither information nor opinion as to the direct cause of the accident. The duty of the Departmental Board was, if possible, to ascertain this. For example, when it transpired that the formal test of the continuity of the air connections was not made before the train left Hornsby, it would have been inexcusable on the part of the Board thereupon to take for granted that such continuity did not exist, and was the cause of the accident, which is very much like what both the jury and some of our critics have done. There was the strongest circumstantial evidence that the continuity, although not properly tested, still as a matter of fact was good when the train left Hornsby. The Departmental Board had to ascertain and take into consideration the whole of the facts of the case in order to arrive at a true conclusion as to the cause of the accident. Had the Coroner's jury, or some of those who have criticised adversely the Board's decision, pursued the same course they would have no doubt come to the same conclusion as the Board.

D. VERNON.

PAPER

PAPER read by the President of the Engineering Association of New South Wales, at a meeting of the Association held on the 11th August, 1887.

Particulars of trials of the Westinghouse Brake, conducted in the presence of Mr. Robert Pollock and myself, on Saturday, the 3rd of September, 1887.

THE train consisted of engine, tender, and seven carriages. Five of the carriages were fitted with the Westinghouse brake, also the tender; the other two cars being added to make up the required weight.

Weight of Train.

	tons	cwt.	qr.
Engine and tender	59	5	2
No. 40 carriage	16	10	0
" 63 "	16	10	0
" 65 "	16	10	0
" 191 "	16	14	0
" 10 "	6	10	0
" 99 "	16	8	1
" 117 "	16	2	0
Total weight of train	164	9	3

Size of Small Reservoirs.

No. of Carriage.	Description.	Length in inches.	Diameter in inches.	Contents in cubic inches.
191	2nd Class A type	22½	11½	2,337
40	1st Class A type	29½	11½	3,064
65	Compo. A type	29½	11½	3,064
63	1st Class A type	22½	11½	2,337
10	Compo. four-wheeled	20½	9½	1,453

Size of Brake Cylinders.

All 10 in. diameter and 12 in. stroke except No. 10, which was 8 in. diameter and 12 in. stroke.

Stroke of Brake Pistons.

No. 40	had a stroke of	7½ inches.
" 63	" "	7¼ "
" 65	" "	7¼ "
" 191	" "	6¼ "
" 10	" "	7 "

5) 35·25 inches.

Mean stroke ... 7·05 inches.

In one of the carriages were fitted four (4) gauges, the pipes being connected as follows:—

One to main reservoir.
 " " brake pipe.
 " small reservoir.
 " brake cylinder.

There was also an indicator and pressure gauge connected to small reservoir, which very clearly recorded the variations of pressure in reservoir, the number of applications of the brake, also the time during which it was applied. On the engine, or rather on the tender, were two gauges—one from small reservoir end, one from brake pipe.

Mr. Pollock was on the engine, and noted all the necessary particulars relating to the steam-pressure in boiler, speed of donkey pump, pressure on air-gauges, &c., while I remained on carriage watching the variations of pressure, &c., on the respective gauges. I may mention that the size of donkey pump is—steam cylinder, 6 in. diameter and 9 in. stroke; air cylinder, 6½ in. and 9 in.

The train left Redfern about 9·45 a.m., and went as far as Thornleigh, where all the trials were made. The grade was about 1 in 45, and the average time of each trial was from three to four minutes, and the distance run from 2 to 3 miles.

First Trial.

Pressure in main reservoir	80 lb. per square inch.
" main brake pipe	70 lb. " "
" small reservoir	70 lb. " "
" brake cylinder	0 lb. " "
" indicator gauge... ..	76 lb. " "

Time of trial, three minutes—approximately; 13 applications of the brake; donkey going full speed (about 60 revs.); 133 lb. steam on locomotive gauge; brake-piston pressure ranged from zero to 36 lb., while the pressure in the small reservoirs was reduced from 70 lb. to 5 lb.; the pressure in the main reservoir remained almost constant, the first application bringing it down to 70 lb., but afterwards it went up, and remained quite steady at 75 lb.; so that when all the small reservoirs were practically exhausted there was a pressure of 75 lb. in the main reservoir:

Second

Second trial.

This trial was very similar to the first, but perhaps it may be desirable to state the exact conditions.

Pressure in main reservoir	87 lb. per square inch.
" main brake pipe	70 lb. " "
" small reservoir	70 lb. " "
" brake cylinder	0 lb. " "
" indicator gauge... ..	70 lb. " "

Time of trial, three minutes fifteen seconds; then whistled for hand-brakes, and forty-five seconds afterwards came to a dead stop. Total time, four minutes. Fifteen applications of the brake. No. 99 carriage taken off; donkey going half speed; 137 lb. steam on locomotive gauge. During trial the pressure in the brake cylinder ranged from zero to 35 lb. The pressure in small reservoirs was reduced from 70 lb. to 5 lb. in less than three minutes. The main reservoir pressure ranged from 87 lb. at start to 50 lb. at finish—that is, when the small reservoirs were practically empty the gauge on main reservoir showed a pressure of 50 lb. per square inch.*

Third Trial.

Ran over the same ground, but under different conditions. In this case all the air-brakes were disconnected, excepting on tender and one carriage cock shut behind, and the couplings disconnected, also all the other brakes off. Came down same grade in two and a half minutes, and only used the air-brake on tender and one carriage until well down the incline, when the engine hand-brake was used, which brought the train to a dead stop. The conditions were practically the same as in the other trials—80 lb. in main reservoir at start, 70 lb. in small reservoirs. At the finish the pressure in small reservoirs was reduced to 25 lb., while that in the main reservoir remained almost constant, never being below 75 lb., donkey going full speed.

Fourth Trial.—Train standing.

Time taken to fill the five (5) small reservoirs with air at 70 lb. pressure, the main reservoir being full and its gauge showing 73 lb. at start and 71 lb. at finish; donkey going full speed, and 137 lb. of steam on locomotive gauges.

1st half-minute pressure rose to	35 lb.
2nd " " "	48½ "

but it took four minutes to rise from 48½ to 68½ lb.†

From the above it will be seen that about 50 lb. per square inch can be forced into the reservoirs in 60 seconds, but after that the pressure rises very slowly.‡

Fifth Trial.—Train standing.

Time taken to fill one small reservoir next tender, all the others shut off; donkey going full speed. Pressure in main reservoir, 70 lb.

1st half-minute pressure rose to	35 lb.
2nd " " "	60 "
3rd " " "	67 "

Sixth Trial.—Train standing.

Main reservoir showing 80 lb.; donkey going full speed; 139 lb. of steam; thirteen applications of the brake; and in two (2) minutes all the three reservoirs were practically exhausted from 70 lb. to 5 lb.

Seventh Trial.—(Under same conditions.)

80 lb. in main reservoir; exhausted all the air from small reservoirs in 1 min. 50 sec.; eleven applications of the brake. At the finish there was about 60 lb. in main reservoir.

This concluded the trials.

What you have just heard is a fair and straight statement of what we actually saw, and although the time and figures may not be absolutely correct, we have no hesitation in vouching for their approximate accuracy.

It is also desirable to mention that the officers in charge of the experiments were willing and anxious to carry out all the practical suggestions which, in our opinion, tended to enhance the value of the tests.

At the conclusion of the trials we *felt anything but satisfied under certain conditions*. We had seen the air exhausted without difficulty. This was done in various ways, and in a very short space of time; but being of a practical turn of mind, and pleading guilty to having a large amount of mechanical scepticism in our composition, we wanted to know how and by what means this sudden exhaustion came about.

In answer to inquiries, the officers intimated their willingness to supply any information regarding sizes, proportions, and capacities of the various parts of the Westinghouse brake, and also sent us a triple valve (in sections), which is now before you.

We are free to confess that before seeing this valve we had a very hazy idea of its action, and it was only after spending a considerable time in patiently studying its design and construction that we began to see and appreciate the rare ingenuity and admirable skill displayed, and which, as a mechanical appliance, is worthy of all praise.

In connection with this valve it is desirable to refer to Mr. Shellshear's remarks concerning it. He describes it as a very simple affair, so much so that, to use his own words, "any apprentice boy would have no difficulty in understanding it." Well, this may be so. We respectfully, but decidedly, differ from him

* The variation in main reservoir (87 to 50) was due to the fact of the donkey going half speed.

† All the small reservoirs were empty at the start.

‡ We cannot understand this, as with a constant pressure in main reservoir it should (except for the increased friction) fill five in the same time as it takes to fill one.

him—in fact, we don't feel very sure of knowing all about it now; but we have mastered it sufficiently to feel quite content to know that our want of perception and dulness of comprehension require so much development.

Even Mr. Campbell himself never even hinted that the Westinghouse people ever claimed anything for its simplicity—on the contrary, he freely admits its complexity of parts; but what he did say was something like this, that although, to those who do not understand or are prejudiced, this triple valve may appear very complicated, it is so beautifully made, the proportion and construction of its parts so accurately arranged, that its liability to go wrong is reduced to the lowest possible minimum, and that, looking at its practical working, it is justly entitled to the public confidence.

We believe Mr. Campbell has fair justification in making that statement, and the fact that thousands of these valves are in daily use all over the world, doing good work, is very conclusive evidence of its truth. Mr. Campbell evidently looks upon the triple valve as an intimate relation of a clock or a watch, which, with all their complications, we put down as of no use unless they keep accurate time for years, and we expect them to do so without much examination or repairs. Speaking personally, I wish to say that, with respect to complications in mechanical appliances, I have received some wholesome lessons, and although I admire and appreciate simplicity in machinery as much as any man, still we should hesitate and make quite sure of our ground before we condemn any appliance because of the number of its parts. In proof of this let me point out that when the compound engine was introduced a large percentage of engineers (myself included) raised the cry that the complexity of parts and the increase of pressure would, in the long run, cost more than could be gained by economy in coal, yet it has steadily made its way; and, judging from what I see, there is little doubt that the triple and quadruple engines, with even more complications and much higher pressures, will do the same.

There are many gentlemen in the room who are connected with marine engineering, and they know as well as I do that our modern machinery has reduced the cost of repairs in a very material degree. Not many years ago hundreds of mechanics were constantly and profitably employed in repairing the machinery of the numerous steamers trading to Sydney, but now such is the improvement in the soundness of design, the efficiency of construction, and the excellence of our tools, that, notwithstanding increased complications, the machinery runs from year's end to year's end at a fraction of the expense incurred in the old days; and, although it may appear a strange thing to say, I have no hesitation in stating that it is the high degree of efficiency which has been reached in complicated machinery which has caused, and is now causing, such a depression in Sydney.

It was only the other day, when examining the machinery of one of the Orient steamers, the chief engineer informed me that the vessel had steamed from the old country to Sydney, and there was nothing required but what the engine-room staff could do themselves. This was with 160 lb. of steam, and complications enough in all conscience.

This is a suggestive fact, and it is mentioned to show that in examining or criticising any mechanical appliance complication does not always justify condemnation.

Returning now to the triple valve, we find in it is contained the whole principle of the Westinghouse brake, and which, with your permission, I will try to explain in a simple manner.

Take our first trial. We started with 80 lb. in the main reservoir, 70 lb. in the brake pipe and small reservoirs, and in less than three minutes the whole of the small reservoirs were practically empty, although the pressure in main reservoir remained steady at 75 lb.

Now, here we have a train whose brake power has been purposely dissipated, and yet the driver of that train has practically the same pressure on his gauge when the small reservoirs are empty as when they were full. He has plenty of power in his main reservoir, yet his brakes are useless.

To explain this we must go to the triple valve. Anyone looking at its construction and understanding its action must be struck with the fact that it is not necessary to go on to a running train to be convinced that the air in small reservoirs can be exhausted without difficulty, for they have only to realise that the hole through which all the air must pass to charge or recharge the small reservoirs is so many times smaller than the passage for letting it out that it requires a very simple calculation to know how many full applications of the brake will practically exhaust them.

The size of the admission hole is equal to the area of a circle scarcely $\frac{1}{8}$ inch in diameter cut in two—that is, all the air has to pass through a semi-circular groove $\frac{1}{8}$ inch in diameter. The area of a $\frac{1}{8}$ inch circle is .0121, and dividing this by 2 we have the actual area of the air passage, viz., .0061. The diameter of the holes (smallest) from small reservoirs to brake cylinder is $\frac{1}{16}$ inch, the area of which is .0769; then dividing area of hole through which the air passes to put the brakes on by the area of hole through which all the air has to pass to recharge small reservoirs, we have $\therefore \frac{.0769}{.0061} = 12.57$, which tells us the hole from brake pipe to small reservoirs is $12\frac{1}{2}$ times smaller than the passage from the reservoirs to brake cylinder, and this is irrespective of friction, which in this case would vary approximately, as follows:—

Directly as the length of passage,
Directly as the square of the speed,
Directly as the density or weight, and
Inversely as the diameter.

Taking the Westinghouse book of instructions, we find, in pages 20 and 21, that “a reduction of 20 per cent. in the brake-pipe pressure causes the triple-valve pistons to move down and set the brakes at full force by means of the air in small reservoirs.” And, again, “to set the brakes with full force takes an average of $1\frac{1}{4}$ seconds, and to open the release ports about the same time. To restore the pressure in small reservoirs requires from 15 to 30 seconds after a full application.” This shows very conclusively that, taking the average time given— $15 + 30 = 45 \div 2 = 22.5$ seconds—that it takes a great deal longer time to put the air into the reservoirs than to let it out; besides, it says nothing about any particular pressure that may be in the reservoirs, and it certainly does not agree with the results we obtained on the 3rd September, where, in the 4th trial, which was for the express purpose of finding what time it took to fill the five small reservoirs (they being empty at the start and train standing), we found it took 1 minute to get the pressure up to 50 lb., but it took much longer to raise the pressure from 50 to 70 lb. Going back to the small admission hole again; and remember that if they attempted to enlarge this hole the triple valve would be useless—in fact, it would not work at all, because then the air

in

in small reservoirs would come out so fast, and the pressure fall to such a degree as would certainly destroy the efficiency of the brake.

Assume a case, and suppose there is 70 lb. in brake-pipe and 70 lb. in reservoirs, and we want to put the brakes on with full force, we, in accordance with instructions, reduce the brake-pipe pressure 20 per cent., bringing it down to 54 lb.; we have then 20 per cent. more pressure on top of triple-valve piston than we have on the bottom; this acts on the piston and brings it down; but, remember, the air is *leaking past it all the time through the admission hole, but it can't get out quick enough to prevent the excess of pressure from acting, because it is so small.* When the piston has travelled $\frac{1}{16}$, the admission port is shut; it is then all right.

The size of the exhaust hole or passage is $\frac{3}{16}$ inch in diameter, and, comparing it with the admission hole, it is $4\frac{1}{2}$ times larger; its area is .0276, and dividing the one by the other we have $\frac{.0276}{.00576} = 4\frac{1}{2}$.

It may be urged that as all the air has to pass through the exhaust its diameter should be taken instead of the passage from reservoir to brake cylinder; but it should be remembered that the pressure is always much less in the brake cylinder than reservoir, that when released it has only to contend with the atmospheric pressure, and also that the exhaust port on the valve face is nearly twice as large as the exhaust passage, thereby allowing it to remain longer open, whereas the air from brake pipe has to be forced through a very small hole against whatever pressure may be in reservoir, besides the immense friction to be overcome, and is all in favour of getting rid of your power much faster than it can be supplied.

Graduating the Pressure..

This has been a much disputed point, and, without prejudice, am of opinion it can and is graduated every day. It is true the driver can't see the graduation, but there seems to me no difficulty in educating the hand to control any train. This means of graduating the brake pressure is a very clever contrivance, and appears to perform the same function for Westinghouse as the small injector does for the Vacuum brake, but it must not be forgotten that the Westinghouse can only be graduated one way—that is, when it is being applied to put the brakes on. There is no possibility of graduating the release, as every particle of air must be discharged into the atmosphere and the brakes taken completely off before another application of the brake is possible.

There is another point in connection with the Westinghouse which, I think, has escaped notice. It is this: Mr. Campbell, when speaking against the Vacuum brake, brought it prominently forward that the injector used a very large amount of steam.

No doubt it does; but let us look at the Westinghouse from an economical point of view, and see how it stands. For every full application of the brake you have to actually waste 20 per cent. of the brake-pipe pressure, and taking their own figures, for a train of fifteen carriages you have to throw away 1,000 cubic inches of air, at a pressure of from 60 to 80 lb., before the triple-valve pistons can move their full stroke. Now this has to be done many hundred times every day, and as it takes a considerable amount of power to compress air to a high pressure, it appears to me that if the total quantity of air which is and must be wasted on applying the brakes was calculated, I feel pretty sure that the truth of a very old adage would be very fully realised, viz., "Those who live in glass houses should not throw stones."

Referring to Mr. Granlund's statement that the brake power on the New South Wales railways was only one half of what was fitted on the Victorian lines, and that for every 10 tons of brake power here they had 20 tons. This, coming from such an authority, is no doubt correct; at the same time let me direct your attention to No. 3 trial, where, in careful hands, the great efficiency of the Westinghouse brake was clearly demonstrated, for on that occasion a train weighing 164 tons came down a grade of 1 in 45 at a speed of over 30 miles an hour, the air being applied on the tender and one carriage only, the cock being shut off, and couplings being disconnected behind the first carriage.

This goes to show that although the brake power on the New South Wales lines may, in the opinion of some, be limited in amount, still there is, even in cases of emergency, quite sufficient left to control the train.

Looking at the Westinghouse brake as a whole, it appears to me that its weak point lies in the fact that, by careless handling and injudicious management, the stored power in small reservoirs may (under exceptional circumstances) be exhausted, which means that the driver may have a large quantity of power in his main reservoir, and yet the small reservoirs be practically empty, and on heavy down grades a little carelessness, inattention, and want of judgment may result in his losing control of his train.

This, I think, might be remedied to some extent by fitting another pressure gauge on every tender, which would always give him a fair idea of the amount of power at his disposal for putting on the brakes.

On the other hand, this brake is, in careful hands, a safe and reliable contrivance, and until Mr. Selfe or somebody else shows us something very much better it will continue to merit the public confidence.

Referring to the large amount of correspondence which has taken place in the public Press in arguing about the relative merits of the brakes, one thing stands prominently forward, viz., the extreme difficulty of sinking personal interests when discussing this question, and many of the statements made are to be regretted.

Where the Westinghouse people made the mistake was in claiming too much for it. Like any other human machine, it has its good qualities and its faults, which may, and no doubt will be, improved.

Let us, therefore, hope that, as in this age of progression we cannot stand still, the present discussion may be the means of making railway brakes more economical and reliable than at the present time.

[For Appendices A and B, see Plans.]

APPENDIX C.

RESULT of experiments with the Westinghouse Brake, made by the Peat's Ferry Accident Inquiry Board, for the purpose of ascertaining the time required to empty or reduce the air pressure in the carriage reservoirs below working pressure:—

1. Air-pump working:—

Start at 9.43 a.m., with	...	...	...	...	87 lb. pressure	
1st application reduced to	...	...	...	...	" "
2nd " "	...	...	...	...	54 " "	
3rd " "	...	...	...	...	45 " "	
4th " "	...	...	...	...	36 " "	
5th " "	...	...	...	...	28 " "	
6th " "	...	...	...	...	28 " "	
7th " "	...	...	...	...	25 " "	at 9.50 a.m.

Time = 7 minutes.

Time taken for replenishing air supply, from 25lb. up to 83lb. = 5 minutes.

2. Air-pump not working:—

Start at 9.57 a.m. with	...	...	...	...	83 lb. pressure	
1st application reduced to	...	...	...	...	64 " "	
2nd " "	...	...	...	...	56 " "	
3rd " "	...	...	...	...	48 " "	
4th " "	...	...	...	...	40 " "	
5th " "	...	...	...	...	34 " "	
6th " "	...	...	...	...	28 " "	
7th " "	...	...	...	...	25 " "	at 9.59 a.m.

Time = 2 minutes.

3. Air pump working:—

Start at 10.33½ a.m., with	...	...	...	...	88 lb. pressure	
1st application reduced to	...	...	...	...	66 " "	
2nd " "	...	...	...	...	60 " "	
3rd " "	...	...	...	...	52 " "	
4th " "	...	...	...	...	50 " "	
5th " "	...	...	...	...	46 " "	
6th " "	...	...	...	...	40 " "	at 10.41 a.m.

Time = 6½ minutes.

4. Air pump not working:—

Start at 10.43 a.m., with	...	...	...	...	64 lb. pressure	
1st application reduced to	...	...	...	...	48 " "	
2nd " "	...	...	...	...	43 " "	
3rd " "	...	...	...	...	37 " "	
4th " "	...	...	...	...	30 " "	
5th " "	...	...	...	...	26 " "	
6th " "	...	...	...	...	20 " "	at 10.45 a.m.

Time = 2 minutes.

APPENDIX D.

Manager,—Be good enough to refer to Mr. Kirkcaldie on the subject of Mr. Shellshear's statement that driver Cartwright made some remarks about hot axles in his presence. Cartwright denied any knowledge of the thing, and I am aware Mr. Kirkcaldie did the same to the members of the Board of Inquiry; but it was not taken down. Return please at once.

D.V., 19/7/87.

Both Mr. Shellshear and I travelled on the engine with driver Cartwright from Ryde to Peat's Ferry on the morning after the accident, and I had some conversation with Cartwright on the way, but I am perfectly certain that he said nothing in my hearing about hot axles; if he had done so, my curiosity would have been aroused instantly, and I would not have allowed the matter to drop without inquiring carefully into it.

The first time I heard of his having been said to have made such a remark was when you told me, after Mr. Shellshear had been examined before the Board of Inquiry, that the latter had made such a statement, and, as you will remember, I at once expressed my surprise at it.

Traffic Manager.

D.K., 20/7/87.

The Secretary.—W.V.R., 20/7/87.

APPENDIX E.

APPENDIX E.

Locomotive Engineer,—Referring to certain information and calculations which Mr. Laughry went into at time of Board Inquiry into cause of accident at Peat's Ferry, but which were not taken down as evidence at the time, I should be glad if Mr. Laughry would now put some portion of it in writing.

1. I want him to state the amount of *brake force* necessary to control a train, the dead weight of which is 167 tons (say) upon a grade of 1 in 40.
2. I want to know, as a matter of fact, what amount of *brake force* this train (the Hawkesbury one) possessed.
3. The amount of *retarding power* this represents (No. 2.)
4. The amount of opposing power the 167 tons would represent.

I think, if I remember, an interesting experiment was made in connection with the Lawrence Vacuum Brake, which afforded a useful means of arriving at correct conclusions as to the margin of brake force necessary to work a train on a gradient of 1 in 30 or 33. If so, please let me have brief report of same.

I also want to know what proportion of the *weight* of the vehicles which used to constitute a load down the mountains, before we had the Westinghouse Brake, was supplied with blocks.

Also what proportion of the weight of the *nine vehicles*, which constituted the load taken out by the engine on the day of the accident, was furnished with working brakes or brake-blocks.

Mr. Laughry has all this information, and I shall be glad if I can get a reply to-morrow.

D. V., 19/7/87.

APPENDIX F.

20 November, 1887.

MEMO. in reply to Chairman's Minute of 19/7/87.

THE Hawkesbury train, including engine and passengers, weighed 167 tons.

21 tons of brake-force, judiciously applied, was sufficient to keep the speed of this train below 15 miles per hour on a grade of 1 in. 40.

With the ordinary working pressure of 60 lb. in the auxiliary reservoirs the air-brakes on the tender and train were alone capable of exerting 50 tons brake-force.

The hand-brakes on the engine, tender, and two cars (Nos. 47 and 69) were capable of exerting 48 tons brake-force.

The hand-brakes on the engine, tender, and one car were capable of exerting 38 tons brake-force.

The air-brakes on the tender and train, together with the hand-brake on the engine, were capable of exerting a total of 65 tons brake-force.

At speeds below 20 miles per hour the co-efficient of friction between the brake-blocks and wheels equals about one-fifth of the force at which the blocks are pressed against the wheels—in other words, one-fifth of the brake force exerted against the wheels is transmitted into retarding power and acts directly opposite to the force tending to keep the train moving.

The total amount of gravitating force tending to move a train weighing 167 tons down an incline of 1 in 40 is at most 9,352 lb.; this, however, becomes less as the speed increases owing to the resistance offered by friction, wind, and curves.

The total retarding power of the brakes on the Hawkesbury train was 13 tons, or more than three times that necessary to control the speed on a grade of 1 in 40.

Prior to the use of the Westinghouse brake on the Mountains, it was the practice, in all kinds of weather, and with engines of the 79th class, to run trains equal to nine vehicles from Katoomba to Penrith, the weight of which, empty, totalled 64 tons. Of this weight only $7\frac{1}{2}$ tons, or 11.7 per cent., was fitted with brakes.

The nine carriages composing the Hawkesbury train weighed, empty, 90 tons 18 cwt.; of this weight 64 tons 2 cwt., or 70.6 per cent., was fitted with brakes.

On the 5th November, 1886, a trial was made with the Lawrence Vacuum Brake (copy of trial-report herewith), and having a very limited amount of brake-power at command, we were afforded an excellent opportunity of ascertaining what amount of the brake-force exerted was transmitted into retarding-power, while the speed did not exceed 15 miles per hour. With a total of $27\frac{1}{2}$ tons of brake-force at command we were enabled to bring a train weighing $226\frac{1}{2}$ tons safely from Katoomba to Penrith.

E. A. LAUGHRY.

Government Railways, Locomotive Engineer's Branch,

Redfern Station, 11 November, 1886.

Sir,

I have to report that on Friday last, the 5th instant, the Westinghouse and Lawrence brakes which are fitted to goods trains were further tested on the Mountains.

On this occasion the two trains fitted with the above-mentioned brakes were reduced so as to make them as near equal to the automatic vacuum train as regards length and weight as possible.

Four D trucks were taken off the Westinghouse train, and one G truck off the Lawrence train, thus reducing the two trains, the first to thirteen vehicles, and the second to equal fourteen and a half vehicles.

The Westinghouse train weighed when loaded 149 tons 7 cwt., and ran from Katoomba to Penrith, a distance of 32 miles. When descending the Mountains the brake was found to work well, and to have considerably more power than was required to control the speed of the train down the steepest inclines. Only 30 per cent. of the power available was used for this purpose.

The Lawrence train weighed when loaded 148 tons 12 cwt., exclusive of engine tender and van, and was run over the same section of road. When descending the inclines of 1 in 33 the power of this brake was fully taxed in controlling the speed of the train—this without the use of the brakes on the engine, tender, or brake-van.

As mentioned in a previous report, the ejector belonging to this brake is faulty, and on this occasion, as on the last, did not do its work as well as might be expected. The highest vacuum obtained during the trial on Friday was 15 inches, representing a piston pressure of $7\frac{1}{2}$ lb. per square inch. With this ejector in proper working order we would have had at least 25 per cent. more power at our command.

The accompanying table gives particulars of the different brakes, also of the last three test trains.

E. A. LAUGHRY.

The Locomotive Engineer.

PARTICULARS

*Or a total of $27\frac{1}{2}$ tons brake force

PARTICULARS of Brakes fitted to Goods Stock.

Name of Brake.	Description of Brake.	Particulars of Brake-train, exclusive of Engine and Brake-van.					Highest possible brake force in tons.	Per cent. of brake force to weight of train.		Weight of brake parts in lb.			Number of sets of brakes fitted to train.	
		How many four-wheeled Vehicles equal to	Weight of Train.		Loaded.	Empty.		Loaded.	Empty.	Patent parts.	Founda- tion gear.	Hand- brake gear.		
			T.	c.										q.
Westinghouse Air-brake..	Automatic.....	13	149	7	0	63	8	95½	64	151	233	480	347	13
Do do ...	Non-automatic	13	149	7	0	63	8	...	...	...	177	480	347	13
Vacuum Brake Co.....	Automatic.....	13	147	8	1	85	13	232	157	272	423	861½	114	13
Lawrence Vacuum Brake.	Non-automatic	14½	*148	12	0	69	9	27½	18½	39½	119	229	201	10

* This weight is exclusive of the engine, tender, and guard's van, which together weighed 77 tons 14 cwt. 2 qr.

E. A. LAUGHRY,
11/11/86.

[For Appendices G, H, I, and J, see Plans.]

[Six Plans.]

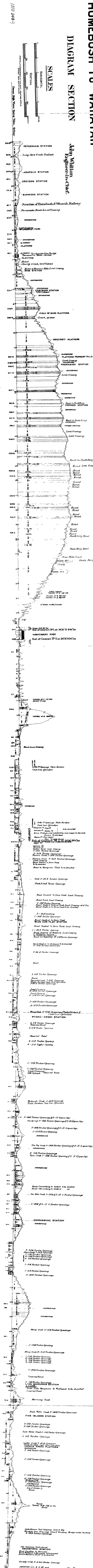
SOUTHERN & NORTHERN JUNCTION RAILWAY

APPENDIX A.

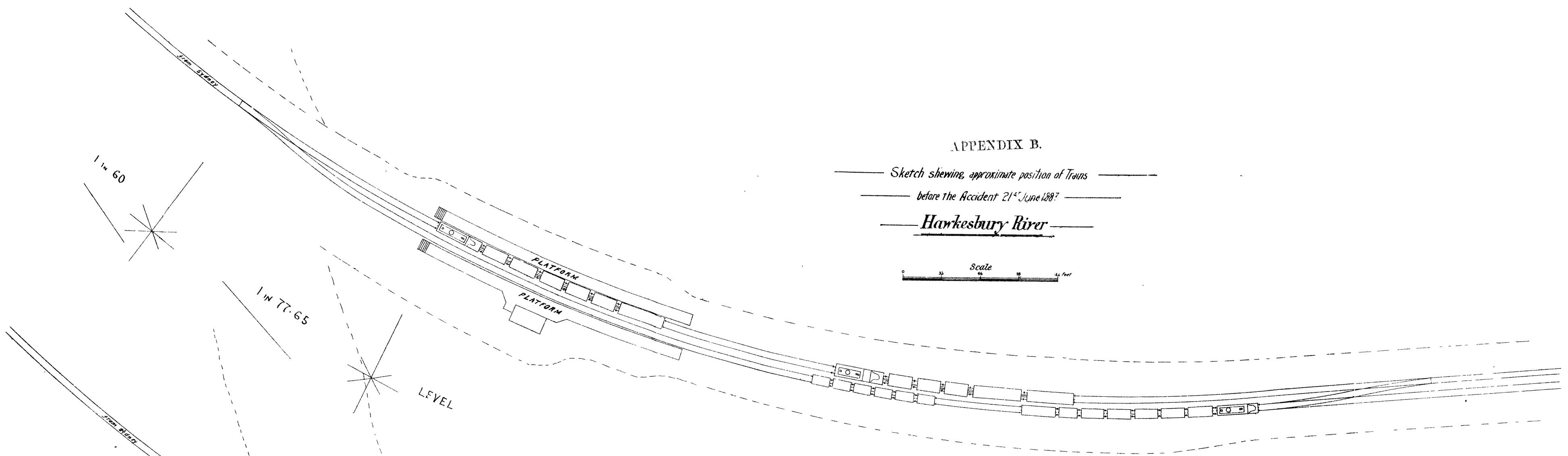
HOMEBUSH TO WARATAH

DIAGRAM SECTION

John Whitton
Engineer-in-Chief.



End of Contract N° 4 at 99 Miles 78.55

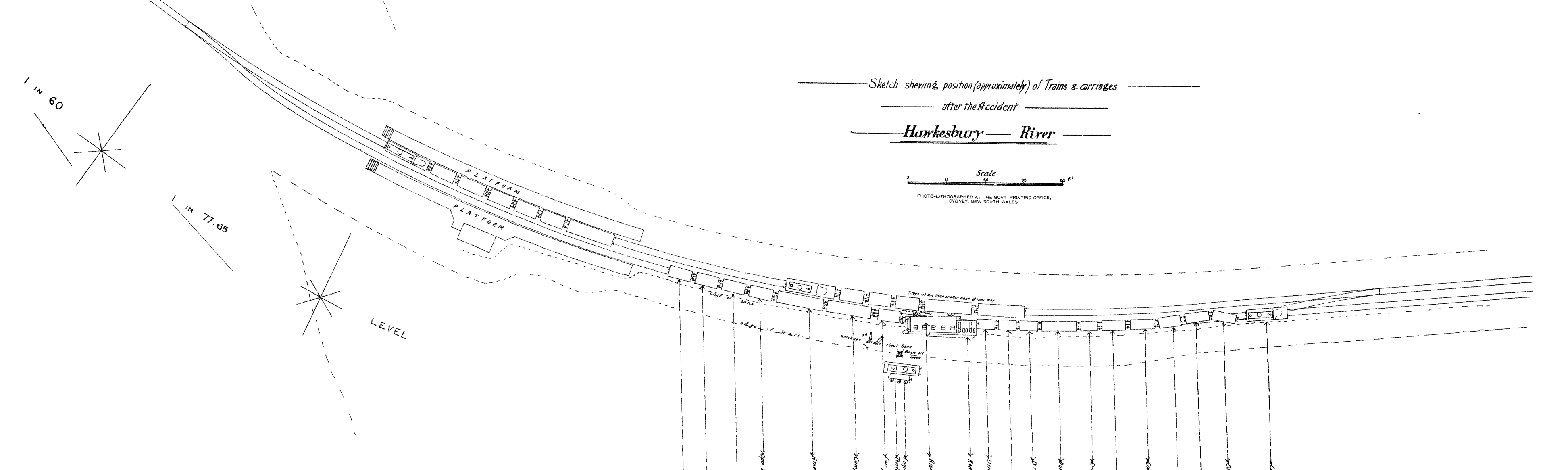


APPENDIX B.

Sketch shewing, approximate position of Trains

before the Accident 21st June 1887

Hawkesbury River



Sketch shewing, position (approximately) of Trains & carriages

after the Accident

Hawkesbury River



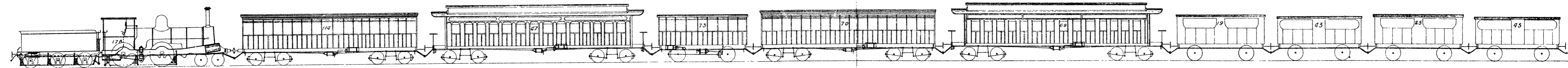
PHOTO-LITHOGRAPHED AT THE GOVT. PRINTING OFFICE, SYDNEY, NEW SOUTH WALES.

- Carriage 1st class carriage
- Carriage 2nd class carriage
- Carriage 3rd class carriage
- Carriage 4th class carriage
- Carriage 5th class carriage
- Carriage 6th class carriage
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- Carriage 98th class carriage
- Carriage 99th class carriage
- Carriage 100th class carriage

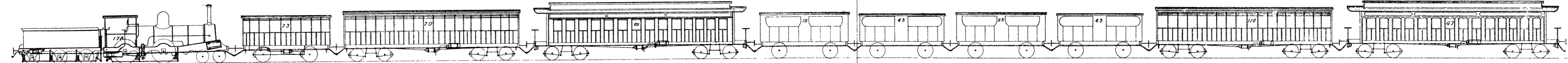
(Sig. 248-)

APPENDIX G

— Train as made up at Hornsby. —



— Train as made up at Sydney. —



(Sig. 248)

SCALE OF 0 8 16 24 32 FEET

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

— Drawing No. 1211. —

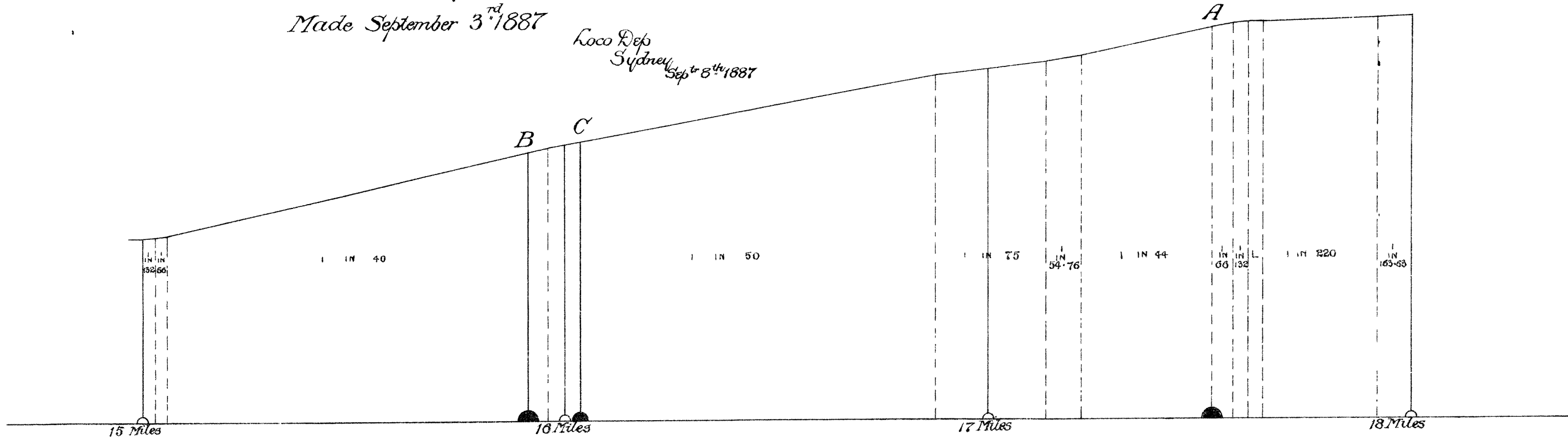
Locomotive Engineers Office
Regent Street, Sydney
25th July 1857.

NEW SOUTH WALES GOVERNMENT RAILWAYS

Westinghouse Brake Trials

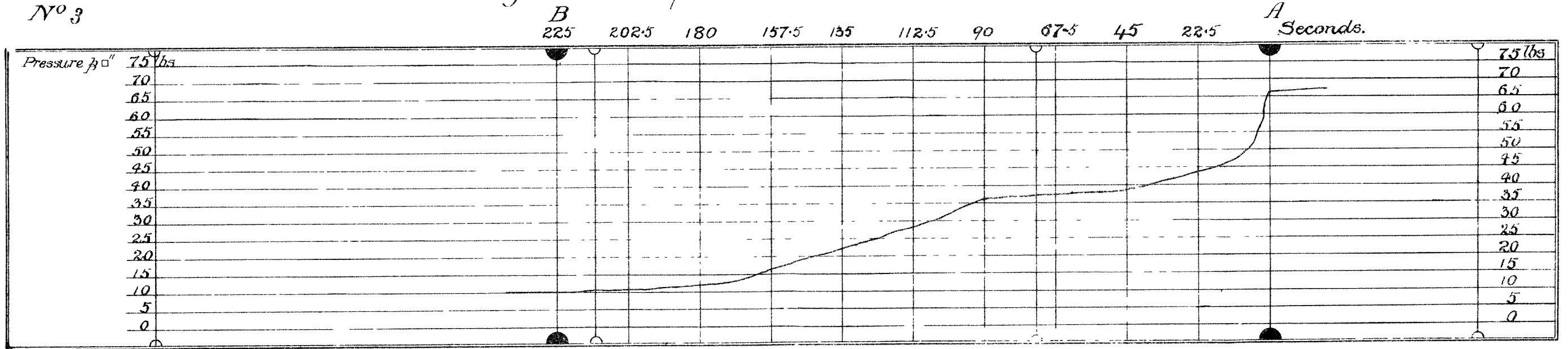
Made September 3rd 1887

Loco Dep
Sydney
Sep 4th 1887

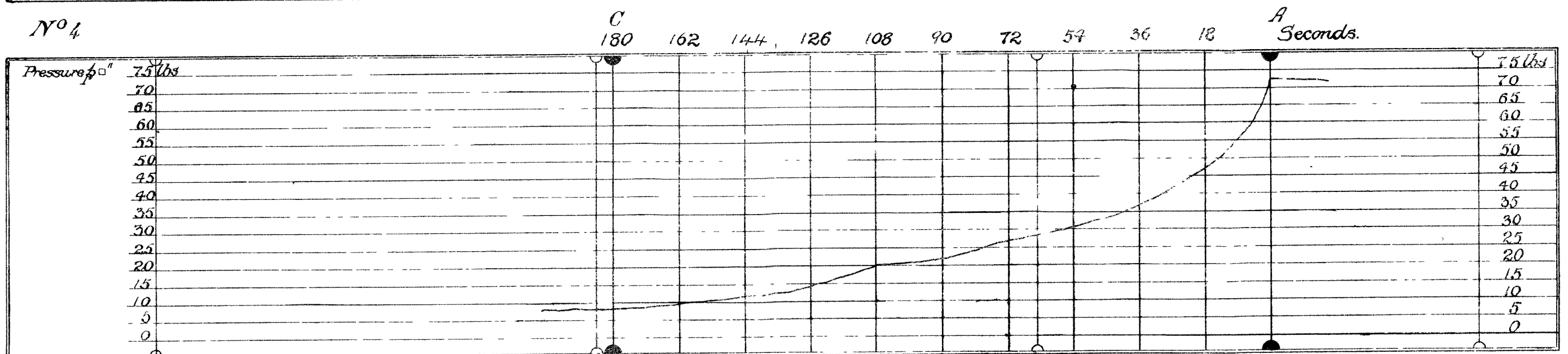


Diagrams show pressure in Train Reservoirs

No 3



No 4



(Sig 246)

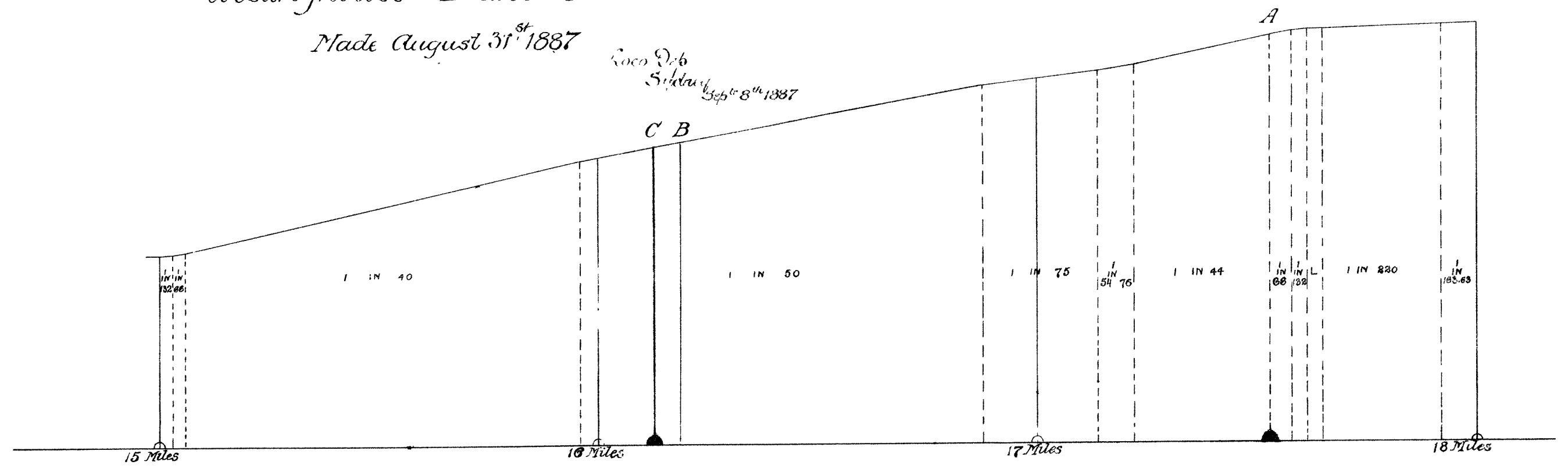
W. Scott
4/2/87

NEW SOUTH WALES GOVERNMENT RAILWAYS

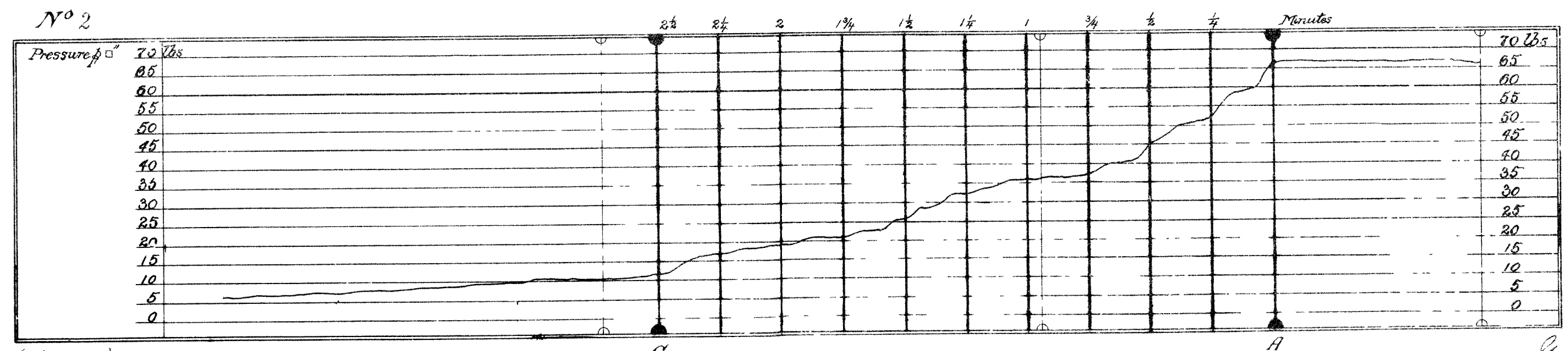
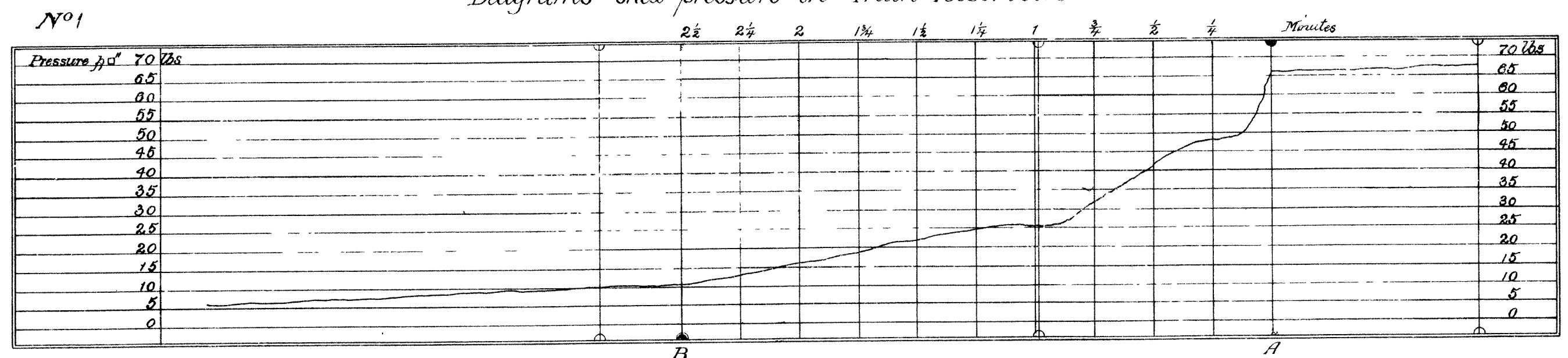
Westinghouse Brake Trials

Made August 31st 1887

Loco Dep
Substn
Sep^r 8th 1887



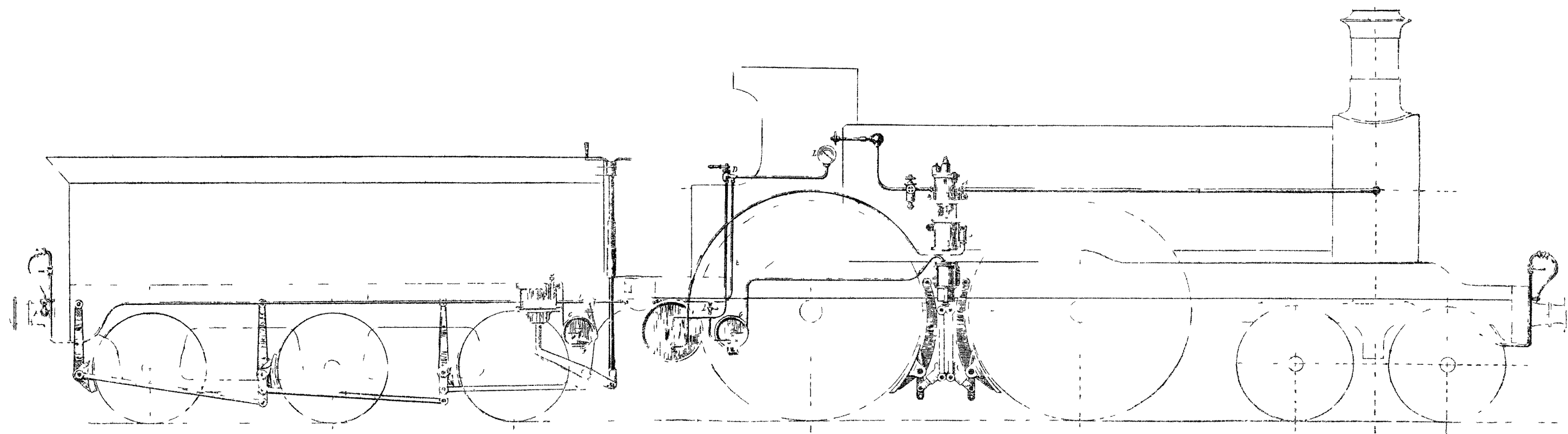
Diagrams shew pressure in Train Reservoirs



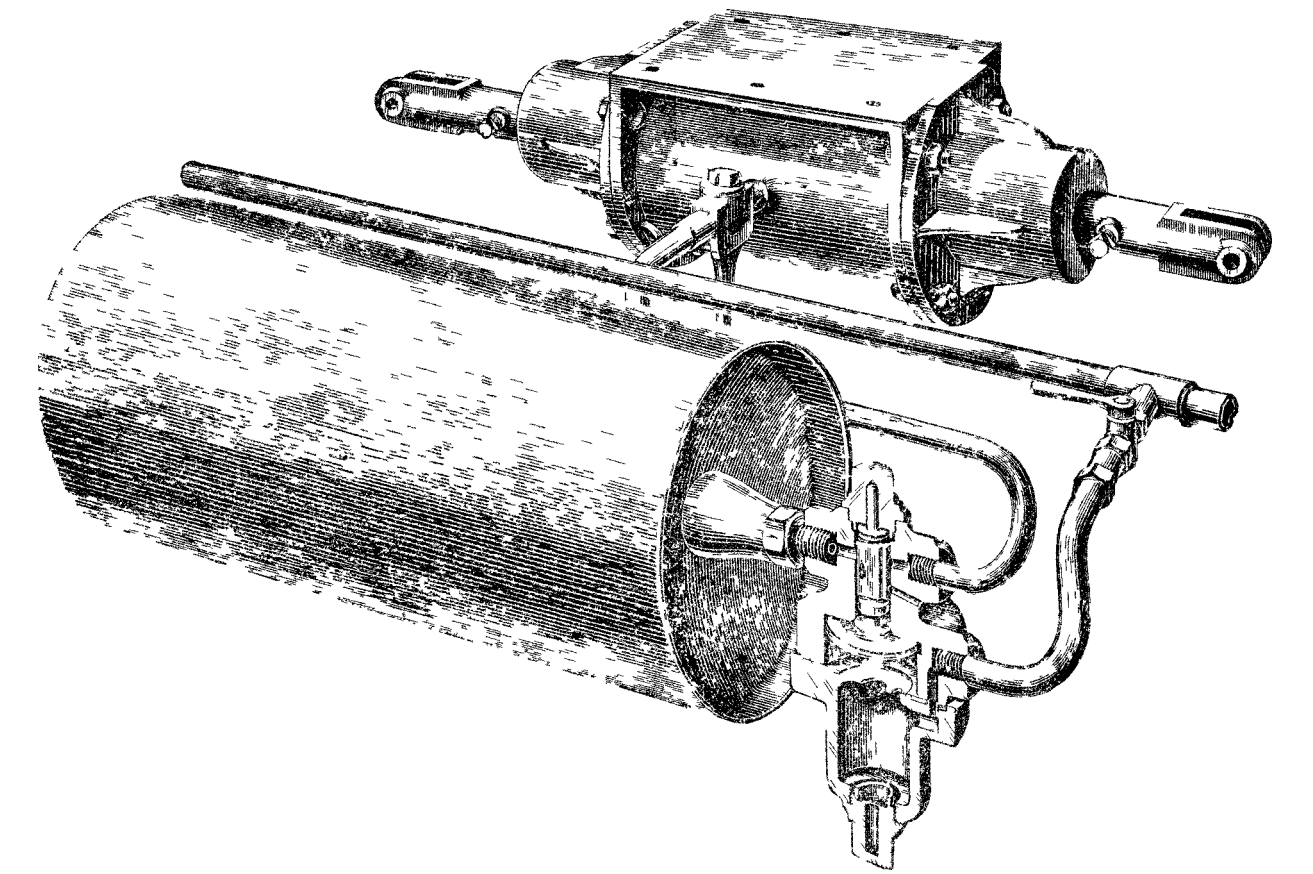
(Sig. 248-)

W. J. G. B.
4/4/87

THE WESTINGHOUSE AUTOMATIC BRAKE APPLIED TO LOCOMOTIVE AND TENDER.

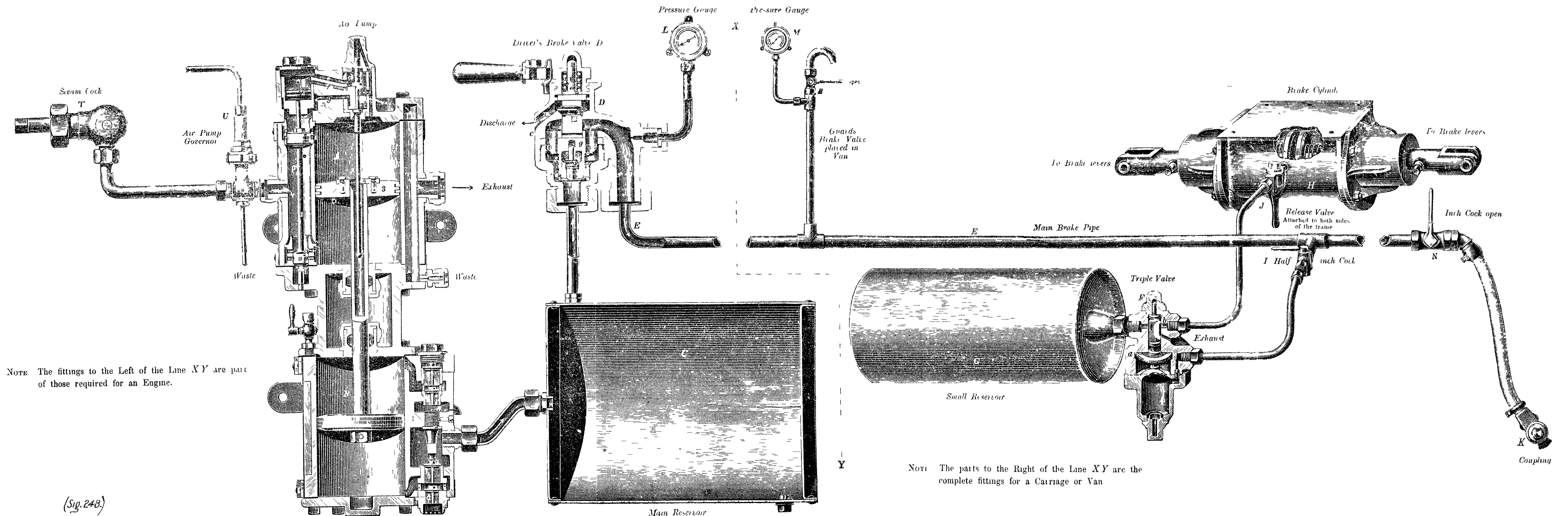


STANDARD APPARATUS FOR ONE VEHICLE.



THE WESTINGHOUSE AUTOMATIC BRAKE, GENERAL ARRANGEMENT OF PARTS.

PLATE II



Note: The fittings to the Left of the Line XY are part of those required for an Engine.

Note: The parts to the Right of the Line XY are the complete fittings for a Carriage or Van

(Sig. 248)

1887.

(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

RAILWAYS.

(REPORT OF MR. CRUICKSHANK, M.I.M.E., ON ACCIDENT TO EXPRESS GOODS TRAIN AT PETERSHAM.)

Ordered by the Legislative Assembly to be printed, 27 October, 1887.

[The Chief Engineer Surveyor, Marine Board, to The Secretary for Public Works.]

Marine Board Office, Engineer Surveyor's Department,

Sir,

Sydney, 24 October, 1887.

In accordance with your instructions, I have the honor to submit the following, relating to the accident which happened to the express goods train on the 9th of September, 1887:—

Have carefully and personally examined both officers and men who were likely to give such information as would assist me in coming to some definite conclusion. (Evidence attached.)

All the evidence taken goes to prove—and prove very conclusively—that the primary cause of the accident was the breaking of the axle under No. 128 C van.

This axle (made of Brunswick steel) shows a true flaw, equal in extent to about 25 per cent. of the entire sectional area.

The grain of the steel where the break took place (both ends) is very coarse, and, judging from its appearance, looked more like bad cast-iron than anything else.

It has been running seven years, being branded August, 1880.

Acting up to the letter of my instructions—that the inquiry was to be conducted entirely outside the Department—and to thoroughly satisfy myself as to the true nature of the material, I took the axle away, and gave Mort's Dock the necessary directions to prepare suitable "test pieces," cut from various parts, and which were all carefully tested by Professor Warren in my presence at the Sydney University. (See tables and particulars of tests attached.)

The results of the tests clearly prove the material to be neither harmonious nor homogeneous—some parts hard, others soft; some extending 5, others 15 per cent., others nil; in fact, everything connected with the experiments clearly shows the material to be unreliable, unworthy of confidence, and certainly unfit for the work intended.

This is prominently seen in comparing the breaking strain of two pieces cut from the same axle, representing a difference of over 9 tons in the same bar.

Again, in noting the stretching or extension of the specimens, their behaviour is anything but satisfactory. Two strips were prepared from the "flawed" end of the axle (the piece that was in the wheel boss); one was tested just as it was, the other, annealed and cooled in ashes.

The breaking strain of the first, marked A, was 82,000 lbs., equal to 36.6 tons; the contraction of area, 3.7 per cent.; and the extension in 10 inches, 5.6 per cent. The other, marked A¹, stood 89,000 lbs., equal to 39.7 tons; contraction of area, 19.4 per cent.; extension, 14.5 per cent.

Two similar specimens were taken from opposite end of axle (the piece in wheel boss), one tested as it was, the other annealed in ashes.

The first, marked B, stood a strain of 101,500 lbs., equal to 45.3 tons, the contraction and extension being 8.8 and 9.6 per cent. respectively. The other, marked B¹, went at 100,000 lbs., equal to 44.6 tons; contracted, 11.7 per cent., and extended, 11 per cent.

Four other strips were cut from the body of the axle; two were annealed in ashes and two in water, but all the results obtained are bad, being most irregular and uncertain.

I also tested two strips prepared from a Vickers' steel axle which broke under a D waggon, No. 2,454, at Lapstone, on 10/8/87.

The results obtained in this case show a most decided superiority over the Brunswick steel. The breaking strain was 30.8 and 31.2 tons respectively; the contraction of area in both cases, 49.6 per cent., and the extension, 25.5 and 21.2 per cent.

As regard suitability, this test is almost perfect, the behaviour of the material being precisely the same as what is expected and insisted upon by the Board of Trade, Lloyds, and the Marine Board, in all steel plates intended for the manufacture of high-pressure boilers.

It appears that Sir John Fowler's limit of tensional strength for steel axles is from 27 to 30 tons per square inch; anything over that would, or at all events, should, be rejected, being far too hard and brittle for the work. How it comes that the Brunswick axle went up to 45 tons is not easily explained. Of course this may be an exceptional case, but it may not, and I think the chances are they will be found far too hard to be trusted.

Again, the design of this axle is very faulty, so is "Taylor's," both having a square cut shoulder close to the wheel boss. Why this is so nobody seems to be able to explain, but everybody agrees it is a bad thing, and the principal cause of all the trouble.

There is no necessity or advantage in making an axle this way—on the contrary it simply amounts, in my opinion, to a premium to make it break, as it is in very much the same condition as a bar of iron which a blacksmith nicks on his anvil before he attempts to break it.

On the Home and Continental lines axles made in this fashion receive due consideration; they are not allowed to carry the same weight as others of superior design, although of the same material and dimensions; and on the German and other lines a very considerable reduction in the weight carried is made, viz., 25 per cent. for iron, and 33 per cent. for steel. This shows that steel, when shouldered, is more treacherous than iron—a lesson they have no doubt learnt from experience.

According to evidence the number of axles of the Brunswick brand now in use is 395, and I certainly think it highly desirable that although it is just possible this particular axle may be the only bad one amongst the lot, still there is every reason for testing some of the others—the results of which may or may not justify condemnation.

The measures taken by the Locomotive Engineer to remedy and rectify the faults in constructive design are at once sensible and commendable; they have been materially increased in size, have no shoulders at all, no keys or key-ways, and from a personal practical examination of the axles recently fitted they are entitled to all confidence, provided they are made of the best and most reliable material.

There are 16,000 axles in the service, and twenty-three have broken (when running) during the last five years. The cause of breakage is as follows:—17 by flaws, 4 by collisions, and 2 through the breaking of other axles.

As to the material, 19 were made by Taylor (of iron), 2 of Vickers' steel, 1 of Brunswick steel, and 1 by Cooper & Coy., of Leeds.

From the above it appears the average breakage in five years is about 1 in 700, and as 19 out of the 23 were "flawed," it is very clear that if soundness of material were possible, a broken axle would be a novelty, or at all events the danger of such would be reduced to the lowest possible minimum.

Respecting the most suitable material, the evidence is exceptionally strong and quite unanimous as to the superiority of Vickers' steel. This is specially so from the men who work it, both at the forge and lathe. They describe it as being by far the best and most reliable steel—a material in which they have the most perfect confidence, and which they all recommend should be used, even if the Department have to pay a higher price for it. This opinion is the outcome of a large experience, and is certainly entitled to due consideration, besides being fully borne out by the tests.

In answer to inquiries as to what means were adopted to ascertain the work done, or the mileage run by any axle, I find there is none; and the opinion is general that it is scarcely possible to do it. This may be so, and no doubt would entail some difficulty and trouble, but it is very necessary, and if attention were specially directed to it some feasible plan might be proposed by those who are thoroughly conversant with this particular branch, as I understand the mileage run by the "goods" is checked on the European lines.

The system of "numbering," which has only been introduced since April, 1886, gives the officers a good idea of the what, when, and where of the repairs done, but it does not go far enough, and can give no definite idea of the actual work done by any axle or wheel.

Respecting the instructions given to the various officers as to the examination of axles, &c., the evidence is very satisfactory; every possible care seems to be taken to prevent any defective material being used, and none of those examined had any suggestions to offer which in their opinion would have any tendency to improve the method of inspection.

I note, however, that as regards annealing, the instructions given are confined to iron axles only (Taylor's); this, in my opinion, is a mistake—it is quite as necessary—in fact, more so—to anneal the steel axles, and it is very desirable that some practical experiments should be made to determine two things:—
1. The best method of annealing. 2. The effect of annealing on the steel.

I would mention that in working steel plates for general purposes, and especially boiler work, annealing is one of the principal items, about which we are very particular, and which in all cases (when carefully and properly done) has a most beneficial effect in restoring the original ductility of the material, which is always disturbed and injured by punching, flanging, or continuous working.

Returning now to the express goods train, I find it commenced to run in May of the present year. Its speed is practically the same as the mail, and its average weight about double; the approximate weights are 100 tons and 200 tons respectively. At first it consisted of twenty-five vehicles, but it could not keep time, and the number was reduced to twenty. The brake-power, at first, consisted of engine and tender fitted with air-brake, also one brake-van with hand-brake, just the same as the ordinary goods, running about half the speed, and it was left to the engine driver and guard to find out that the brake power was insufficient, as in their evidence they distinctly state "that when the signals were against them they were unable to control the train."

In answer to my inquiry "if there was any rule or regulation in the Department for getting [out the brake-power in proportion to the speed and weight of any train?" I received the following:—"The brake-power of any vehicle must not exceed the weight of itself when empty." This is not a satisfactory reply, as there is no mention made of the weight or speed, nor the slightest reference to the road being level or having steep grades, &c.

Again, to the question, "Who is the officer that determines the amount of brake-power that has to be put on any particular train?" The answer was, "*It is the duty of the station-master, and, of course, of engine-drivers and guards, to point out if they should consider the brake-power insufficient.*" (The Italics are mine.)

It is scarcely credible that the determining of the brake-power in any train, and especially in this, should be left to the consideration of the engine-driver and guard, and yet the evidence is very conclusive on that point.

On

On the morning of the accident, the weight of the train was 192 tons exclusive of engine and tender. The weight of the mail train on the same date was 100 tons, so that here is a train nearly double the weight of the mail, running at the same speed, and its insufficiency of brake-power is only found out after the engine-driver and guard report "they can't control the train."

I must respectively submit that this system (if it can be called so) is simply dangerous, and certainly not conducive to public confidence, for it is not only possible but very probable that in exceptional cases like this, the insufficiency of brake-power would only be discovered after a serious accident.

It is therefore highly desirable that some engineer possessing the necessary theoretical and practical knowledge—one who is thoroughly acquainted with the New South Wales lines—should be instructed to prepare suitable tables for the standard regulation of the brake-power, in which the weight, speed, and road would be duly considered. This would be a guide for all station masters and guards, and would certainly commend itself as being immeasurably superior to the present method.

Regarding the amount of damage done to the train on the 9th September, the evidence is most conclusive that if it had been fitted with an automatic brake, the injury sustained, would, in all probability, have been confined to the broken axle, and also that when the train parted the brakes would have gone on and prevented the trucks from going over the embankment and bridge.

In this I concur—also in the opinion expressed by all capable of judging—that this train should be fitted with a continuous automatic brake at once.

In connection with the accident, I made a careful examination of the Petersham Bridge. The main structure has sustained no injury whatever, all the damage being confined to the charring of sleepers, decking, hand-rails, &c., which have been efficiently repaired.

Respecting the fire, all the evidence taken is mere assumption and conjecture, its true origin will, so far as I can judge, always remain unexplained.

In conclusion I beg to acknowledge with thanks the kindness and courtesy of the officers who assisted me in every possible way to obtain the necessary information.

I have, &c.,

WM. CRUICKSHANK, M.I.M.E.,

Chief Engineer Surveyor to Marine Board.

EXPLANATION of Test Tables.

Nos. 1 and 2.—Cut from a Vickers' steel axle, which broke under a D waggon, No. 2,454, at Lapstone, 10/8/87. Branded, July, 1880.

A.—Cut from "flawed" end of axle which broke at Petersham, 9/9/87; tested as it was. Brunswick steel. Branded, August, 1880.

A¹.—Cut from "flawed" end of same axle, but annealed in ashes.

B.—Cut from opposite end of same axle, but tested as it was.

B¹.—Cut from opposite end of same axle, but annealed in ashes.

C.—Cut from body of same axle (flawed end), and annealed in ashes.

C¹.—Cut from body of same axle (flawed end), but annealed in water of 80° Fahr.

D.—Cut from body of same axle (opposite end), and annealed in ashes.

D¹.—Cut from body of axle (opposite end), but annealed in water of 80° Fahr.

Vickers' specimens, 8-inch centres; all the others were 10-inch centres.

UNIVERSITY OF SYDNEY.

SPECIMEN of Steel tested for Mr. Cruickshank.

Tested October 12th, 1887.

Test number.	Description.	Original dimensions.			Strain in pounds.		Strain in tons.	Contracted dimensions.			Contraction of area per cent.	Elongation per cent.	Remarks.	
		Breadth	Thick-ness.	Area.	Total.	Per sq. in.		Breadth	Thick-ness.	Area.				
1	Cut from the axle which broke on the Petersham Viaduct.	1.00	1.00	1.00	69000	69000	30.8	.71	.71	.504	49.6	25.5	Limit of elasticity = 36,000 total.	
2		1.00	1.00	1.00	70000	70000	31.2	.71	.71	.504	49.6	21.2		" = 36,000 "
A		2.00	.50	1.00	82000	82000	36.6	1.99	.484	.963	3.7	5.6		" = 43,000 "
A ¹		2.00	.50	1.00	89000	89000	39.7	1.80	.448	.806	19.4	14.5		" = 37,000 "
B		2.00	.50	1.00	101500	101500	45.3	1.90	.480	.912	8.8	9.6		" = 36,000 "
B ¹	2.00	.50	1.00	100000	100000	44.6	1.88	.470	.883	11.7	11.0	" = 34,000 "		

NOTE.—Specimens A¹ and B¹ were annealed in ashes;

Tested October 18th, 1887.

C ¹ D ¹ D	Cut from the axle which broke on the Petersham Viaduct.	1.50	.50	.752	64000	85106	37.9	1.34	.446	.597	20.6	15	Limit of elasticity = 35,000 total.	
		1.505	.50	.752	30000	40000	17.8	Immeasurable.						" = 35,000 "
		1.510	.50	.755	67000	88741	39.6							" = 34,000 "
		1.505	.50	.752	66500	88430	39.4	1.335	.442	.580	21.5	15		" = 34,000 "

NOTE.—1. C and D were annealed in ashes; specimens C¹ and D¹ were annealed in hot water.

2. The total elongation measured on 10 inches in specimen D¹ was not more than $\frac{1}{8}$ inch.

3. The loads recorded for specimen C¹ are in excess, as the steel-yard was not quite raised when the specimen fractured.

W. H. WARREN, Wh. Sc., M.I.C.E.,
Professor of Engineering,
University of Sydney.

Evidence of Mr. W. V. Read, Traffic Manager:—

The average weight of the express goods train? The average weight of the express goods train between Sydney and Picton, exclusive of engine and tender, is about 180 tons. The actual weight on the day of the accident was 192 tons.

The average weight of the passenger mail train running over the same ground? The weight of the mail train in the same section is about 100 tons.

The average speed of both? The speed of the goods is about $26\frac{1}{2}$, and the mail $27\frac{3}{4}$ miles an hour.

The brake-power fitted to both? Apart from the engine and tender, in each case, there are two brake-vans (one of them loaded) on the goods, while on the mail every vehicle is braked.

A list of the combustibles which were likely to explode, or by concussion cause a fire? There was a large quantity of spirits, and some gasoline, kerosene, and six tin-lined cases of vestas, and some dynamite, but there is every reason to believe that the fire was not caused either by the matches, gasoline, or dynamite. Your opinion as to whether it is desirable or necessary to have such a train fitted with an automatic and continuous brake? I am decidedly of opinion that such a train as the express goods should be fitted with a continuous and automatic brake.

Your opinion if this particular train had been so fitted would the damage done be confined to the breaking of the axle, or do you think it would have prevented the trucks from going over the bridge? I can hardly say that the damage would have been solely confined to the breakage of the axle if there had been a continuous and automatic brake throughout the train, but I quite believe it would have prevented a number, at all events, of the trucks from falling over the bridge.

Any information you may have that would tend to assist me in forming an opinion as to the origin of the fire? It is impossible to say whether the fire was caused by the combustible material which was in the trucks, or whether it was due to an explosion of gas in the carriage which was on the train.

Who is the officer that determines the amount of brake-power that has to be put on any particular train. Has it been found necessary to increase the brake-power in this express goods train since it commenced to run? It is the duty of the station-master, and of course of engine-drivers and guards, to point out if they should consider the brake-power insufficient. The train ran for some time with one brake-van only, the same as other trains, but it was pointed out to me that the brake-power was insufficient, and I therefore gave directions for another brake-van to be attached.

Evidence of Mr. Scott, Loco. Engineer:—

The number of axles which have broken on our railways during the last five years? During the last five years twenty-three axles have broken whilst in service.

The cause of breakage? Seventeen by flaws, four by collision, two by the breaking of other axles.

The material of which they were constructed? Two steel (Vickers & Sons), nineteen Taylor Bros.', one Patent Shaft and Axletree Company, and one Cooper & Co., Leeds.

The age and number of axles now in use by same maker as the one that broke? We have in use 395 axles by the same makers (Patent Shaft and Axletree Company) as the one that broke. Until about three years ago no record was kept of the service of axles.

The measures taken by the Department to reduce accidents arising from defective axles to a minimum? With regard to the measures taken by the Department to reduce to a minimum accidents arising from defective axles, I have to state that instructions have been issued to all carriage and waggon examiners and lifters that they are held responsible for the "tapping" and proper examination of all wheels, tires, axles, axle-boxes, springs, couplings, &c., and that no vehicle is to be allowed to run unless it be in a perfectly safe condition. Instructions have also been issued to the foreman blacksmith and foreman turner, that when wheels with iron axles are taken in for the purpose of having their tires or journals turned up, they must be thoroughly examined, and if the journals are found to be worn $\frac{1}{8}$ " below the original size, or any flaw detected in the axle, it must be replaced by a new one. Iron axles when taken out must be annealed before being put in the wheels again. All axles dated 1870, and prior to that year, to be stopped, the wheels pressed off, and the axles thoroughly examined and annealed before being pressed on the wheels again; any that may be found to have the slightest defect to be replaced by new ones. In April, 1886, instructions were issued that all axles were to be marked with a distinguishing number, since which time about 3,000 have been so numbered, and a careful record kept of their service. All keys were dispensed with in wheels and axles ordered during and since 1880, and the wheels have been pressed on by hydraulic power, no shoulder being allowed on the axles at the boss. Two of these have broken—one in consequence of a flaw in the centre, and the other in the journal. In ordering wheels and axles during and since 1883 provision has been made for increasing by $\frac{3}{8}$ in. the diameter in the wheel-seat and journal respectively, and by $\frac{1}{4}$ in. in the centre of the axle. Up to date none of these have broken.

The total number of axles in the service, and the means adopted (if any) of ascertaining the amount of work they do, and the mileage run—how often you lift and examine them? We have about 16,000 axles in service, and a record is now kept of when they were placed under vehicles, &c. The axles are not allowed to run for a longer period than two years before they are lifted and thoroughly examined.

The speed of this particular train as compared with the mail, its average weight and its brake-power? The average speed of the express goods train is 24.6 miles per hour, and that of the mail train 25.6. Average weight of express goods is, including engine and tender, (say) 250 tons; its brake-power amounts to 80 tons, in addition to which hand-brakes are fitted to each truck, which can be utilized if necessary.

Do you consider it a desirable thing, or is it safe, to run this express heavy goods train (say) at 40 miles per hour without being fitted with an automatic brake? I do not consider it desirable to run heavy goods trains at excessive speed without the assistance of an automatic brake.

From your knowledge of all the circumstances in connection with this mishap, do you think it would have been prevented if it had been fitted with the vacuum or Westinghouse brakes? I am not of opinion that the accident would have been prevented had the train been fitted with the vacuum or Westinghouse brakes, but think that the subsequent results might have been minimised had either been available.

As it is considered desirable to have the broken axle tested in various ways, will you kindly forward same to Mort's dock (the middle part and the two ends), as I prefer conducting the tests myself? I have forwarded the broken axles to Mort's Dock and Engineering Company, as requested. Are

Are you quite satisfied it was the breaking of the axle that was the primary cause of the accident, or do you think it possible or probable of its being due to an explosion first, the breaking of the axle following as a natural consequence? In my opinion the primary cause of the accident was due to the breakage of the axle.

Any other information you may have which would tend to assist me in this inquiry? I am not in possession of any fresh information.

What is the age of the axle that broke? The age of the broken axle is seven years, being branded August, 1880. [Photograph herewith].

Who is the officer that determines the necessary amount of brake-power in any train? The requisite brake-power in any train is decided by the Traffic branch.

Is there any rule or regulation in the Department for getting out the brake-power, in proportion to the speed and weight of the train? Rule for brake-power is, that the brake-power of every vehicle must not exceed the weight of itself empty.

What is, in your opinion, the safe load that could be put on each wheel of any goods truck? The safe load that could be put on each wheel of any goods truck is as follows:—Iron axles, with $3\frac{1}{4}$ " journals and $4\frac{1}{2}$ " diameter in nave, can have $2\frac{1}{2}$ tons gross weight per wheel; steel axles, with 4" journals and 5" diameter in nave, can have 4 tons gross weight per wheel. [See also lists attached.]

Have you any regulation limiting the weight on each wheel? Regulations limiting weight on each wheel, weight of a wagon, and carrying capacity, are printed on its side.

What is the standard practice in the old country, and in other colonies, respecting the weight allowed on each wheel of a goods truck? The accompanying list shows the standard continental practice on both State and private railways, and is made obligatory for all new rolling stock. The weights and dimensions are similar in English practice.

AXLES with journal centres not exceeding 6 ft. 6 in. must have the following dimensions at journal, and in the nave carry the undermentioned maximum gross loads per axle.

Minimum diameter of journal.		Minimum diameter in the nave.		Maximum.		Gross Loads.		Remarks.
				For Goods Stock and Tenders.		For Passenger Stock.		
				Steel axles.	Iron axles.	Steel axles.	Iron axles.	
mm.	inches.	mm.	inches.	tons.	tons.	tons.	tons.	
62	$2\frac{1}{2}$	100	4	4·3	3·6	3·44	2·88	Standard Continental practice on both State railways and private railways. The axles to be of best material of their respective kinds, and of proper design, otherwise the loads must be decreased.
66	$2\frac{3}{4}$	105	$4\frac{1}{8}$	5·0	4·2	4·00	3·36	
70	$2\frac{3}{4}$	110	$4\frac{5}{16}$	5·8	4·84	4·64	3·87	
74	3	115	$4\frac{1}{2}$	6·6	5·5	5·23	4·4	
78	$3\frac{1}{8}$	120	$4\frac{3}{4}$	7·5	6·25	6·00	5·00	
82	$3\frac{1}{4}$	125	5	8·5	7·1	6·8	5·63	
86	$3\frac{3}{8}$	130	$5\frac{1}{8}$	9·6	8·0	7·68	6·4	
90	$3\frac{1}{2}$	135	$5\frac{3}{8}$	10·7	8·9	8·66	7·12	
94	$3\frac{3}{4}$	140	$5\frac{1}{2}$	12·0	10·0	9·6	8·00	
98	$3\frac{3}{4}$	145	$5\frac{3}{4}$	13·2	11·0	10·56	8·8	

Evidence of Mr. Shellshear, District Engineer:—

Your opinion on the primary cause of the accident? I am of opinion that the primary cause of the accident was the breaking of an axle, which threw the rear trucks off the rails.

Any information you may have relating to the origin of the fire? I can give no information on this point beyond the fact that there was a large amount of combustible matter in the train, which was probably ignited either by the concussion or perhaps from direct contact with the train lamps.

The difference in speed between this particular train, the mail, and an ordinary goods train? This train is timed to run at practically the same speed as the mail train, and about twice the speed of an ordinary goods train?

What in your opinion is a safe load on the wheel of a goods truck, running (say) at 30 miles per hour? This depends very much on the design of wheel and axle, and would vary from 5 to 10 tons per axle, according to design.

In standard practice what is the maximum load allowed on each wheel? I am not aware of any standard practice limiting the maximum load, except in the case of locomotive axles, the greatest weight on which should not exceed 15 tons with our weight of permanent way. For other stock this limit is only approached in special cases, but for ordinary waggon axles the limit ranges between 5 and 8 tons, as a general rule.

What is the standard weight in other colonies and countries? The average weight in England on waggon stock is about 7 tons on an axle, but it varies from about 5 tons a minimum to 8 tons for a maximum in the case of loaded trucks.

Do you think it safe to run this express goods train without a continuous automatic brake? I do not consider it safe to run any train at the speed the express mixed train is timed to run, unless it is fitted with a continuous automatic brake, the same as our other passenger trains.

Had the train been so fitted would the damage have been confined to the broken axle, and would the brake have prevented the trucks from going over the embankment? I am of opinion that if the train had been fitted with the automatic brake, the same as other passenger trains, the damage done by the broken axle would have been greatly reduced, and that the train would have been pulled up before the trucks reached the bridge, and that they would probably not have gone over the embankment.

Who is the officer who determines the amount of brake-power required for any train? I presume this matter rests with the Traffic Manager and Locomotive Engineer.

Is there any recognized rule or regulation by which the brake-power is in proportion to the weight and speed of train? I am not aware of any such rule in the Department.

Can you suggest anything having a tendency to increase the safety of this train? The safety of this train would be greatly increased if it were fitted with the continuous automatic brake, the same as the other passenger trains.

Evidence of Mr. Pratt, Foreman of Turning Shop:—

Had many years experience in the examination and repairing of axles and wheels.

Has strict instructions from Mr. Scott to exercise the greatest care and caution when inspecting them, and if the slightest doubt exists as to their suitability or safety, to reject them.

Has no reliable means of knowing what amount of work or mileage any axle has done.

Since the 1st of April, 1886, a system of numbering has been established by means of which they could tell how, when, and where any axle or wheel was repaired. The number of axles and wheels numbered up to date is not more than 3,000 to 4,000—about 25 per cent. of the entire stock. This was done at Mr. Scott's suggestion, and thinks it a very sensible and necessary thing to do.

The original finished size of the axle journals is $3\frac{1}{4}$ inches. Have instructions when they are worn down to $3\frac{1}{8}$ inches to discard them.

The wear which takes place in the axles is almost always due to the "heating" of the journals, and but for that the axles run for years and give no trouble.

Cause of heating due principally to want of lubrication, dirt, &c.

Axles made and supplied by different makers used in the Department are—

Vickers'—Of steel.	Cooper's—Steel.
Taylor's—Double fagoted, all iron.	Brunswick Steel—(the one that broke).
Brown, Bailey, & Dixon—Steel.	

Have no hesitation in stating that Vickers' steel axles are the best suited for the work. Have more confidence in them than any other.

Many of the axles—Taylor's and the Brunswick—have a square shoulder cut in close to wheel boss; thinks it a bad plan, and has had instructions during the last four or five years to turn and round the shoulders off. They stand much better since. These instructions apply to iron axles only (Taylor's). No orders to turn the shoulders off steel axles, but thinks it would be a decided improvement if all the axles were served in the same way.

Does not think cutting key-ways in axles hurts them much, never saw any break through the key-way; but the most recent axles are forced on by hydraulic pressure, and have no keys or shoulders; they seldom or never come loose.

Considers the present method of examination the best possible, and can suggest no improvement.

Note.—Asked Mr. Pratt to make out a written statement giving a practical description of his examination.

Memorandum to W. Cruickshank, Esq., Engineer.

Sir,

Eveleigh Station, 6 October, 1887.

I beg to report to you as per request *re* instructions given me by the Loco. Engineer as regards wheels and axles under my immediate supervision, the instructions are as follows:—

To examine every wheel and axle now running on our lines as they come through the turning-shop for repairs, &c. If found to be worn small, or cut below the size stated to run, to have them taken out and replaced with new axles, and not to allow any doubt to exist whatever.

The stated size to run waggon wheels, $7\frac{1}{2}$ journals, is $3\frac{1}{8}$ " and no less.

Carriage axles, 8 in. journals, $2\frac{3}{4}$ " and no less.

Further examinations are as follows:—

When bent axles come in (iron do) we take them out, and if not bent badly we anneal them, put them through the furnace until dark hot, afterwards place them in ashes and let them remain until cool; after they are cold they go to the lathe, and are strung up and sounded, if the sound is good we turn back the shoulders and leave a good fillet, so that in the future we can more easily detect any flaw there may be in the shoulders or elsewhere.

The axles are thoroughly examined as regards the fillet of the same after they come out of the furnace.

I might state there are no new axles put in with square shoulders; all axles are left with long round fillets.

I may further state that all axles and wheels from April 1st, 1886, up to the present, have been numbered, and will continue to be so until the whole are numbered—some 15,000 pairs up to date running.

I may also remark that I am very particular in examining all wheels and axles, as I consider the wheels and axles are one of the most important items on a railway.

WM. PRATT.

Evidence of Mr. Braid, Carriage Superintendent.

Had considerable experience in the examination of rolling stock; pays particular attention to axles and wheels, and in all cases, if there is the slightest sign or indication of a flaw or defect, they are invariably condemned.

Does not know who the officer is who determines the amount of brake-power for this or any other train. Is decidedly of opinion this train should be fitted with a continuous brake; thinks it is scarcely safe to run at the speed without it.

Of opinion that the damage done would in all probability have been confined to the broken axle, and is almost sure the trucks would not have gone over the bridge if an automatic brake had been fitted.

Believes the desirability of having this train fitted with a continuous brake has been represented to the Minister.

Can suggest no improvement in the *method* of inspection; only as the work is increasing two more men are required, as the present staff have rather too much to do.

In two and a quarter years four (4) axles have broken; one of Vickers' broke in the journal, the other three close to wheel boss—don't remember the brands.

Thinks the square shoulder is very bad; it practically nicks the axle; present, that is, recent axles, are made much stronger, and are put on by hydraulic pressure, without keys or shoulders.

Considers this a great improvement; have had no broken axles since this system was adopted.

Has no doubt it was the axle which broke first; nothing to lead anyone to assume or believe an explosion took place first.

There was a considerable amount of combustible goods in the train.

Evidence

Evidence of Mr. Lennox, Foreman Blacksmith :—

Had a large and varied experience in the handling, repairing, and annealing of axles (14 years). The annealing is done by heating them in a slow furnace to a dark red, covering them with ashes, and allowing them to cool.

Has no other guide but the eye in heating them; believes this annealing restores the original structure of the material.

With continuous hard running and vibrations the axles become crystallized in places only—some parts are hard and brittle, other parts remain soft and ductile; but when properly annealed, the harmony of the particles is brought back to its original form.

Thinks the plan of annealing the best known; did not know the method adopted by the Board of Trade and Lloyd's was to heat the steel cherry-red and cool it out in water, whose temperature was 80° Fah.

Vickers' steel is by far the best supplied to the Department, and is best suited for our work. The most reliable material he has ever worked; you can depend on it.

Would always have Vickers' steel, even if he paid more money; it would be the cheapest in the end.

Large percentage of broken axles always go close to wheel-boss; the square sharp shoulder nicks the axle in a somewhat similar fashion to what a smith does when he nicks an iron bar to break it.

Thinks that all axles after doing a certain amount of work should be taken out and annealed, but can suggest no plan by which the mileage run could be ascertained.

Could never rely on Cammell's steel; has little confidence in the material—not only axles, the spring steel is bad; has often found it so.

Of opinion the system carried out by the Department is the best possible for ensuring the soundness and safety of the rolling-stock, especially as regards axles and wheels.

Could think of nothing that would be likely to improve it.

Considers the material (Brunswick steel) of which the broken axle is made, is very much inferior to Vickers'.

Has strict instructions to reject all doubtful axles; if they show the slightest defect they are condemned.

Evidence of Henry Matthews, driver of train :—

Been ten years in the service; four years driving; and has driven this train ever since it started, which was in May, 1887.

At first took twenty-five trucks, but found it too much; reduced to twenty, because they could not keep time; engine could not do it.

Average speed about 30 miles per hour—sometimes goes quicker than that when we require to make up time.

This train runs at the same speed as the mail; it is much heavier.

The brake-power was insufficient at first; had air-brake on engine and tender (Westinghouse); American engines only have air-brakes on engines; found this with one brake-van; could not control the train; but, on reporting same, another brake-van was put on at once—in fact anything for this particular train is attended to at once.

When driving other goods train the speed ranges from 18 to 20 miles per hour; this express goods goes 50 per cent. faster.

Difference between the brake-power of this and the mail train: Mail would have air-brake connected to every carriage, also tender and engine, whereas this train has only air-brake on engine and tender, and the hand-brakes on the two brake-vans.

When the train first ran, found, when the signals were against me, the power was insufficient to stop the train: hence my application for additional brake-power.

Was pretty certain it was the axle that broke first; there is no evidence which would justify anyone assuming that an explosion took place first, the axle breaking afterwards.

Think the fire was caused by concussion, but there can be no certainty about its origin.

Was of opinion that if this train had been fitted with an automatic brake the damage done would have been comparatively small, and in all probability the cars would not have gone over the bridge.

Evidence of Charles Dunn, guard of the train :—

Has had considerable experience as guard; often watches the men examining the train before it starts; they do their work carefully and well.

Examiner Selby is very attentive and painstaking in his inspection.

Tools used in examination; trusts to his eye principally; makes good use of his hammer, lamp, &c.

Was in the brake-van when the accident happened—it was lighted up with gas; the brake-vans are generally charged afresh before starting; don't know the pressure in gasholders when charged.

This train runs as fast as the mail; fastest speed from 35 to 40 miles per hour; average about 30 miles per hour.

Quite satisfied the accident was caused by the axle breaking, and that the fire took place afterwards; quite sure the explosion took place afterwards.

Only one axle broke in the train; never heard of any more than one breaking.

Of opinion that nobody can say with any certainty what caused the fire.

Had no difficulty in brakeing the train in ordinary running, but when signals were against us the brake-power was not sufficient to control the train.

When application was made for extra brake-power it was granted at once.

Of opinion that this train should be fitted with a continuous air-brake (automatic).

If this train had been so fitted the damage done would not have been so great, and think it would have prevented the cars and trucks from going over the bridge.

Twenty cars are as much as the engines can pull to keep time; took twenty-five at first, but had to discard five.

This train takes twenty trucks to Picton, then sixteen to Mittagong (with two engines), then sixteen through to Albury with one engine.

Difference between the speed of this and other goods trains? This travels about 30 miles, the ordinary goods about 20 miles per hour.

This is the only axle that has broken in any train that he had been on.

The officers take every care and precaution in making up this train.

Who determines the amount of brake-power in any train? Does not know.

Evidence of Mr. Harper, Goods Superintendent :—

Has had 17 years experience at this work ; has the entire supervision of all the loading.
 The weight of each truck is distinctly marked on it, also the maximum load it is allowed to carry.
 About 90 per cent. are marked, the other 10 per cent. are not ; but any truck is quite safe with a load of 6 tons, whether marked or not.
 Knows nothing of what axles may be under any particular truck.
 The Loco. Engineer determines the weight to be carried.
 No truck is marked to carry less than 6 tons or more than 8 tons (with four wheels).
 Double trucks, with six and eight wheels, carry from 10 to 18 tons.
 The system of weighing goods, is by making every thing pass over the weigh-bridge, when the correct weight is taken ; the weight of the cart or trolley being always deducted afterwards.
 Have special instructions to always distribute the weight as equally as possible ; every allowance is made for overhanging weight, the object being that no matter how any truck may be loaded, the maximum shall not exceed the direct load marked on the truck.
 The C van, No. 128 (under which the axle broke) was loaded with sugar (all 70 lb. bags) and weighed about 6 tons, the sugar was uniformly distributed, and there was practically the same weight on each wheel.
 Of opinion the trucks would carry more weight with safety, the tendency of the department is to under-load, but when loaded by the owners of the goods, the tendency is sometimes the other way, but strict orders are always given to prevent that.
 Can give no information as to the origin of the fire.

Evidence of Mr. Baker, Examiner in Waggon and Goods Department :—

Been 16 years at this work. Has had considerable experience in examining goods rolling stock, and pays considerable attention to the axles and wheels.
 Has all to do with the making up of the goods trains ; made up the one in question.
 Has particular and special instructions regarding this train, all the trucks, cars, brake-vans, &c., are always of the best, and no car or truck is put in that train, but what has been examined and lifted within a period of two years.
 This is done because of the great speed, weight, sharpness of curves, and length of journey, which this express goods train has to contend with.
 Axles with square shoulders are bad, they almost always break short off by them, close to wheel boss ; they are the cause of all the trouble.
 Axles seldom or never break in the journals, they sometimes get hot and cut, when they are condemned ; cause of heating is the want of oil principally, takes place more in the country than about Sydney.
 A special examination consists in selecting the very best and most reliable of the rolling stock for this train, anything that is in doubtful order is never put in it.
 The system of lifting has been in force since 1881, before that no record was kept of when or where the examination and repairs were carried out ; had nothing to guide us previous to that date, only experience.
 Do not think the method of examination could be improved, could not suggest anything. Have to trust to the eye to detect any flaw, also the sound of the hammer to detect loose wheels, &c.
 No man could have seen the flaw in the axle that broke, it was not possible to tell by sounding whether any axle was sound or not.
 Vickers' steel axles are by far the best, they never break, they are the most reliable.

Evidence of Mr. Staunton, Carriage-lifter :—

Been many years at it (27 years).
 In lifting, examines axles, wheels, &c., has instructions to be very particular, any defects or flaws are always duly marked and sent into turning shop.
 All axles that have been examined and found all right, are painted in journals. This indicates they have been inspected, are sound and fit to go to work ; they are also numbered and a record kept for reference.
 Heated journals often caused by mischief—boys and evil-disposed persons ; also by neglecting to oil the boxes ; dirt, &c. If the axle-boxes are properly attended to they will give no trouble.
 Has recently received instructions that all axles made previous to 1870 are not to be used.
 Some of the axles now in use have been running over 20 years, believes there are some dating back to 1860. The first axles sent out was in 1855—they were of iron, and made hollow, having a 1½ in. hole through them made by Wright, of Birmingham.
 Is of opinion that, considering the total number of axles now in use, the number that break is very small.
 Vickers' steel axles never break, have no doubt they are by far the best.
 Brunswick steel axles are not reliable ; some parts are hard, some soft. Think the square shoulder has a good deal to do with the breaking.
 Don't think the mode of examination could be improved.
 Consider that every possible care and precaution is taken.
 Whenever the slightest defect shows in either axles or wheels they are rejected ; the order to do so came from Mr. Braid.

Evidence of Charles Selby, Examiner of Night Trains :—

Examined the train in question ; always inspect this train ; his principal duty.
 His examination takes place after the train is made up.
 Has instructions to pay particular attention to all the gear about this train.
 All the best rolling-stock is always picked out to make it up.
 Being subjected to special inspection is owing to its weight and the great speed it runs at.
 When examining the train on the 9th September, went all round and under it ; could see nothing wrong.
 No man could detect the flaw in the axle—it could not be seen.
 Considers the method of examination as good and as complete as can be made ; does not think it could be improved.

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(CABLEGRAMS, &c., RESPECTING ENGAGEMENT OF MR. E. M. G. EDDY AS CHAIRMAN OF BOARD OF.)

Ordered by the Legislative Assembly to be printed, 21 June, 1888.

Telegram from The Colonial Secretary to The Agent-General.

Sydney, 31 March, 1887.

BILL before Parliament to place railways under independent Board of management. Wish to engage able and experienced man, thoroughly acquainted with best systems of railway management, as Chairman of Board. Make full inquiries, but no agreement to be made till letter on subject has been received in May. Salary, £2,500; term, seven years.

HENRY PARKES.

The Colonial Secretary to The Agent-General.

Sir,

Colonial Secretary's Office, Sydney, 4 April, 1887.

Appended to this letter is a telegram which I sent to you on the 31st ultimo.

2. The Bill about to be submitted to Parliament creates a Board of Commissioners to manage the railways which are opened to public traffic; and this Board will have nothing to do with the construction or maintenance of railways. The Chief Commissioner will be the responsible functionary in the work of management, the other two members of the Board having no power of themselves to outvote him, even though they may dissent from his views. We therefore require for this important office not only a man of proved integrity, but one of sound capacity for the business of railway management and of good experience. It would be an additional positive qualification if he were known for tact and success in dealing with workmen.

3. It occurs to me that Sir John Fowler may probably be able to suggest some gentleman of authority in connection with the great English railways who can afford you valuable advice in your inquiries. From this side you might take into consultation Mr. Alexander Campbell as one who has a fresh knowledge of matters here, and in whose business sagacity much confidence may be placed.

4. I am sure I need not impress upon you the importance which I attach to a proper selection being made, as the success of the new system will largely depend upon the character and capacity of the officer at its head.

The salary which Parliament will be asked to approve of will be £2,500 per annum. I will write to you within a few days explaining fully the terms of engagement.

I have, &c.,

HENRY PARKES.

Telegram from The Colonial Secretary to The Acting Agent-General.

[Confidential.]

Sydney, 4 May, 1888.

RAILWAY Act just passed, by which a Board of Commissioners appointed to manage Government Railways. Term of office, seven years; only removable by Parliament (see letter 4th April, 1887). Chief Commissioner's salary, £2,500. Wish to engage thoroughly experienced man of energetic character from railway service in England. * * * * * Salary fixed by Act; prospect of increase if services satisfactory. * * * * * Inform me before finally engaging. Urgent.

HENRY PARKES.

NOTE.—The omissions represented by asterisks referred to another gentleman with whom negotiations were opened and terminated without result.

Telegram from The Acting Agent-General to The Colonial Secretary.

London, 8 May, 1888.

GIVING attention Railway Commissioner. Taking best advice before recommending.

DANIEL COOPER.

Telegram from The Acting Agent-General to The Colonial Secretary.

London, 31 May, 1888.

Most difficult to find Railway Commissioner; Allport has failed so far to name one; think I may secure Eddy, of Caledonian, at £3,000 per annum. Marindin and Allport say he is nearest your standard. Consult Speight of Victoria in confidence about Eddy, and direct me what to do.

DANIEL COOPER.

NOTE.—In consequence of the reference to Mr. Speight in preceding telegram, a letter was written to that gentleman requesting him to state anything that he might know of Mr. Eddy's railway experience, and the following letter was received in reply:—

Mr. R. Speight to The Colonial Secretary.

VICTORIAN RAILWAYS.

Dear Sir Henry,

Melbourne, 4 June, 1888.

In reply to your note of the 1st, I have no personal knowledge of the gentleman you refer to, but if it is Mr. C. W. Eddy I know he held the position of District Superintendent on the London and North-western Railway when I left home, and I have some recollection of seeing in an English railway paper that he had since taken a superior appointment on the Caledonian Railway.

I have heard him spoken favourably of in his London and North-Western position, and the fact of his transfer to the Caledonian Railway is evidence to the same effect.

Yours, &c.,

R. SPEIGHT.

Telegram from The Colonial Secretary to The Acting Agent-General.

Sydney, 5 June, 1888.

Is your Mr. Eddy the Mr. C. W. Eddy formerly District Superintendent of London and North-Western.

HENRY PARKES.

Telegram from The Acting Agent-General to The Colonial Secretary.

London, 5 June, 1888.

CONFIDENTIAL. Seen E. M. G. Eddy to-day. He was twenty years with London and North-western. Last eighteen months with Caledonian. Think he is the man you require. Under 45; open, clear countenance; six feet high; nice firm manner. Am sure he is fully qualified. Will not go for less than three thousand to commence with and promise of increase if services satisfactory. Could leave end of September. Strongly urge you appoint him.

DANIEL COOPER.

Telegram from The Colonial Secretary to The Acting Agent-General.

Sydney, 6 June, 1888.

Engage Eddy at £3,000. Question of increase must be left open in considering engagement.

HENRY PARKES.

Telegram from The Acting Agent-General to The Colonial Secretary.

London, 8 June, 1888.

EDDY has accepted Chief Commissionership at £3,000 per annum with increase if services satisfactory to Colonial Government. Can leave September next, Colonial Government to provide free passage for himself, wife, and child. Send copy of Act appointing Commissioner. I will prepare agreement.

DANIEL COOPER.

Telegram from The Colonial Secretary to The Acting Agent-General.

Sydney, 9 June, 1888.

Re Eddy.—In agreement the Colony cannot be committed to further increase of salary—must be left to justice of Government and Parliament. Passage out will be provided. Copy of Act will be sent.

HENRY PARKES.

The Acting Agent-General to The Colonial Secretary.

London, 14 June, 1888.

HAVE closed with Eddy; £3,000; increase salary left to justice of Government and Parliament. Sir Richard Moon, Chairman, and Findlay, General Manager, of London and North Western, assure me Eddy is very best man you could have selected in Great Britain.

DANIEL COOPER.

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

SALARY AND HOUSE ALLOWANCE TO TRAFFIC-INSPECTORS ROBERTS AND CRAWFORD.)

Ordered by the Legislative Assembly to be printed, 15 February, 1888.

RETURN to an *Order* of the Honorable the Legislative Assembly of New South Wales, dated 21st December, 1887, That there be laid upon the Table of this House,—

“Copies of all papers, applications, minutes, &c., in reference to salary and house allowance to Traffic-Inspectors Roberts, of Junee, and Crawford, of Goulburn.”

(Mr. Lyne.)

SCHEDULE.

No.	PAGE.
1. Minute of Traffic Auditor to Station-master, Goulburn, re rent due by Inspector Crawford, with Departmental minutes thereon. 1 February, 1879	1
2. Application from Inspector Crawford to be allowed house at Goulburn free of rent, with minutes and Return showing names of inspectors, their length of service, &c., with Commissioner's minute recommending application, and Minister's approval of same. 28 April, 1887	2
3. Letter from Inspector Roberts making application for house allowance at Junee Junction, with minute of Commissioner and <i>précis</i> of case, together with Minister's decision. 11 June, 1887	2
4. Minute of Commissioner on above case. 2 February, 1888	3
5. Letter from Inspector Crawford to Minister for Public Works. 3 February, 1888.....	3

No. 1.

Minute of The Traffic Auditor to The Station-master, Goulburn.

RENT return for December, 1879. A. Crawford, £1 1s. 8d.; please say when possession was taken and all particulars. W.S.O., 1/2/79.

Mr. Inspector Crawford took possession of the premises known as the Old Manse on the 1st December, 1878. These premises had been previously jointly occupied by Guard Sinclair at a rental of 3s. per week, (say) 13s. per calendar month, and Guards Doyle and Maloney at 4s. 4d. per month each, in all £1 1s. 8d. per calendar month. The guards gave up possession on August 31st, after which the place was repaired. Mr. Crawford informed me that he would pay the same rent as the others, but I have seen no papers in reference to the subject.—R.R.E., 3/2/79. Traffic Auditor.

Traffic Manager for papers.—W.V.R., 11/2/79. Will Commissioner please advise as to rent to be charged to Inspector Crawford for the house referred to? He now pays the same rent as was paid by the guards.—T.C. Commissioner. What rent allowance is made Mr. Crawford? If it does not exceed £50 a year he should be allowed to occupy Manse in lieu of house rent.—C.R.A.G., 8/3/79. Mr. Crawford to note Commissioner's decision of 8/3/79.—T.C., 11/3/79.

Mr. Crawford will have to pay rent at the rate of £50 per annum since the date on which he first took possession of this house. On and after 1st April rent need not be collected, as I will arrange for the house allowance to be deducted.—T.C., 4/4/79.

Papers having reference to Crawford's rent at Goulburn, please forward.—W.V.R., 12/8/79. Chief Clerk. Herewith.—15/8/79. Mr. Rowe will please note that Mr. Crawford should pay rent at the rate of £50 per annum from 1st December, 1878, to 31st March, 1879; after this date rent is not to be charged.—W.V.R., 18/8/79.

Noted. The rent, therefore, for the four months would be £16 13s. 4d. There has been taken to debit altogether £20 16s. 8d., thus making an over debit of £4 3s. 4d., which can now only be allowed by special credit.—W.V.R., 23/8/79. Traffic Auditor.

Station-master Goulburn, to note and make a special credit entry of £4 3s. 4d.—W.V.R., 25/8/79.

When my revenue book was returned from Audit Office the amount of £22 2s. 8d. was erased, and £14 10s. substituted in its place. I have only taken the latter amount to debit.—J.W., 26/8/79. Traffic Auditor. £4

498—

[817 copies—Approximate Cost of Printing (labour and material), £2 16s. 6d.]

£4 3s. 4d. was one of the credits against the schedule.—W.V.R., 27/8/79. Station-master, Goulburn.

All that I debited Mr. Crawford with in my July outstanding list was £14 10s. Will you please inform me if I shall debit him with £2 3s. 4d. this month, to bring the amount up to £16 13s. 4d.—J.W., 28/8/79. Traffic Auditor.

Of the £14 10s. outstanding, £12 is owing by Mr. Crawford, and £2 10s. by Mr. Lewton. These amounts should be paid at once. You will, as I have before informed you, require the credit of £4 3s. 4d. against the advice note.—W.V.R., 29/8/79. Station-master, Goulburn.

Noted. Mr. Lewton owes no rent; the £14 10s. outstanding is owing by Mr. Crawford.—J.W., 3/9/79. Traffic Auditor.

No. 2.

Mr. Inspector Crawford's application.

I BEG most respectfully to make the following application, that the quarters now occupied by me at Goulburn, known as the Old Manse, be granted me free of rent, and such grant to take effect from the commencement of the current year.

In support of this application I beg to draw your attention to a length of service of over 26 years to onerous and responsible duties necessitating watchfulness and constant attendance at all hours to the supervision of a large district of over 200 miles where the bulk of the traffic on the Southern Line arises, and a difficult district to work. On these grounds, I respectfully request a favourable consideration of this application.

ALEX. CRAWFORD, 28/4/87.

Would the Traffic Manager please forward this application.—A.C., 28/4/87. For the favourable consideration of the Commissioner.—W.V.R., 3/5/87.

Please place a list with this for the Commissioner's information, showing names of Inspectors S. and W., their length of service in the Department, ditto as Inspectors, and the amount of their respective salaries and allowances.—A.R. Traffic Manager.

Statement herewith.—W.V.R., 9/5/87. Commissioner.

List showing the names of Inspectors in the Traffic Department, their length of service, &c.

Name.	Date of Appointment in Department.	Date of Appointment as Inspector.	Amount of Salary and Allowance.
H. Richardson*	June, 1866	1 January, 1877	£490 per annum.
A. Crawford	May, 1862	1 ,, 1874	£440 ,,
G. J. Roberts	1 February, 1868	14 August, 1878	£440 ,,
E. Higgs	March, 1856	23 July, 1878	£440 ,,
M. A. Hornidge	„ 1868	23 ,, 1878	£440 ,,
S. J. Watson†	31 August, 1858	1 May, 1875	£200 ,,

* Appointed Coaching Superintendent on 1st July, 1883.

† Is this Mr. Watson the Telegraph Inspector? What does he get from Telegraph Department?—CH.A.G., 19/5/87. Yes. He receives £290 per annum from the Public Telegraph Department.—W.V.R., 23/5/87.

As Mr. Crawford is occupying a railway building, I think he might be allowed to do so rent free.—CH.A.G., 31/5/87.

Approved.—J.S., 7/6/87.

Traffic Manager.—A.R., 8/6/87. If this is to date from 1 January, as applied for, the amount of £20 already paid by Mr. Crawford will require to be refunded to him. I enclose voucher.—W. V. READ, 11/7/87. The Minister has approved of Mr. Crawford's application.—CH.A.G., 13/7/87. Traffic Manager. Seen. Please forward voucher for payment.—W.V.R., 16/7/87. Secretary. Pay.—D.V., 16/7/87.

No. 3.

Mr. Inspector Roberts' application.

Sir,

June Junction, 11 June, 1887.

I beg to make application for house allowance. At the present time I am occupying a house rated at £70 per annum, for which I am also paying taxes to the amount of £3 3s. per annum.

In support of this application it may be pointed out that station-masters, &c., are either provided with residences or allowed an allowance in lieu thereof, and I respectfully submit that the district traffic inspectors have equal claims to the same consideration.

I am given to understand, too, that some of the traffic inspectors are already allowed a Government house, rent free, or receive an allowance.

Under the foregoing circumstances, I think it is but fair that all should be placed on the same footing, and I trust you will give this an early and favourable consideration.

I should be quite satisfied with an allowance of £52 per annum towards my present rent, paying the balance out of my own pocket.

I am, &c.,

G. J. ROBERTS.

I enclose application from Mr. G. J. Roberts, traffic inspector, June Junction, that he be granted an allowance in lieu of a free residence, and recommend it for the Commissioner's favourable consideration.—W.V.R., 14/6/87. Commissioner.

Mr.

Mr. Inspector Crawford, living in a public building at Goulburn, was allowed to have it rent free. This concession is made a precedent for the rent of the inspectors. Mr. Roberts' application is the first, but others will follow. There are papers about the residences of the inspectors. They had an allowance at one time in lieu of quarters. This allowance was subsequently merged into the salary. They now apply for the allowance again.—CH.A.G., 13/7/87. Make *précis*.—CH.A.G., 5/8/87.

Inspector Roberts' application for rent allowance.

11/6/87.—Inspector Roberts made application for a rent allowance, stating that he was paying, in rent and taxes, £73 3s. per annum, and basing his claim upon the circumstances of station-masters obtaining such allowance when not provided with houses, and of some of the traffic inspectors occupying Government houses rent free or receiving an allowance. Traffic Manager recommended the application.

13/7/87.—Commissioner minuted that Inspector Crawford, living in a public building at Goulburn, was allowed to occupy it rent free, and that this concession was made a precedent. Mr. Roberts' application was the first, but others would follow. The traffic inspectors formerly had an allowance in lieu of quarters, but subsequently it was merged into the salary, and now they were applying for the allowance again. *Précis* to be made.

Prior to 1883, the traffic inspectors had an allowance of £50 per annum in lieu of rent, except Inspector Roberts, to whom an allowance of £75 per annum was made because he was located in a place where rents were unusually high.

In 1883, the salaries of the inspectors were increased to £400 per annum, with the express understanding that the rent was to be included in that sum.

Inspector Crawford became the tenant of the Old Manse, at Goulburn (the property of the Department), on the 1st December, 1878. The papers are mutilated and imperfect, and it is by no means clear what rent Mr. Crawford paid at the outset, but for some years prior to January, 1887, he paid 20s. a week.

28/4/87.—In April, 1887, Inspector Crawford made application to be allowed to occupy the Old Manse, at Goulburn, free of rent from the commencement of the year. On the recommendation of the Traffic Manager, the Commissioner minuted that as Mr. Crawford was occupying a railway building, he (Commissioner) thought he might be allowed to have it rent free, and Mr. Secretary Sutherland approved.

C.A.B., 13/9/87.

I do not see my way to recommend that a house allowance be made to the traffic inspectors.—CH.A.G., 16/9/87. For Minister's information.—CH.A.G., 16/9/87. Seen.—J.S., 21/9/87. Forwarded to Mr. Roberts to see. Please return early.—D.K., 23/9/87.

Seen. Permit me to point out, however, in the hope that the Commissioner will favourably reconsider his decision, that a house being provided by the Department for the inspector at Goulburn is tantamount to increasing his salary fully £50 per annum, for I assume he would otherwise have to pay such a sum annually for a dwelling. I respectfully beg to submit that this is not equitable to the other inspectors, who are not allowed such a privilege or an allowance in lieu of residence. There are 494 miles in the district under my supervision, and if there is not a very heavy traffic over any portion of it there certainly is a fluctuating traffic which necessitates almost constant care and attention to manage economically. Next February will complete my twentieth year in the service of the Railway Department.—G. ROBERTS, 29/9/87. The Traffic Manager. Commissioner. W.V.R., 4/10/87.

No. 4.

Minute of The Commissioner for Railways.

As these papers have been called for by Parliament I must write a minute of explanation in connection with the respective positions and remunerations of Messrs. Crawford and Roberts and other inspectors of traffic, which I would, in consideration of the other inspectors, gladly have avoided doing.

Mr. Crawford is the oldest eligible officer employed as inspector, and his claims for promotion in the Department have been somewhat overlooked. I wish to place on record my opinion that of all the inspectors he is the best qualified to fill the position, and I say this without wishing in any way to detract from the services of Mr. Roberts or other inspectors.

Had the cases been reversed, had Mr. Roberts occupied a Government house, and had Mr. Crawford been in Mr. Roberts' position, I could not have supported an application made by Mr. Roberts for free residence.

I do not consider that Mr. Crawford, with his free house, is paid too much, nor do I consider the other inspectors underpaid.—CH.A.G., 2/2/88.

No. 5.

Mr. Inspector Crawford to The Secretary for Public Works.

Sir,

Goulburn Station, 3 February, 1888.

In compliance with your request I most respectfully beg leave to briefly state the chief incidents in my career prior to joining the Railway Department in this Colony.

I joined the Caledonian Railway Service in 1851 as telegraph operator (then 14 years of age), remained five years as operator and booking clerk; resigned and joined the Edinburgh and Glasgow Railway Service as guard; at the expiration of 12 months was appointed station-master, filled the latter position four years prior to arriving in this Colony in May, 1862. Joined the New South Wales Railway Service immediately on arrival, so that I had 10 years railway service and one year telegraph service prior to arriving in New South Wales.

I have, &c.,

A. CRAWFORD.

1887.
(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.
(ALLEGED FRAUDS—INFORMATION RESPECTING.)

Ordered by the Legislative Assembly to be printed, 4 November, 1887.

RETURN to an *Order* of the Honorable the Legislative Assembly of New South Wales, dated 24th June, 1887, That there be laid upon the Table of this House, Returns showing,—

- “ (1.) The estimated total loss, without interest, sustained by the Railway Department through the alleged illegal practices of the forwarding agents, under which they paid the said Department less than the rates for trainage set forth in the published table of rates.
“ (2.) Until what date in the past has an investigation been made, with a view to ascertain when the alleged illegal practices of the forwarding agents commenced.
“ (3.) The estimated loss to the Railway Department through the alleged illegal practices of the forwarding agents during the twelve months ending 30th April, 1886.
“ (4.) The estimated increase to the revenue of the Railway Department through the termination of the alleged illegal practices of the forwarding agents for the twelve months ending 30th April, 1887, or from time (giving date) when the alleged illegal practices ceased till the 30th April, 1887.”

(Mr. Walker.)

REPLIES.

- (1.) The loss sustained by the Department is estimated at £25,000.
(2.) The autumn of 1878.
(3.) Estimated at £3,500 to £4,000.
(4.) From the time when the alleged illegal practices ceased, viz., beginning of 1886 to 30th April, 1887, it is estimated that the increase in the revenue consequent upon the stoppage of the improper practices will be equal to the amount of loss resulting from those irregularities as furnished in reply to question No. 3.

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(DISMISSAL AND REINSTATEMENT OF ENGINE-DRIVER DANIEL CORKERY—REPORTS, &c.)

Ordered by the Legislative Assembly to be printed, 28 February, 1888.

RETURN to an *Order* of the Honorable the Legislative Assembly of New South Wales, dated 15th November, 1887, That there be laid upon the Table of this House,—

“Copies of all reports, letters, papers, &c., in connection with the suspension, dismissal, and reinstatement of Daniel Corkery, Engine-Driver, in the “Railway Department.”

(Mr. Lyne.)

SCHEDULE.

NO.	PAGE.
1. Report by Driver Corkery against Driver Harmond ; inquiry, and dismissal of Corkery. 9 February, 1886	1
2. Application by Corkery for half-pay during absence from duty. 15 March, 1886	5
3. Letter from Mr. Williamson, M.P., to Secretary for Public Works, asking for further inquiry into Corkery's case. 22 March, 1886	5
4. Minute by Secretary for Public Works, asking for copy of depositions in Police Court case, Corkery v. Harmond ; with copy of same. 5 July, 1886.	5
5. Letter from Corkery to Dr. Renwick, M.P. ; minute by Minister ; <i>précis</i> of case, and Minister's minute, authorizing Corkery's reinstatement. 23 August, 1886.	8
6. Application by Corkery for half-pay during suspension, and reply. 17 January, 1887.....	9

No. 1.

Report by Driver Corkery against Driver Harmond.

MEMO. to Mr. Cobb,—

I went down Darling Harbour about 2 p.m., and when I was passing engine No. 40 the driver of that engine called me a ——— liar, a scoundrel, and a dog. I gave him no cause to abuse me. At about 2:30 p.m. Harmond came to where I was shunting on No. 1 main line, and he called me the same names over again, and he then challenged me to come off the engine. I told Harmond to go away. Harmond went away, but he came back again with an iron bolt in his hand, and as I was drawing a train down the main line he struck me with the iron bolt, after which he threw the bolt at me. When I was struck with the bolt I almost fell from the engine. Harmond was the worse of drink at the time. It was an axle-box keep-bolt that Harmond struck me with. I have had to leave off work owing to the pain in my back where I was struck with the bolt.

D. CORKERY, 9/2/86.

This is a serious charge, made by one driver against another, and as reference has been made to several of the Traffic Branch, I suggest that the usual joint inquiry be made.—J.C., 10/2/86. Locomotive Engineer.

Mr.

545—A

[817 copies—Approximate Cost of Printing (labour and material), £7 2s. 0d.]

Mr. J. Cobb,—

Sir,

As it has been reported that Driver Harmond was under the influence of liquor while on duty yesterday evening, I think it my duty to state that I spoke to him about 5 p.m., and I saw nothing about him from his ordinary manner, and I feel quite satisfied that he was perfectly sober.

9 February, 1886.

P. MULHOLLAND.

Sir,

Driver Corkery accuses Driver Harmond with being under the influence of drink when on duty shunting at Darling Harbour yesterday. Harmond states that you can prove he was perfectly sober. Please let me have the particulars.

Mr. Paul.

9 February, 1886.

J. COBB.

My report duly sent to Traffic Manager, and immediately Corkery came and made the complaint to me I said, "I will come and see Harmond," but Corkery said he was gone to Redfern for water and coal so I said, "I will see him as soon as he comes back," which I did. I questioned the head shunter in charge of the engine and he said he did not see any sign of drink on him, so I called Harmond off the engine. He got down and walked to me quite right and made his statement. I can say he was certainly not under the influence of drink. In fact your men at Redfern would not have let him come down with the engine had he been drunk. Corkery showed me an iron bolt which Harmond, he says, struck him with, but when I questioned the head shunter he said he never saw him do such a thing, and Harmond said he did not do so.

I must say that during the past eight months Harmond has done our work better than any driver we ever had here. I feel it my duty to mention this because during the unprecedented wool season we had and the busy time, he worked harder than any engine-driver we have ever had, and I do not know what we should have done had he been as slow as Corkery. If he had we should have had to come to a stand still, and during all that time I never saw the slightest sign of drink on him.

Mr. Cobb.

CHAS. PAUL, 9/2/86.

THIS is to certify that Mr. Corkery is suffering from an injury to his back, which hinders his attending to his usual business.

8 February, 1886.

M. LONG, M.D.

WITH reference to Driver Corkery's statement *re* me assaulting him on the 8th inst. at Darling Harbour, I beg most respectfully to state: I was shunting at Darling Harbour at about 2 p.m. yesterday, 8th inst., and when Driver Corkery was passing with his engine I called out, "How are you getting on Dan?" Corkery then made a lunar at me by placing his hands to his nose. I did not use any abusive language to Corkery whatever. Nothing else occurred between Corkery and I yesterday, and his statement is utterly untrue from beginning to end. I was not under the influence of drink. I did not strike Corkery with the iron bolt; in fact I never saw the iron bolt which Corkery says I struck him with until it was shown to me this morning by Mr. Cobb. I did not get off my engine yesterday to go for drink nor was any intoxicating drink brought to my engine. I may state that on Saturday, the 6th inst., Driver Corkery and myself had a slight altercation in consequence of Driver Corkery saying he had seen me the worse for drink.

9 February, 1886.

W. HARMOND.

I was firing for Driver Harmond yesterday, the 8th inst. I did not see Driver Harmond strike Driver Corkery with an iron bolt. If he had done so at the time stated I must have seen the result. I have heard Driver Harmond's statement read, and I certify that it is a true statement.

9 February, 1886.

A. RANKIN.

IN answer to your request, I beg to state that I saw Driver Harmond at a distance when he was going out of the running shed on his engine for Darling Harbour at 4.45 p.m. and he appeared to be perfectly sober.

9 February, 1886.

Mr. J. Cobb.

E. HARRISON.

Sir,

I have been requested to state what I both saw and heard on the 8th of the present month, at Darling Harbour, in respect to the assault committed by Driver W. Harmond on Driver D. Corkery. The facts of the case are these:—When we arrived at Darling Harbour, engine No. 40 was standing on the back shed road or siding, received a signal to proceed ahead, which signal I passed to my mate, we went from the up main line to the outside road or siding, and brought a train down for the purpose of shunting it, and while drawing it down I saw Driver Harmond on his engine for the first time, he having previously been off of it, and he began to call out, you —— dog; you —— mean tinker; you are no —— man at all; you —— liar; I will meet you at night you —— mean scoundrel. Driver Corkery never answered a single word in response to this kind of behaviour. Driver Corkery still going on with his work taking no notice whatever when Driver Harmond began the same insulting remarks as he had previously used. This time he was alongside of engine No. 193, and off his engine. He challenged Corkery down off of his engine to fight, which was not acceded to. Driver Corkery asked Harmond did he think he was sober at the time, and he (Harmond) said, "I am more sober than you are." Here we left one another till we had put the required amount of trucks on to the train for Sydney or elsewhere. There were some waggons loaded with hay or wool. We had to back them up the up main line, so as to be able to get the trucks clear of the siding points. I received a stop signal to stop, which was done. I received a hit up signal backwards, which was also done, and while stopping or holding the remainder of the train on. I saw Driver Harmond pick up a bolt of iron or box-keeper belonging to a truck, he passed through between where the waggons were cut off, and then came up to Driver Corkery, and started to curse and swear as he had done before; the train was in motion at this time, and as the weight was taking us along, Driver Harmond deliberately hit Driver Corkery in the back with this iron; I saw this myself, and

10 February, 1886.

and then threw it at him, which if it had struck him, must have caused serious injury besides the one already inflicted. To the best of my belief Driver Harmond was far from being sober at the time, or else he would never have said or done what he did do, and then when he returned from his dinner he put or extended his hands to his nose, and pooh-poohed at Corkery. Driver Corkery gave no provocation whatever to curse.

Mr. Cobb.

I remain, &c.,

W. G. PERIGO.

The Traffic Manager,—

11 February, 1886.

The following is an extract from a report received from Driver D. Corkery, engine No. 193, shunting at Darling Harbour on the 8th instant, and is forwarded for information :—

"I went down Darling Harbour about 2 p.m., and when passing engine No. 40, the driver of that engine (W. Harmond), called me a ——— liar, a scoundrel, and a dog; I gave him no cause to abuse me; at about 2:30 p.m. Harmond came to where I was shunting on No. 1 main line, and called me the same names over again, and he challenged me to come off the engine; I told him to go away; Harmond went away, but came back again with an iron bolt in his hand, and as I was drawing a train down the main line, he struck me with the bolt, and afterwards threw it at me; when I was struck with the bolt I almost fell from the engine; Harmond was the worse for drink at the time; it was an axle-box keep bolt that he struck me with; I have had to leave off work owing to the pain in my back, where I was struck with the bolt." Driver Corkery's fireman, Perigo, corroborates the foregoing statements.

Driver W. Harmond states: "I was shunting at Darling Harbour at about 2 p.m. on the 8th instant, and when Driver Corkery was passing with his engine, I called out, "How are you getting on Dan?" Corkery then made a lunar at me by placing his hands to his nose; I did not use any abusive language to him whatever; nothing else occurred between Corkery and myself on the 8th instant, and his statement is utterly untrue from beginning to end; I was not under the influence of drink; I did not strike him with the iron bolt which he says I struck him with, until it was shown to me this morning (the 9th instant) by Mr. Cobb; I did not get off my engine for drink, nor was there any intoxicating drink brought to my engine;" I may state that on the 6th instant Driver Corkery and myself had a slight altercation in consequence of him having said that he had seen me the worse for drink."

A. Rankin, firing for Harmond on the 8th instant, states: "That he has heard Harmond's report read, and can certify that it is a true statement."

Mr. Paul, Station-master at Darling Harbour, says: "That I called Driver Harmond off his engine shortly after the occurrence, and can certainly state that he was perfectly sober; I also questioned the head shunter, and he says that he never saw Harmond strike Corkery, and further substantiates Driver Harmond's statement."

Shed-Inspector E. Harrison and P. Mulholland also state that they saw Driver Harmond on the evening of the 8th instant, and he was then perfectly sober."

I shall be glad if you appoint one of your officers to inquire into the matter with Mr. Cobb.

W. SCOTT.

This is a matter in which the traffic men are not concerned, and it hardly seems necessary to hold a joint inquiry, but if Mr. Scott wishes one of the traffic officers to assist Mr. Cobb in investigating the matter, I will request Mr. Richardson to do so, and I have instructed him accordingly.—W. V. READ.—19/2/86.

To Mr. Cobb,—

27 February, 1886.

Sir,

I beg to report for your information that, on the 18th inst., Driver Daniel Corkery summoned me to appear at the Central Police Court upon a charge of assault.

The case was heard on the 25th instant, and the decision of the Court was "Case dismissed, with costs in my favour."

I have, &c.,

W. HARMOND.

In accordance with instructions contained on T.W.'s M.P. a572, and Locomotive Engineers 86-1,949, I held an inquiry, in conjunction with Mr. Cobb, at Mr. Cobb's office, this day, into the case of Driver Corkery and Driver Harmond, for being on duty in a state of liquor on 8th February last. Corkery and his fireman were examined, and adhered to their former statements, viz., that Harmond was not sober, and that he (Harmond) had assaulted Corkery. The case of assault was tried at the Central Police Court and dismissed, Corkery having to pay costs. In connection with the other charge, Harmond gives a positive denial to it, and states he had not tasted intoxicating liquor of any sort for some days previous to the 8th February, and that with the exception of the time he was off for breakfast on the day in question, he had not left his engine. He returned from breakfast at 9:30 a.m., and it was after 2 p.m. when Corkery charges him with not being sober. Fireman Rankin, a total abstainer and a non-smoker, is positive Harmond had not had any drink on the day in question; and during the four months he had been with him had always found him a very steady and sober man. Mr. Paul, the station-master at Darling Harbour, was also examined, and he says that there was not the slightest trace of drink on Harmond on the day in question, and although he had Harmond in the yard all through the late very busy wool season, and had actually been on the engine with him at day and night, had never seen the slightest trace of drink on him, and he considered him the best driver he had ever had in the yard. Head-shunter Rohan and Shunter Court also say that Harmond was sober at the time referred to. I can come to no other conclusion than that Corkery's report against Harmond is untrue, as such men as Mr. Paul and Fireman Rankin—both total abstainers—would be the first to detect the smell of drink, or notice the manner of Harmond, if he had been any way under the influence of it. The Police Magistrate must also have discredited Corkery's statement *re* the assault, to have given the decision he did, and, in the face of such decisions, I must draw attention to the danger of having such men in the Service as Corkery and his mate as would bring such unfounded charges against fellow employes.

I do not know what conclusions Mr. Cobb may have come to, but I send these papers forward to him to express his opinion as to the guilt or otherwise of Harmond.

H. RICHARDSON, 10/3/86.

Daniel Corkery, engine-driver, states: I have heard my report, marked A, read over. It is correct in every particular.

D. CORKERY, 10/3/86.

(A.)

(A.)

Driver William Harmond struck me in the small of the back with an axle-box keep-bolt, at 2:40 p.m.; at 2 p.m. I arrived at Darling Harbour, and as I passed by engine No. 40, Driver William Harmond called me a ——— liar, a ——— scoundrel, and a ——— dog; I gave him no cause to do so; at about 2:30 p.m. he came up to my engine, which I was shunting on No. 1 main line; he called me the same names over again, and challenged me to get off the engine; I told him to go away or I would put him where I would find him; he went away, and came back again with a bolt of iron in his hand, and struck me with it as I was sitting on the handrail of the engine and drawing a train down No. 1 main line; he then threw it at me, after hitting me with it; when he hit me with it I nearly fell back off the engine; I was going at a speed of about 4 miles an hour at the time, and if I fell I would have been killed; the man Driver Harmond was the worse for liquor at the time; he was not sober; I asked head-shunter Rohan to come with me to see the state Driver Harmond was in; he said it was no use making a bother about it, that he would be going away presently; I asked him where Mr. Paul or Mr. Conley were; he said that they were not there; that was at 2:45 p.m., and he, Driver Harmond, left Darling Harbour at 2:50 p.m. and came back at 5:10 p.m.; I spoke to Mr. Paul about it; I am now obliged to leave off work through the pain in my back; I have put the bolt in the office for inspection.

H. Court: Am shunter at Darling Harbour, and was employed on 8th February last; commenced duty at 2 p.m.; Corkery came on duty with his engine at same time, 2 p.m., and Harmond left Darling Harbour for Sydney in about half an hour after, and during this time I was employed with Corkery's engine, and if Harmond had called out or used any language towards Corkery I think I must have heard it; I did not see Harmond leave his engine or come near Corkery; I did not have any conversation with Harmond between 2 and 3 p.m., and cannot speak as to his condition at that time, but after 5 p.m. I spoke to him, and he was then, in my opinion, perfectly sober; Harmond has been shunting at Darling Harbour for some months, and I have always found him to be a sober man.

By Corkery: When you stopped your train to complain of Harmond striking you I was riding on a truck about two or three lengths from your engine, on same side of train as Harmond's engine; Rohan was riding on same side of train so far as I can remember when you spoke to him; you asked Rohan to come through, as you were in danger of your life; you demanded Rohan to come through; a few words passed between Rohan and yourself before he went through; I don't know what Rohan said to you; I think you had more than a dozen trucks on your train.

H. COURT, 10/3/86.

P. Rohan: I am head shunter at Darling Harbour, and was so employed on the 8th February last, commencing at 2 p.m., when Harmond was driving until a few minutes past 2; during the time Harmond was on duty with me I considered him perfectly sober, and nothing unusual in his manner; I heard no words made use of by Harmond towards Corkery; Corkery complained to me about Harmond striking him, but I saw nothing of the affair, although I rode past on Corkery's train, about 10 lengths from his engine.

P. ROHAN, 10/3/86.

A. Rankin: I am a fireman, and was so employed on Harmond's engine at Darling Harbour on 8th February last; I have heard Corkery's charge against Harmond of calling him a ——— scoundrel, a ——— liar, and a ——— dog, and also accusing him of being under the influence of liquor at the time; the charge is untrue; if such words had been used I must have heard them; he was not under the influence of liquor at the time; he had no drink of any kind (*i.e.* intoxicating) on the engine, and he never left the engine from breakfast-time; if any liquor had been about I should have seen it; I am a teetotaller myself; I neither drink nor smoke; I have been nearly four months with Harmond, and always found him sober, and never saw him under the influence of liquor.

A. RANKIN, 10/3/86.

C. Paul: I am station-master at Darling Harbour; I recollect the 8th of February last, when a report was made *re* conduct of Driver Harmond; shortly after dinner-time, between 2 and 3 p.m., Corkery came to my office and stated he was in danger of his life, as Driver Harmond had struck him with a bolt, and that he (Harmond) was in a state of liquor; I said, "I will come at once and see him"; Corkery said Harmond had then left the yard, and I told him to let me know when he returned; shortly before 5 p.m. Corkery reported that Harmond had returned; I then went towards the engine and met Shunter Rohan, and told him Harmond was reported as not being sober; Rohan remarked, "I know nothing about that, but he is able to do his work well, and you had better come and see him yourself"; I called Harmond from his engine, and he came to me; I saw nothing in his manner to substantiate Corkery's report; he appeared to be excited, however, and on my remarking it to him he said Corkery had challenged him with having assaulted him, and that had excited him; I did not smell any drink on him, and I consider I am able very quickly to detect any one under influence of liquor, and had Harmond been so affected I must have detected it; Harmond has been nearly nine months driving at Darling Harbour, and through the busy wool season I have been on his engine at all hours of day and night, and I have never noticed the slightest effect of drink on him; in fact I consider him the best driver I have ever had at Darling Harbour.

C. PAUL, 10/3/86.

G. Perigo: I am fireman, and was employed in such capacity on Driver Corkery's engine on 8th February last; I have heard Driver Corkery's statement read, and it is correct. [*Marked A attached.*] I am quite positive Harmond made use of the language complained of, and was on this account I considered him under the influence of liquor; I do not think he would have said what he did, or acted as he did, had he been sober.

In reply to Harmond: I did not see Corkery making grimaces at you; I did not see him hold up his tea can and say, "Will you have a drink of beer"? I did not have any conversation with you at the time in question.

G. PERIGO, 10/3/86.

W. Harmond: I am an engine-driver; I have heard Driver Corkery's report of 8th July read, and in reply have to say it is incorrect; on the day in question I came on duty at 5:30 a.m., and was employed up to 2:30 p.m., at Darling Harbour shunting; at about 8:15 a.m. I was relieved for breakfast for one hour, and resumed work at or about 9:30 a.m., and from this time up to the time Corkery arrived (about 2 p.m.) I was continuously employed, and never left my engine; I had not tasted a drop of any sort of intoxicating drink of any kind on that day, or any day previous, *i.e.*, for some three or four days previous to the 8th February; I did not go near Corkery, neither did he come near me on the day in question; I do not consider he was in a position to judge of my condition.

W. HARMOND, 10/3/87.

I HAVE given every attention to this matter, and at the joint inquiry held yesterday Driver Corkery was allowed to call and cross-examine any witnesses he thought proper. Both he and his fireman Perigo seemed to exhibit a most vindictive feeling against Driver Harmond. In my opinion, Corkery has utterly failed to prove the charge he made of insobriety against Harmond. The other case of assault having already been decided against Corkery at the Police Court, I must say that I quite coincide with Mr. Richardson's minute. I also consider that such men as Corkery and his fireman Perigo (who backed him up in all his untruthful statements) should not be allowed to remain in the Service. I may state that after the inquiry was finished, I called Corkery's attention to the fact that since receiving the doctor's certificate of 8th February he had not been near me to offer any explanation as to his absence, as I had seen him several times about the streets; and moreover, it had been reported to me that he was most active as a canvasser at the late election at Redfern. He admitted this, but stated that he was still suffering from the effects of the assault committed on him by Harmond, and sent the attached certificate to-day.

J.C., 11/3/86.

As

As both Corkery and his fireman Perigo have previously been adjudged as guilty of untruthfulness by the Commissioner, I consider their statements in the face of the rebutting testimony unworthy of credence, and in view of the serious consequences following on such conduct, I consider they should be dismissed the Service. However, as their previous conduct has received the Commissioner's consideration I submit the case for his decision.
The Commissioner.

W. SCOTT, 12/3/86.

Minute of the Commissioner.

THE assault case has been dealt with by the Police Magistrate; with that, therefore, I shall not interfere. I have to meet a case of an untruthful charge of drunkenness brought by one driver against another, supported by the testimony of his fireman. If the charge could not have been disproved, as it seems to me it clearly was, Harmond would have been dismissed. I must consider that the most detestable malice has been shown by Driver Corkery in urging the false charge, and I approve of Mr. Scott's recommendation that Corkery and his fireman be dismissed.

CH. A.G., 15/3/86.

Locomotive Engineer.

Driver D. Corkery and fireman W. Perigo informed.—J.C., 18/3/86.

10 March, 1886.

MR. CORKERY is still suffering from the blow he received some weeks ago, and is unable to attend to his business.

M. LONG, M.D.

No. 2.

Engine-Driver Corkery to Mr. Loco. Foreman Cobb.

Sir,

15 March, 1886.

I beg to apply for half-pay for the time I have been off duty. I am still suffering and unable to work from the effects of the blow I received from Driver W. Harmond at Darling Harbour while on duty on the 8th February, 1886.

I am, &c.,

D. CORKERY,

Engine-driver.

Mr. John Cobb, Locomotive Foreman.

Please see previous papers. I cannot recommend Corkery's application.—J.C., 15/3/87. Locomotive Engineer. This claim cannot be entertained.—W. SCOTT. Mr. Cobb, 15/3/86. Corkery informed.—J.C., 18/3/86. Locomotive Engineer.

No. 3.

T. Williamson, Esq., M.P., to The Secretary for Public Works.

Dear Mr. Lyne,

Annexed you will find a memo.* from Mr. Goodchap *re* Mr. Corkery. Would you kindly send for the papers, and in the meantime I will forward depositions taken in the case, which will enable you to see if this man should be dismissed.

*Copy of Commissioner's decision, 15/3/86.

THOS. WILLIAMSON.

What are the particulars in this case?—W.J.L., 23/3/86. Papers herewith.—W.S., 27/3/86. The Commissioner. For Minister's information.—CH. A.G., 1/4/86. Seen by Minister, who, however, made at the time, no comment, but said he would consider matter.—CH. A.G., 1/4/86.

No. 4.

Minute by The Secretary for Public Works.

Corkery *v.* Harmond.

I SHALL be glad if a copy of the depositions are obtained in this case. They can be procured at the Central Police Office. Then resubmit, with these papers.

W.J.L., 5/7/86.

Locomotive Engineer. D. C. M'L., 5/7/86.

Sir,

9 July, 1886.

The Minister for Works has requested to be furnished with a copy of the depositions taken at the Central Police Court on 25th February last in the case of Daniel Corkery *v.* W. Harmond, in which the former summoned the latter for assault. I am directed to obtain a copy of same. Could you kindly supply me with this and oblige.

Yours, &c.

W. D. NEWMAN.

Officer-in-charge of Central Police Court.

It is necessary that you apply to the Department of Justice for copy of the depositions in the case mentioned.—C.D.E.L., 9/7/86. Wrote 10/7/86. No reply received up to date.—J.C., 22/7/86. Locomotive Engineer.

Sir,

Sir,

Department of Railways, 23 July, 1886.

I have the honor to ask that you will be good enough to furnish me at your earliest convenience with a copy of the depositions taken at the Central Police Court, on the 25th February last, in the case of Daniel Corkery v. Wm. Harmond for assault.

I have, &c.,

CH. A. GOODCHAP,

The Under Secretary, Department of Justice, Sydney.

Commissioner for Railways.

Sir,

Department of Justice, 3 August, 1886.

Referring to your letter of the 23rd ultimo, in which you apply for a copy of the depositions in the case of Corkery v. Harmond, I am directed by the Minister of Justice to inform you that a copy of the depositions in the above case was forwarded to Mr. John Cobb, of the Locomotive Department, in reply to his request of the 10th ultimo.

I have, &c.,

H. E. PLUNKETT,

C. A. Goodchap, Esq., Commissioner for Railways.

Under Secretary.

Information.—General Purposes.

New South Wales to wit.

BE it remembered that, on this 13th day of February, in the year of our Lord 1886, at Sydney, in the Colony of New South Wales, Daniel Corkery, of Sydney, appears before me, the undersigned, one of Her Majesty's Justices duly assigned to keep the peace of our lady the Queen in and for the Colony of New South Wales, and informs me that, on the 8th day of February, in the year of our Lord 1886, at Sydney aforesaid, William Harmond did unlawfully assault this informant contrary to the Act in such case made and provided, whereupon the said Daniel Corkery prays that I, the said Justice, will proceed in the premises according to law.

DANIEL CORKERY.

Sworn at Sydney, in the said Colony, on the day first above written, before me,—

W. R. STEWART, Justice of the Peace.

Summons.

To William Harmond, of Sydney, in the Colony of New South Wales: Whereas information hath this day been laid before the undersigned, one of Her Majesty's Justices of the Peace in and for the said Colony of New South Wales, for that you did, on the 8th day of February instant, at Sydney aforesaid, unlawfully assault Daniel Corkery: These are therefore to command you, in Her Majesty's name, to be and appear on Thursday, the 25th day of February instant, at 10 of the clock in the forenoon, at the Central Police Office, Sydney, in the said Colony, before such Justice or Justices of the Peace for the said Colony as may then be there to answer to the said information and to be further dealt with according to law.

Given under my hand and seal this 13th day of February, in the year of our Lord 1886, at Sydney, in the said Colony.

W. R. STEWART, J.P.

Daniel Corkery, on oath, states:—I am complainant in this case; the information just read is true, and the defendant is the person alluded to; I am an engine-driver, and so is defendant, both in the Government service; I went to Darling Harbour about 2 o'clock on the 8th instant; I stopped at the home signal; I then got a signal to go to a siding; Driver Harmond was then in truck in a shed off his engine; he began making faces at me; he was 20 yards away from me; I brought a train out from a siding; when I came down he was on his engine on No. 2 line; I was on No. 1 main line; as I passed him he called me a —— dog and a —— scoundrel; he was the worse of liquor; he afterwards got off his engine and came to my engine; he challenged me to fight; I then got a signal to go back, and went; when I came back Harmond was standing with a bolt in his hand; I was sitting on my engine; he then raised his bolt and said, "You ——, I'll do for you"; he then struck me on the hip bone and flung the bolt at me; he did not strike me a second time; I can't work since; I have been under Dr. Long since; I have not been able to do my duty; I never had any illfeeling against the man, and know of no cause for his striking me.

Mr. Bull: I have never shook my hand in defendant's face; I told men about his drinking; I have never been fined but once in the Department for not taking a signal; Harmond had no provocation; I never gave him any cause; I swear he got off his engine; I can't say how far he was away; I asked several persons to look at my back after the assault; Mr. Rohan looked at my back; I will not swear that they did not tell me there was no mark; I have been laid up with pleurisy and sunstroke; Mr. Cobb refused to let me have a bolt; I put in a report and handed the bolt the assault was committed with; it is 6 feet between the lines; my fireman was along side of me.

DANIEL CORKERY.

Sworn at Sydney, this 25th day of February, 1886, before me,—

A. MONEY FISHER, D.S.M.

Mark Henry Long, on oath, states:—I am a duly qualified medical practitioner; I know the plaintiff, and saw him on the 8th February; I examined him and found no marks, but found excessively tender circumscribed spot near the spine; I prescribed for him; I saw him next day, and once or twice since, altogether three or four times; I had attended him previously.

Mr. Bull: A blow would cause such a soreness as plaintiff complained of? A blow with a stone would cause it; I had attended him for bronchitis previously.

MARK LONG.

Sworn at Sydney, this 25th February, 1886, before me,—

A. MONEY FISHER, D.S.M.

William

William George Perrigo, on oath, states:—I am a fireman on the Government Railway; I recollect the 8th of this month; I was present when Harmond was there between 2 and 3 o'clock; he was, in my opinion, under the influence of liquor; we went down to relieve him; I saw Harmond strike Corkery with a bolt; it was similar to the bolt produced; he struck him on the small of the back; Corkery was on his engine; I did not see the bolt thrown; Corkery gave him no provocation; I saw Harmond pick up the bolt from the ground before he struck Corkery; there was no one else present.

Mr. Bull: The engine was about 150 feet away from our engine; Corkery gave no provocation; I did not report; I was not fined 1s. a day for lying.

W. G. PERRIGO.

Sworn at Sydney, this 25th day of February, 1886, before,—
A. MONEY FISHER, D.S.M.

Charles Paul, on oath, states:—I am station-master at Darling Harbour; I recollect the 8th February; Corkery came to me and made a complaint about 3 o'clock; I went at once to see Harmond, but he had gone to Sydney.

Mr. Bull: When Harmond came back, about an hour afterwards, I went to see Harmond; when I saw him he walked straight and denied the charge; I must say Harmond was not drunk; he went to Redfern and came back; he has been principal shunter for eight months at Darling Harbour; I have never seen a sign of drink on Corkery.

CHARLES PAUL.

Sworn at Sydney, this 25th February, 1886, before—
A. MONEY FISHER, D.S.M.

DEFENCE.

Andrew Rankin, on oath, states:—I am defendant's fireman, and was with him on 8th February, in the afternoon; I know Corkery; Harmond was not off his engine between 2 and 3 o'clock; I saw Corkery four or five times; he passed by us; Harmond said to Corkery, "Hallo Dan"; Corkery made faces; Harmond said nothing; defendant could not have got off the engine and struck Corkery without my knowledge; if Corkery swears Harmond struck him he says what is not true; it never occurred; I was with him all day; I have been three months with him; Harmond was not in liquor; Harmond had nothing to drink all day; we had meals together on the engine; Harmond had tea; I made it; I swear he never was off his engine.

Mr. Gannon: I first heard of the assault on the 8th; Rohan, the shunter, told me that Corkery was in danger of his life, he had been struck with an iron bar; I have been talking to Harmond several times about the case; I swear Harmond was not off his engine that afternoon; Rohan told me something about throwing a bolt; I never saw Harmond throw anything; if Harmond got off his engine he could have struck him; Harmond got the summons last Thursday; I have talked about the matter to Harmond.

A. RANKIN.

Sworn at Sydney, this 25th February, 1886, before,—
A. MONEY FISHER, D.S.M.

Patrick Rohan, on oath, states:—I am a shunter on the railway at Darling Harbour; I remember 8th February; I was in Darling Harbour; I saw the plaintiff and defendant there; complainant was on his engine, standing on the line; Corkery was drawing a train out; when he passed about 200 yards I gave him a stop signal after passing Harmond's engine; I did not see him again; I had Corkery in sight until he came and said he was struck with a bar of iron; he had no iron with him; he begged me to come over, and said he was in danger of his life, and he complained about Harmond; Perrigo got the bolt; it was near the tender of his engine, this is, 250 yards from where Harmond was; I don't think Harmond could have struck Corkery without my knowing it.

Mr. Gannon: I did not express surprise that he accused Harmond; Perrigo picked up the bolt and said "That is the bolt;" I never contradicted Corkery; I lost sight of Harmond for a few minutes. I will not swear that Corkery was not struck; I don't think it possible for Harmond to have struck him; Harmond was sober; Harmond may have been off his engine.

PATRICK ROHAN.

Sworn at Sydney, this 25th February, 1886, before,—
A. MONEY FISHER, D.S.M.

Henry Court, on oath, states:—I am a shunter at the Darling Harbour Railway; I remember the 8th February; I know the complainant and defendant; Harmond was sober; Corkery and I went to pull a train down; I went to the points; I noticed nothing until I got down, and Corkery said he was in danger of his life; he said he had been struck; I was 200 yards away when the train was pulled up; the defendant could not have struck plaintiff without my seeing it; Harmond was sitting on his engine; I gave Harmond a signal; he answered; Corkery said he was struck with a piece of iron; I was on the fireman's side; I was between the two engines; if Perrigo and Corkery swear that Harmond struck him it may be true.

H. COURT.

Sworn before me, 25th February, 1886, at Sydney,—
A. MONEY FISHER, D.S.M.

John Ausburn, on oath, states:—I am a shunter on the railway; I know complainant and defendant, and saw them on the 8th February, all the time between 2 and 3 o'clock; I saw no one strike Corkery; I did not see him all the time I went on duty; I saw Harmond on his engine; Corkery told us he was struck; Harmond was on his engine all the time; the bolt was found near Corkery's tender.

Mr. Gannon: About 10 minutes past 2 Corkery said he was hit; they picked up a bolt similar to the one produced; if Perrigo and Corkery swear that Harmond was off his engine and struck Corkery it is untrue; I have had no conversation about this case.

J. F. AUSBURN.

Sworn before me, this 25th February, 1886, at Sydney,—
A. MONEY FISHER, D.S.M.

William

William Harmond, on oath, states :—I am an engine-driver ; I remember 8th February, and know complainant ; I have heard his evidence ; I swear I never struck him with anything on the 8th February ; I have heard what Corkery says about my being drunk ; I never tasted intoxicating liquor on the 8th instant ; there is no truth in Corkery's accusation ; he reported me to Mr. Paul, and when I came back I heard of it.

Mr. Gannon : Mr. Cobb sent for me, and showed me a bolt like that next day ; on Saturday Corkery threatened to report me for being drunk.

W. HARMOND.

Sworn before me, this 25th February, 1886, at Sydney,—

A. MONEY FISHER, D.S.M.

Dismissed—Professional costs, £1 1s.

A. MONEY FISHER, D.S.M.

Sydney, 25th February, 1886.

No. 5.

D. Corkery to The Minister of Public Instruction.

Dear Sir,

23 August, 1886.

I have the honor to ask you for the last time, as a representative of the Redfern electorate to kindly assist me in obtaining an interview with the Hon. W. J. Lyne, Secretary of Works, with reference to my case. I have not had an interview with that gentleman since the 15th April last, which was then granted to me on personal application. By granting this request you will confer a great favour on me.

I have, &c.,

D. CORKERY.

How does Corkery's matter stand. He is very persistent, and I should like to see his case early.—
W.J.L., 25/8/86. *Précis* herewith.—C.A.B., 27/8/86.

Prosecution of W. Harmond by Daniel Corkery for assault.

On the 8th February, 1886, engine-driver Daniel Corkery reported to the Loco. Engineer that Driver W. Harmond that day, after using foul and abusive language to him, had struck him with an iron bar, and then thrown the bar at him ; that he (Corkery) had had to leave off work in consequence of the pain he suffered where he was struck ; and that Harmond was the worse for drink at the time.

Loco. Engineer sent a copy of this report to the Traffic Manager, stating that the allegation was confirmed by Corkery's fireman, W. Perigo, but was altogether denied by Harmond, who asserted that he did not strike Corkery, and never even saw the bolt or bar until it was subsequently shown to him by Mr. Cobb, and he was not in liquor ; that Harmond's fireman certified to the truth of this denial ; that Mr. Paul testified that he called Harmond off the engine shortly after the alleged occurrence and found him perfectly sober, and that this was confirmed by Shed Inspector Harrison and Mulholland.

Would Mr. Read appoint an officer to conduct an inquiry ?

In the meantime Corkery prosecuted Harmond in the Police Court for the alleged assault. At the hearing of the case Corkery deposed to the same effect as already set forth, stating that at the time of the assault Harmond had got off his engine and was standing between the lines with the bolt in his hand. Had asked several persons to examine his back, but would not swear that they had not told him they could see no mark.

Mr. M. H. Long, surgeon, examined Corkery. Found no marks, but there was an excessively tender circumscribed spot near the spine, such as might have been caused by a blow.

W. G. Perigo, Corkery's fireman, confirmed the evidence given by that person.

Mr. C. Paul, S.M. at Darling Harbour, deposed that on the day in question Corkery made a complaint to him ; that he (Paul) went to see Harmond, but he had gone to Sydney. When Harmond came back, in about an hour, went and saw him. He walked straight, and was certainly not drunk.

A. Rankin, defendant's fireman, deposed that Harmond did not get off his engine the whole afternoon ; that he did not strike Corkery ; and that he was not the worse for liquor, having had nothing to drink all day but tea, which he (Rankin) made. He was with Harmond all day, and it was impossible for the latter to get off his engine and assault Corkery without his seeing it.

P. Rohan, shunter, deposed that on the day in question he saw plaintiff and defendant ; the former was standing on his engine on the line. Had Corkery in sight until he came and said he had been struck with a bar of iron, and his life was in danger. Perigo got the bolt which was 250 yards away from where Harmond was ; did not think Harmond could have struck Corkery without his (Rohan's) seeing it ; could not swear that Corkery was not struck, but did not think it possible for Harmond to have struck him ; Harmond was sober.

H. Court, shunter, deposed, that on the day referred to he and Corkery went to pull a train down. He (the witness) went to the points ; noticed nothing until Corkery came to him and said he had been struck and his life was in danger ; defendant could not have struck Corkery without witness seeing it ; Harmond was sober ; if Perigo and Corkery swore that Harmond struck the latter, they might be true.

J. Osborne, shunter, deposed, that he had Corkery and Harmond in sight all the time between 2 and 3 p.m., and saw no one strike Corkery ; Harmond was on his engine all the time ; about 10 minutes past 2 Corkery said he had been struck ; if Perigo and Corkery swore that Harmond was off his engine and struck the latter, it was untrue.

W. Harmond (the accused) swore that he did not strike Corkery as alleged, and that he was perfectly sober, not having even tasted any intoxicant on the day referred to ; on the previous Saturday Corkery had threatened to report him for drunkenness. The case was dismissed with costs, and professional costs £1 1s.

The

The Departmental inquiry referred to in the opening paragraphs of this paper was held subsequently, being conducted by Messrs. Richardson (Inspector) and Mr. Cobb.

The chief evidence having been already summarised in this paper, it will not be necessary to deal with it further, except as referred to in the reports of Messrs. Richardson and Cobb.

Mr. Richardson considered that the dismissal with costs by the Police Magistrate of the charge of assault made against Harmond by Corkery, fully disposed of that part of the case. As regarded the allegation of drunkenness, fireman Rankin, a total abstainer, had testified that Harmond had not had any drink on the day in question, and that he had always found him a steady and sober man. Mr. Paul, also an abstainer, had had Harmond with him day and night during the wool season, and constantly came in contact with him, but never saw the slightest trace of intoxication on him. Harmond was the best driver he had ever had. The other witnesses were equally clear that Harmond was sober. In the face of such evidence Mr. Richardson continued, especially that of Mr. Paul and Rankin, both abstainers, he could come to no other conclusion than that there was no truth in the charge.

The Magistrate had evidently discredited the assault made by Corkery as to the alleged assault, and he (Mr. Richardson) thought there was a danger in having in the service men like Corkery and his fireman, who could thus bring groundless charges against a fellow employé. Mr. Cobb reported that in his opinion Corkery had utterly failed to prove the charge of insobriety against Harmond; that both Corkery and Perigo evinced a most vindictive feeling against Harmond; and that neither of those men should be allowed to continue in the Service. Mr. Cobb added, that Corkery admitted to him that during the time he had been absent from duty in consequence of the injury alleged to have been inflicted upon him by Harmond, he (Corkery) had been taking a most active part as a canvasser for a late election at Redfern.

Mr. Scott minuted that both Corkery and his fireman Perigo had before been convicted of untruthfulness; that in this instance, in view of the rebutting evidence, their statements were unworthy of belief; and that he recommended their dismissal from the service.

Commissioner minuted that the charge of assault having been dealt with in Court he would not interfere, and that what he had to meet was a charge of drunkenness brought by one driver (Corkery) against another (Harmond), supported by the fireman of the former (Perigo). If the charge could not have been disproved Harmond would have been dismissed. The most detestable malice had been shown by Corkery in bringing this false charge. Approved of Mr. Scott's proposals to dismiss Corkery and Perigo from the Service, and they were dismissed accordingly.

Mr. Secretary Lyne now minutes on a letter from Corkery to the Hon. Dr. Renwick that he would like to have particulars of the case.

C.A.B., 27/8/86.

Minute of The Secretary for Public Works.

I have read the depositions in this case, and was it not that Corkery and his fireman (Perigo) are accused of having previously been adjudged guilty of untruthfulness, I should certainly consider an injustice had been done by the dismissal of Corkery and his fireman. As the matter now stands I should like to interrogate Mr. Paul before giving a decision.—W.J.L., 23/9/86.

Mr. Paul, I understand, waited upon the Minister this morning.—D.C.M'L., 27/9/86.

Having seen Mr. Paul, and heard all he has to say in this matter, I am satisfied Corkery was struck by someone, and the reasonable inference is, that that person was Harmond. Mr. Paul states Harmond was not intoxicated, nor had he taken sufficient drink to incapacitate him from doing his ordinary work, but he could not say he had not had a glass or two. He also states Corkery was a quiet, but rather slow—perhaps too cautious—man, and he thinks some bad feeling existed between him and Harmond. If Corkery made any mistake, which is anything but clear, he has been severely punished, and now I think should be again employed.—W.J.L., 27/9/86.

Mr. Scott to give effect to the Minister's decision.—Ch.A.G., 27/9/86. Mr. Cobb to carry out.—W. Scott, 29/9/86. Corkery has been reinstated as driver to-day.—J.C., 18/10/86.

No. 6.

Engine-Driver Corkery to The Commissioner for Railways.

Sir,

17 January, 1887.

I have the honor most respectfully to apply for payment of my wages as engine-driver from the time I was struck by Harmond to the date of my return to work, and in doing so the desire to give full justice evinced by the Minister and yourself in inquiring into the facts of my case has made me hopeful that my application will be granted.

The cause assigned for my dismissal was the bringing of a most malicious charge against Harmond, and I firmly believe that I would never have been dismissed if you had been acquainted with the case fully at the time, a belief that is borne out as correct by my being reinstated the instant fuller information was obtained. I trust that you will not think me importunate in bringing this matter before you, for the loss that I have sustained amounts to about £200.

I have, &c.,

D. CORKERY.

I can see no ground for granting request.—Ch.A.G., 28/1/87. Locomotive Engineer. Mr. Cobb to so inform Corkery.—G.D., 1/2/87. Driver Corkery informed by memo.—J.C., 2/2/87.

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(INFORMATION RESPECTING TICKET-COLLECTOR EDWARD COOLE.)

Ordered by the Legislative Assembly to be printed, 28 February, 1888.

[Laid upon the Table of the House in accordance with promise made by the Honorable the Secretary for Public Works, in answer to Question No. 29, in Votes and Proceedings No. 57, of the 23rd February, 1888.]

QUESTIONS AND ANSWERS.

1. Is there in the employment of the Railway Department a ticket-collector named Edward Coole? Yes.
2. If so, what are his duties? Coole is a ticket examiner, and he also conducts Police Court cases in the Sydney district, when it has been decided to take proceedings under the By-laws.
3. Is it a fact that during the past month he has prosecuted several persons for travelling on expired season tickets? Action has been taken in one or two cases during the past month against persons who have travelled on expired tickets, or short tickets.
4. Is it a fact that the persons (or any of them) prosecuted had ordered season tickets, or a renewal of their season tickets, prior to the date of the so-called offence? Yes.
5. Is it a fact that a man named Candlish, residing at Burwood, was fined at the instance of Coole? Yes; Coole conducted the proceedings against Mr. Candlish, but, as is usual in such cases, he acted under instructions received from his superior officer.
6. Is it a fact that Candlish's ticket was at Burwood Station on the date of the evening of his so-called breach of the By-laws? Yes; Mr. Candlish was found travelling on a ticket thirteen days after it expired. His new ticket had been at Burwood five days previously, but he failed to take it up.
7. Have any complaints been made at any time against Coole by the travelling public; if so, how many? Not that I am aware of. Coole is a very zealous and intelligent officer, and one of the best, if not the best, ticket examiners we have.
8. How long has Coole been in the service? Since the 1st June, 1883.
9. In how many cases has he been prosecutor during that time? Coole was appointed to conduct Police Court cases in January, 1887; since that time he has dealt with about five or six a month.
10. Does Collector Coole receive any remuneration for any cases in addition to his ordinary salary; if so, how much? No.
11. Is it the intention of the Secretary for Public Works to refund any of the fines? It has been decided to refund the fine in Mr. Candlish's case.
12. Is any provision made by the Railway Department to enable people to travel on the line during any delay in the renewal of season tickets? The regulations require that metal tickets should be applied for seven days, and card tickets four days, before they are required. If the Department is not able to supply them within this time, the Traffic Auditor issues a pass in lieu of them. In Mr. Candlish's case there was no delay; the application for the ticket bore office date of the 3rd January, and the ticket was ready for issue on the 8th January. A good deal of latitude is allowed to season ticket-holders. In cases where people who have not been aware of the regulations with respect to the notice required have paid fares in the interim refunds of the fares have been made.
13. Will he cause immediate inquiries to be made as to the way in which the various collectors carry out their duties? Yes.

1887-8.

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

RAILWAYS.

(COMPENSATION TO FAMILY OF THE LATE ISAAC WERRILL, GATEKEEPER.)

Ordered by the Legislative Assembly to be printed, 24 April, 1888.

No. 1.

Minute of The Traffic Manager.

Nellie Maude Woolley and Gatekeeper Isaac Werrill, killed at Homebush level-crossing, 29/3/88.

I REGRET to inform the Commissioner that a distressing accident took place last evening at Homebush, whereby a little girl, named Nellie Maude Woolley, 7 years of age, and Gatekeeper Isaac Werrill lost their lives.

The down express passed Homebush at 5.38 p.m., and the up Parramatta train arrived at 5.39 p.m. It appears that as soon as the express had passed the level-crossing gates on the west side of Homebush, Werrill rushed behind it to save the little girl, who was then running on to the up line.

He was too late, the up train struck them both, and they were killed instantaneously. The girl had only a blow on the left temple; but Werrill was cut to pieces.

The bodies were removed to the "Horse and Jockey" Hotel, Homebush, to await an inquest, the result of which shall be forwarded as soon as possible.

30/3/88.

W. V. READ,
per W.H.C.

No. 2.

Minute of The Commissioner for Railways.

PLEASE supply plan.

What are the ages of the children of Werrill?

C.A.G., 3/4/88.

No. 3.

Minute of The Colonial Secretary.

NAME and occupation of the man who attempted to save the child's life on railway last week?

H.P.

No. 4.

Minute of The Commissioner for Railways.

ISAAC WERRILL, aged 58; employed as gatekeeper at level crossing at Homebush Station. First appointed porter at Redfern, 16th November, 1876; he was in receipt of 7s. per diem, and leaves a widow and six children.

Under the Employers' Liability Act the widow would be entitled to three years' wages, equal to £351.

Under the Departmental Regulation Scale the widow would receive £200; three first children (£75 each), £225; each of the others (£50 each), £150; total, £575. The children, however, if over 15 years of age, are entitled to nothing. Some of Werrill's children were beyond the age.

C.A.G., 3/4/88.

No. 5.

Minute of The Colonial Secretary.

I WISH to be informed further in this case as to Werrill's general character, and in particular whether there was any witness of his act when attempting to rescue the child. If it be the case that Werrill fully realized the danger of trying to save the child's life, the act was a fine instance of fidelity to the instincts of humanity.

H.P., 4/4/88.

No. 6.

Minute of The Locomotive Engineer.

Man and girl killed, Homebush.

DRIVER Edward Brennan, engine No. 37, working No. 194 passenger train, Parramatta to Sydney, on the 29th ultimo, reports as follows:—"When approaching the level-crossing gate at Homebush, at about 5.33 p.m., I saw the gatekeeper (Isaac Werrill) standing in the gateway looking towards me. When we approached within 10 or 12 yards from where he was standing, he stepped on the line in front of the engine, taking with him a little girl whom he was holding by the hand.

I immediately sounded the whistle and applied the brakes, but before we could pull up both of them were knocked down and killed. The girl's name was Nellie Maude Woolley."

Mr. Cobb reports attending the inquest, at Homebush, on the 31st, concerning the above. The verdict was that of "death from injuries accidentally received; no blame attached to anyone."

W. SCOTT, 4/4/88.

No. 7.

Minute of The Commissioner for Railways.

ISAAC WERRILL joined the Railway Service in November, 1876.

During the last fifteen months he has been employed on the Suburban Line in various capacities, and his conduct has been good.

In August last he was commended for intrepid conduct in saving a lady who had fallen between the platform and the train, and who, but for Werrill's timely assistance, would probably have lost her life.

No one can be found who actually witnessed the act in which he met with his death; but there is no doubt whatever that he sacrificed his life in full knowledge of the danger he incurred in attempting to rescue the child.

5. April, 1888.

C. A. GOODCHAP.

No. 8.

Minute of The Traffic Manager.

Gatekeeper J. Werrill, killed at level-crossing gates, Homebush, 29/3/88.

IN this case the jury returned a verdict of accidental death, and added that there was no blame attached to anyone.

I think there can be no doubt that Werrill lost his life in his endeavour to save the child, and when he made the attempt he must have been aware that the train was close upon him.

The family left by Werrill consists of his widow, Elizabeth Werrill, aged 54, and six children, viz. :—

Elizabeth, aged 34, married.	William, aged 26, married.
Caroline, " 32, "	Eva, " 22, "
Sarah, " 30, "	Amy, " 13, unmarried.

I will inquire under what circumstances his wife and unmarried daughter are, and report further. His conduct was worthy of every praise, and merits generous recognition.

W. V. READ,
per W.H.C., 6/4/88.

No. 9.

Minute of The Traffic Manager.

Gatekeeper Isaac Werrill, killed at Homebush, 29/3/88.

WITH reference to my M.P. 88/1228A of to-day *re* the above, I beg to inform the Commissioner that I have since learned that Werrill's life was not insured, and that Mrs. Werrill and the unmarried daughter were solely dependent on his earnings for their support.

W. V. READ,
per W.H.C., 6/4/88.

No. 10.

Minute of The Commissioner for Railways.

UNDER the official scale of gratuities the widow would be entitled to ... £200
and the youngest child, being the only one under the age of 16 ... 75

Total... .. £275

Perhaps the Minister would prefer that this case should be made a special one, in view of the circumstances under which Werrill lost his life; say £300 for widow and £200 for child, to be paid on her arriving at the age of 20, the interest on the £200 to be allowed the widow towards the support of the child.

CH.A.G., 9/4/88.

No. 11.

Minute of The Minister for Public Works.

I QUITE endorse the Commissioner's recommendation, but as my colleague the Premier has taken some interest in this case I forward the papers for his information.

J.S., 14/4/88.

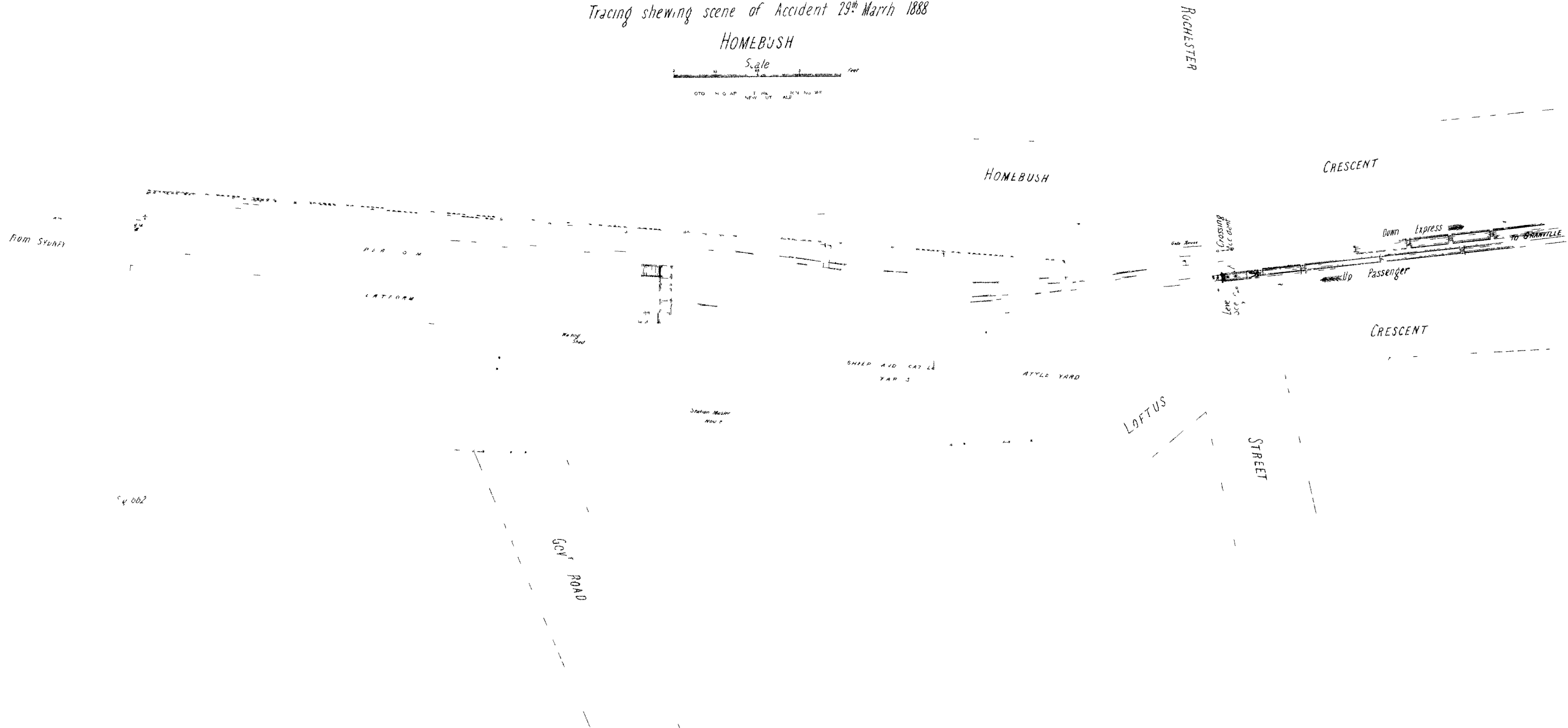
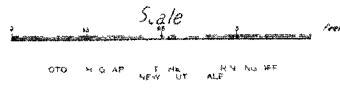
The Principal Under Secretary, B.C., 14/4/88. Approved.—H.P., 24/4/88. The Under Secretary for Public Works, B.C., 24/4/88.—C.W., P.U.S.

[Plan.]

G. S. R.

Tracing shewing scene of Accident 29th March 1888

HOMEBUSH



1887.

(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

REPORT FROM THE SELECT COMMITTEE

ON

CLAIM OF MRS. BUTTERLEY;

TOGETHER WITH THE

PROCEEDINGS OF THE COMMITTEE

AND

MINUTES OF EVIDENCE.

ORDERED BY THE LEGISLATIVE ASSEMBLY TO BE PRINTED,
12th November, 1887, a.m.

SYDNEY: CHARLES POTTER, GOVERNMENT PRINTER.

1887.

1887.

(THIRD SESSION.)

**EXTRACTS FROM THE VOTES AND PROCEEDINGS OF THE
LEGISLATIVE ASSEMBLY.**

VOTES No. 2. WEDNESDAY, 21 SEPTEMBER, 1887.

23. CLAIM OF MRS. BUTTERLEY :—Mr. Schey moved, pursuant to Notice,—
- (1.) That a Select Committee be appointed, with power to send for persons and papers, to examine into and report upon the claim (if any) of Mrs. Butterley.
 - (2.) That such Committee consist of Mr. Sutherland, Mr. Lyne, Mr. Cooke, Mr. Melville, Mr. Stephen, Mr. O'Sullivan, Mr. Frank Farnell, Mr. Ewing, Mr. Dawson, and the Mover.
 - (3.) That the Return to Order on this subject, laid upon the Table on the 8th June, 1887, be referred to the Committee.
- Debate ensued.
Question put and passed.
-

VOTES No. 25. FRIDAY, 11 NOVEMBER, 1887.

6. CLAIM OF MRS. BUTTERLEY :—Mr. Schey, as Chairman, brought up the Report from, and laid upon the Table the Minutes of Proceedings of, and Evidence taken before, the Select Committee for whose consideration and report this subject was referred on 21st September, 1887.
Ordered to be printed.
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1887.
(THIRD SESSION.)

CLAIM OF MRS. BUTTERLEY.

REPORT.

THE SELECT COMMITTEE of the Legislative Assembly appointed on the 21st September, 1887, "*with power to send for persons and papers to examine into and report upon the claim (if any) of Mrs. Butterley, and to whom was referred on the same date a Return to Order on this subject, laid upon the Table on the 8th June, 1887,*" have agreed to the following Report:—

1. Your Committee having examined the witness named in the margin,* * Mrs. Catherine Butterley. whose evidence is appended hereto, find,—

That Mrs. Butterley has no legal claim, but in view of her very distressing circumstances your Committee venture to express a hope that the Government will see their way to favorably consider the case.

WM. F. SCHEY,
Chairman.

No. 3 Committee Room,
Sydney, 11 November, 1887.

PROCEEDINGS OF THE COMMITTEE.

TUESDAY, 4 OCTOBER, 1887.

MEMBERS PRESENT:—

Mr. Schey, | Mr. Frank Farnell.

In the absence of a quorum, the meeting called for this day lapsed.

WEDNESDAY, 5 OCTOBER, 1887.

MEMBERS PRESENT:—

Mr. Schey, | Mr. Ewing.

In the absence of a quorum, the meeting called for this day lapsed.

THURSDAY, 6 OCTOBER, 1887.

MEMBERS PRESENT:—

Mr. Schey, | Mr. Stephen,
Mr. O'Sullivan.

Mr. Schey called to the Chair.

Entry from Votes and Proceedings, appointing the Committee, and referring Return to Order, read
by the Clerk.Papers *referred* before the Committee.

Committee deliberated.

Ordered,—That Mrs. Catherine Butterley be summoned to give evidence next meeting.

[Adjourned to Wednesday next, at *Two* o'clock.]

WEDNESDAY, 12 OCTOBER, 1887.

MEMBERS PRESENT:—

Mr. Schey, | Mr. Cooke.

In the absence of a quorum, the meeting called for this day lapsed.

WEDNESDAY, 19 OCTOBER, 1887.

MEMBERS PRESENT:—

Mr. Schey, | Mr. Cooke.

In the absence of a quorum, the meeting called for this day lapsed.

TUESDAY, 25 OCTOBER, 1887.

MEMBERS PRESENT:—

Mr. Schey, | Mr. O'Sullivan.

In the absence of a quorum, the meeting called for this day lapsed.

THURSDAY, 27 OCTOBER, 1887.

MEMBERS PRESENT:—

Mr. Schey in the Chair.

Mr. Cooke, | Mr. Stephen.

Catherine Butterley called in, sworn, and examined.

Room cleared.

Committee deliberated.

[Adjourned to Thursday next, at *Eleven* o'clock.]

THURSDAY, 3 NOVEMBER, 1887.

MEMBERS PRESENT:—

Mr. Schey, | Mr. Cooke.

In the absence of a quorum, the meeting called for this day lapsed.

FRIDAY, 11 NOVEMBER, 1887.

MEMBERS PRESENT:—

Mr. Schey in the Chair.

Mr. Ewing, | Mr. Cooke.

Chairman submitted Draft Report.

Same read and agreed to.

Chairman to report to the House.

1887.

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

MINUTES OF EVIDENCE

TAKEN BEFORE

THE SELECT COMMITTEE

ON THE

CLAIM OF MRS. BUTTERLEY.

THURSDAY, 27 OCTOBER, 1887.

Present:—

MR. COOK,		MR. SCHEY,
MR. EWING,		MR. STEPHEN.
W. F. SCHEY, ESQ., IN THE CHAIR.		

Catherine Butterley called in, sworn, and examined:—

1. *Chairman.*] Your name is Mrs. Butterley? Yes.
2. You had a son some years ago in the railway service? Yes.
3. And he was killed? Yes, killed in the execution of his duty.
4. At Blayney? Yes; no signal was given, and he had no chance of escape.
5. How long was your son in the service of the Railway Department? I do not know; I forget. It was not very long.
6. Do you know whether he was in the service three months? I think it was more.
7. After his death you lodged a claim with the Railway Department? Yes.
8. What was the amount of your claim? I did not mention any certain thing; but I got £30 first, and then after I received the remainder of the £100. I paid it away to doctors, and in rent.
9. Your son was not quite 18 years of age? He wanted two months of being 18.
10. Was he the only support of yourself? The only support I ever had.
11. Was your husband alive at the time your son was killed? He was sick in bed.
12. *Mr. Stephen.*] Has he died since? He died the day after my son was buried.
13. *Chairman.*] You had two daughters at the time of your son's death? Yes; one of them had been in the Gladesville Asylum six years; she is insane.
14. And the other one? She got married without my knowledge, and I have not spoken to her for some time.
15. You do not know where she lives? She lives in Cleveland-street.
16. *Mr. Stephen.*] Does she support you? I get a few shillings sometimes from her, but she is unable to support herself. She married a useless man.
17. *Chairman.*] I believe that in 1883 you lodged a claim with the Secretary for Public Works for £2,000, did you not? Yes; Mr. Slattery said he could get me £2,000.
18. You subsequently received the sum of £100 from the Department? Yes.
19. The whole of which you expended in current expenses at the time? Yes; I had but very little, a few shillings, when a gentleman from Bathurst came and made me a present of £11 10s. Dr. Markey told me to sell lollies and fruit, and keep talking to children, not to remain by myself. I got bad with rheumatic gout, and had to go to the doctor.

Catherine
Butterley.
27 Oct., 1887.

Catherine
Butterley.
27 Oct., 1887.

20. You are aware that an inquest was held after your son's death? Yes; I was at Blayney at the time, and my brain has never been right since.
21. Are you aware that the jury brought in a verdict of accidental death, and laid no blame on anyone? Yes; but Mr. Bourke ordered my son to shunt, and the instant he put his hands to the buffers he was struck by the carriage.
22. Subsequently you addressed a petition to the Minister for Works, did you not? Yes.
23. And you are aware that several succeeding Ministers for Public Works have declined any further assistance? Some said I could not get any more, others said I could. Mr. Wright told me to get a petition drawn out and signed by as many Members as I could. I got thirty-four Members of Parliament to sign it.
24. You are aware that Mr. Wright refused any further compensation when Minister? He told me to get a petition drawn out.
25. Afterwards, I think, your case was put before Mr. Lyne, and he also refused further compensation? Well, Mr. Wilkinson said he felt very much for me and was in hopes that something would be done to assist me.
26. And afterwards you had another petition signed by a number of Members of Parliament? Yes, I was told to get another petition drawn out, and send it in.
27. And from time to time several gentlemen have brought this matter before Parliament? Yes.
28. And in each case you have met with a refusal? Yes.
29. How old are you? 64 years.
30. And you are wholly without means of support? I borrowed from one neighbour to pay another till God would help me with something from here.
31. Your only surviving relative is a daughter? A married daughter, and a daughter in the asylum; but my daughter cannot support me; she has to work for herself.

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.
(LEASING OF REFRESHMENT ROOMS.)

Ordered by the Legislative Assembly to be printed, 24 April, 1888.

RETURN to an *Order* of the Honorable the Legislative Assembly of New South Wales, dated 17th June, 1886, That there be laid upon the Table of this House,—

“Copies of all Minutes, Papers, and other Documents having reference to
“the Leasing of the Railway Refreshment Rooms.”

(*Mr. Sydney Smith.*)

Minute of the Commissioner for Railways.

Re Leasing Railway Refreshment Rooms.

REFERRING to the leasing of the Railway Refreshment Rooms, I have to inform you that it has been agreed between Mr. Castner and myself that the present lease (herewith)* shall be cancelled, and I shall be glad, therefore, if you will prepare a release in this matter, and draw up a fresh agreement on the following terms:—

The lease to commence from the 1st July next, and to continue for a period of five years. Should it be decided to terminate the lease at the expiration of this time, six months' notice may be given by either party.

The Department is to erect buildings suitable for refreshment room purposes at the following stations:—At Goulburn, to cost about £2,500; at Yass, to cost about £2,000; at Junee, to cost about £4,000; at Mount Victoria, to cost about (the necessary alterations) £1,500; at Bathurst, to cost about £2,000; at Wellington, to cost not less than £2,500. Should it be deemed necessary by the Department to change the refreshment station from Wellington to Orange or other station, then such station is to be substituted for Wellington.

The rent to be paid to be equal to 7 per cent. per annum on the cost of the building, such rental to commence from the time of completion of the building, and to be payable in advance.

The rent of the refreshment rooms at Wellington to continue as at present; but it is to be understood that the rooms at Mittagong Station, which have been erected by Mr. Castner, will become the property of the Department at the termination of the five years now granted.

Should any alteration be made at this station, then the rent, so far as the alterations are concerned, to be at the same rate as at the station abovementioned.

A general free pass to be issued to Mr. Castner during the currency of the contract, and, if necessary, a free pass is to be issued for an Inspector.

CH. A. G., 19/3/83.

The Crown Solicitor.

The

* This had reference to an arrangement made with Mr. Castner that he should be allowed to lease for 12 years certain portions of land on which he was to erect at his own expense refreshment stations, the buildings to become the property of the Department at the expiration of the term.

The Crown Solicitor to The Commissioner for Railways.

Sir,

Crown Solicitor's Office, Sydney, 21 March, 1883.

I have the honor to return herewith the papers forwarded to me as instructions to prepare leases of refreshment rooms at railway stations, and to suggest, for your consideration, that it is desirable that the rent to be paid should be agreed upon at a named sum rather than be left to be determined by the amount expended upon the building, as it is now proposed; that is, the rent, according to the instructions, is to be 7 per cent. per annum on the cost of the building, and to be payable from the time of the completion of the building, although the term of years for which the leases are to run is said to be five years from 1st July next.

Again, though the lease is to be for five years, it is said that if it is desired to terminate it, then six months' previous notice may be given by either party; if the lease is to be for five years certain no notice to terminate it is required, the proviso for notice does not agree with the supposition that the lease is to be for a fixed term, and I do not understand why it is required that notice shall be given.

I need not point out that of the amount of the rent and the date from which it is to become payable are left open questions, to be determined by the costs of the buildings and their completion, it may be very difficult to come to an agreement with the tenant upon these heads.

I have, &c.,

JOHN WILLIAMS,
Crown Solicitor.

The rent had better be calculated thus:—A refreshment station at Goulburn is to be put up, the cost of which is not to exceed £2,500. 7 per cent. upon this amount would be £175 a year, and this sum should be mentioned as the rent; but, if during the currency of the lease, the requirements call for further additions, the rent is to be increased to the extent of 7 per cent. interest upon the cost of the additions,—

Yass	...	...	...	...	...	...	is to cost £2,000, rent £140 a year.
Junee	...	...	...	...	...	..	£4,000, ,, £280 ,,
Bathurst	...	...	...	...	...	..	£2,000, ,, £140 ,,
Wellington	...	...	...	...	...	..	£2,500, ,, £175 ,,

Mittagong to remain at present rental, £25 a year, but additions to be paid for, as in other cases.—
CH. A. G.

Can Crown Solicitor prepare agreement in the form suggested?—CH. A. G., 22/3/83. It is to be for five years certain, and thereafter terminable on six months' notice from either side.—CH. A. G., 22/3/83. The buildings are to be erected as expeditiously as possible; some of them, no doubt, will be completed before others, but the whole of them will be completed before the end of this year; the rent should take effect from the date of the notice from the contractors that the building is completed.—
CH. A. G., 22/3/83.

The Commissioner for Railways to Mr. J. L. Castner.

Sir,

Department of Railways, Sydney, 4 June, 1883.

Referring to the contract for the erection of refreshment rooms at Junee, I have the honor to inform you that the lowest tender received amounts to £6,648 4s. 9d., and before accepting this I have to request that you will inform me whether you are willing to give an undertaking that you will agree to pay 7 per cent. upon the outlay, even if it exceed the amount abovementioned.

I have, &c.,

C. A. GOODCHAP.
(Per D. V.)

The Crown Solicitor to the Commissioner for Railways.

Lease of Railway Refreshment Rooms.

Sir,

Crown Solicitor's Office, Sydney, 18 September, 1883.

Herewith I beg to forward you draft leases of the following refreshment rooms,—at Goulburn, Yass, Junee, Bathurst, Wellington, Mittagong, Singleton, and Murrurundi, for your approval.

I have, &c.,

JOHN WILLIAMS,
Crown Solicitor.

For report.—G.B. Mr. H. M'Lachlan.

Re Draft Agreements for Refreshment Rooms.

No agreement has been made out for Mount Victoria. The rent now paid for refreshment rooms at this place is £25 per annum, and it is intended to make additions to the present rooms which it is estimated will cost £1,500.

At Mittagong the rent now paid is £25 per annum, but it is to be understood the buildings are to become the property of the Commissioner at the expiration of the contract—nothing is said of this in the agreement.

The lease for the Northern refreshment rooms, Singleton and Murrurundi, are only for one year (£200 each), and they are taken under different conditions from those affecting the Southern and Western. Nothing is said in the specification, under which contract was accepted, as to the lessee having to pay 7 per cent. upon the cost of any additions, although this is mentioned in the draft agreement herewith.

In the case of Junee the rent is mentioned in the draft agreement as £280 per annum, being leased at 7 per cent. upon the estimated cost, viz., £4,000. Since the estimate was made, however, a tender has been received and accepted for the work amounting to £6,648. Seven per cent. upon this will be £465 per annum, which is to be the rental as agreed with Mr. Castner, and the alteration can be made in the draft agreement prepared.

The rents in each case are calculated at 7 per cent. upon the estimated cost of the buildings. Should the estimate be exceeded, and it has been greatly exceeded in the case of Junee, no condition is made whereby the lessee will have to pay a corresponding higher rent. Perhaps the clause respecting rent can be made to read that the rent is to be the sum mentioned in the event of the buildings costing the estimated amount; but if the estimate is exceeded then an additional rent will have to be paid equal to 7 per cent. upon the amount in excess of the estimate.
Commissioner.—G.B.

H.M'L., 3/10/83.

The draft agreements appear to be drawn out under the same condition. I have made some alteration in Junee, which will apply to the others with the exception of the Northern leases.—H.M'L.
Return the draft agreements to Crown Solicitor with the report.—CH.A.G., 3/10/83.

The Crown Solicitor to The Commissioner for Railways.

Sir,

Crown Solicitor's Office, Sydney, 30 November, 1883.

I have the honor to return herewith the draft lease to Mr. Castner, and with reference to notes on page 8 to request that you will state whether the draft now altered with respect to the rent to be paid for additions is in accordance with your intention.

With reference to the term of the lease, as mentioned in the note in red, I think it must be intended that the lease shall be for five years certain, and that the lessee shall hold afterwards, as a yearly tenant, the tenancy determinable at any time upon six months' notice.

I have, &c.,
JOHN WILLIAMS,
Crown Solicitor.

Draft returned to Crown Solicitor and informed above, also *re* keeping of wine, &c.—7/12/83.

The Crown Solicitor to The Commissioner for Railways.

Railway Refreshment Rooms.—You to Castner.

Sir,

Crown Solicitor's Office, Sydney, 13 December, 1883.

I have the honor to forward herewith engrossment of lease of premises at Junee, altered in accordance with the instructions contained in your letter of the 6th inst., No. 83/3,494, for your approval. On returning same will you be good enough to inform me if the other leases are to contain similar covenants and provisions, especially as to the one referring to the sale of liquor.

I have, &c.,
JOHN WILLIAMS,
Crown Solicitor.

It seems to me that the lease contains all the necessary conditions, but it is preferable that the rent should be stated to be 7 per cent. upon the cost of buildings instead of naming a specific sum. In other instances but Junee we can only go upon the estimate, and it may be largely exceeded. It is the Commissioner's intention that all liquor must be sold at all refreshment rooms.—H.M'L., 18/12/83.

Commissioner.—G.B.

The Commissioner for Railways to The Crown Solicitor.

Sir,

Department of Works (Railway Branch), Sydney, 21 December, 1883.

In acknowledging the receipt of the engrossment of lease in connection with the Railway refreshment premises at Junee, forwarded in your letter, No. 836-550, I have the honor to inform you that the lease in question contains all the necessary conditions, but it would be preferable that the rent should be stated to be 7 per cent. upon the cost of buildings instead of naming a specific sum. With the exception of Junee we have only the estimated cost to rely upon, and that may be largely exceeded when the work is carried out. A clause should be inserted in each lease to the effect that liquor is to be sold at all refreshment rooms.

I return the lease herein.

I have, &c.,
CH. A. GOODCHAP,
Commissioner for Railways.

The Crown Solicitor to The Commissioner for Railways.

Sir,

Crown Solicitor's Office, Sydney, 22 December, 1883.

I have the honor to return herewith your letter of date 21st inst., with fair copy leases of refreshment rooms at Junee for further information.

In your letter you state that the rent should be stated to be 7 per cent. upon the cost of buildings, without naming a specific sum.

I understood the arrangement to be that a fixed rent was to be paid in respect of the present buildings, with an additional rent at the rate of 7 per cent. for any additional buildings. From your letter, to which this is in reply, it would seem that this is not the arrangement, but that the rent is to be 7 per cent. upon the cost of the present buildings, and an additional rent after the same rate upon any additional buildings.

I have, &c.,
JOHN WILLIAMS,
Crown Solicitor.

The lease has been perused by Mr. Castner (returned 31/1/84), and he objects to two conditions. According to his own letter (February, 1883), he agrees to the cancellation of existing agreements and preparation of a fresh lease, which would be for a term of five years from 1st July, 1883. Mr. Castner will not now agree to the lease commencing 1st July, 1883, and wishes to make it 1st July, 1884. The Crown Solicitor has drawn up lease giving the Commissioner power, without consulting lessee, to make alterations if he deems fit. Mr. Castner wishes clause to be that Commissioner may make alterations at the request of lessee.—H. McL., 31/1/84.

See Commissioner about, and with, this.—D.V., 1/2/84. Letter to be written to Crown Solicitor *re* above. Commissioner will not concur in altered date, but sees no objection to amendment in last clause.—H. McL., 6/2/84.

The Commissioner for Railways to The Crown Solicitor.

Mr. Castner's Lease, Refreshment Rooms.

Sir,

Railway Branch, Sydney, 6 February, 1884.

I have the honor to return herein copy of lease of refreshment room at Junee, which is to be taken as a pattern for the lease of the other refreshment rooms. In regard to the question as to how the rent to be paid shall be stated, it is advisable that the rent should be stated, not as a fixed sum, but as 7 per cent. upon the cost of the main buildings, and upon any additions that may be necessary during the currency of the lease. The necessity for this arises from the fact that most of the buildings are not yet erected, and the estimated cost upon which the rent would be fixed may be largely exceeded. Further, it seems to me that under this condition one lease can be prepared to include the whole of the refreshment rooms, as all are let for the same time and under the same terms.

I may add that the lease has been perused by Mr. Castner, who objects to two conditions in the draft. Under the terms of his letter the lease is to commence from 1st July, 1884, but I cannot concur in the alteration.

Mr. Castner wishes the clause giving me power to make additions amended so as to read that the additions shall only be made by me at his request. The amendment seems reasonable, and I have no objection to its being made.

I have, &c.,
CH. A. GOODCHAP,
Commissioner for Railways.

The Crown Solicitor to The Commissioner for Railways.

You to Castner, Lease of Refreshment Rooms, Penrith.

Sir,

Crown Solicitor's Office, Sydney, 29 January, 1884.

I have the honor to forward herewith Lease of refreshment rooms, at Penrith, in duplicate.

I have, &c.,
JOHN WILLIAMS,
Crown Solicitor.

Ask Mr. Castner to call.—G.B., 31/1/84. Mr. Castner asked to call.—1/2/84.

The Crown Solicitor to The Commissioner for Railways.

You to Castner, Leases of Refreshment Rooms.

Sir,

Crown Solicitor's Office, Sydney, 14 February, 1884.

I have the honor to forward herewith lease and counter part of refreshment rooms at the following stations, viz., Junee, Mittagong, Bathurst, and Wellington.

Yours, &c.,
JOHN WILLIAMS,
Crown Solicitor.

The Crown Solicitor to The Commissioner for Railways.

Castner to you, Leases of Refreshment Rooms.

Sir,

Crown Solicitor's Office, Sydney, 15 February, 1884.

I have the honor to forward herewith lease and counterpart of refreshment rooms at Goulburn and Yass.

Yours, &c.,
JOHN WILLIAMS,
Crown Solicitor.

The

The Crown Solicitor to The Commissioner for Railways.

You to Castner.

Sir,
 I have the honor to forward herewith lease and counterpart of refreshment rooms at Mount Victoria, to be executed by you and Mr. Castner.

Crown Solicitor's Office, Sydney, 25 February, 1884.
 I have, &c..
JOHN WILLIAMS,
 Crown Solicitor.

Mr. J. L. Castner's Claim for Compensation in connection with the Refreshment Rooms.

In 1873 Mr. J. L. Castner took a lease of all the railway refreshment rooms then in existence, except Mittagong and Mount Victoria, for a period of five years, expiring in 1878. In 1874 he took a lease of Mittagong and Mount Victoria also for a period of five years, ending in 1879, with a clause empowering the Commissioner to terminate the lease at any time.

In March, 1878, in view of the approaching expiration of the first-named leases (of 1873), Mr. Castner made certain proposals which Commissioner, in view of Mr. Castner making a special visit to England and America with the purpose of acquiring experience in the arrangements and management of railway refreshment rooms, submitted in a modified shape to the Minister, recommending that land at Bathurst, Orange, Bowning, and Wagga Wagga should be leased to Mr. Castner for twelve years, at £25 per annum for each site, Mr. Castner to erect suitable buildings which, at the expiration of the lease, should become the property of the Government, or might be taken over with compensation at any time. Mr. Secretary Sutherland approved of the proposal, and Mr. Castner was so informed, and requested to submit plans, but no formal agreement was executed.

Plans were submitted accordingly by Mr. Castner, accompanied by a proposal that he should have authority to add a storey to the buildings at Mittagong and Mount Victoria, and that these stations should be placed on the same footing as the stations above named. Mr. Castner was informed by Commissioner's letter of 14th December, 1878, that the Minister approved of the arrangements for Bathurst, Orange, Bowning, and Wagga Wagga, and the erection of an extra storey at Mittagong and Mount Victoria, but no direct reference was made to Mr. Castner's proposal to alter the tenure and terms of the latter two stations. Nevertheless, Mr. Castner seems to have looked upon this intimation as in effect placing Mittagong and Mount Victoria on the same footing as the other four stations, and there was some show of reason for this conclusion, inasmuch as a part of the proposal was in so many words accepted and agreed to, and the remaining part was not refuted. Moreover the rent was immediately reduced from £160 per annum to £25 per annum, which was the ground rent paid for the lands in the other cases. It may be doubted, however, from what occurred afterwards, whether Commissioner took this view.

At the outset some delay as regards Mount Victoria was caused by Mr. Castner submitting plans, which Mr. Mason declared were not in accordance with the proposal which the Minister had approved.

About this time Murrumburrah was substituted for Bowning, and in October, 1879, Mr. Mason reported that he had assigned a site at that station to Mr. Castner, and that he would be prepared to do the same at the other stations as soon as Mr. Castner was in a position to commence operations.

In June, 1880, at the request of Mr. Castner, Junee was included in the arrangement, on the same terms as the other stations named, and he put up temporary refreshment accommodation then, with the understanding that under the agreement a site would be granted him adjoining the new station. In 1881 this temporary building was destroyed by fire, and it would appear from Mr. Castner's letters that he was prevented by some officers of the Department from replacing it, even on the site he had previously occupied. For some time Mr. Castner's complaints about the delay in giving him sites for buildings had been loud and persistent, the land pointed out by Mr. Mason at Murrumburrah had been appropriated by the Department to other uses, and he was losing heavily by the non-fulfilment of the agreement. These representations and complaints were not responded to by the Department, a prosecution of the arrangement being designedly delayed, and the reason why is supplied by minutes of the Commissioner. In February, 1881, on a letter of Mr. Castner's, complaining of the delay in giving him land and of the loss he was sustaining thereby.

Commissioner minutes that a consideration of the matter must be deferred until the Minister had decided whether the arrangement with Mr. Castner was to stand, and in February, 1882, Commissioner minuted on a similar letter that, at the request of the Minister, he had "stayed in every way practicable" the completion of the arrangement with Mr. Castner, but that the latter, he feared, would claim compensation, and delay would only increase the claim.

In April, 1882, it was found that the alterations at Mount Victoria, which Mr. Castner was to execute, and in consideration of which the rent has been reduced from £160 to £25, had not been commenced, and Commissioner, who was of opinion that Mr. Castner still held under the old arrangement, which gave him (Commissioner) power to terminate the agreement at any time, gave Mr. Castner notice to cancel the lease for the station. Mr. Castner, however, as already suggested, held that Commissioner's letter of 14th December, 1878, placed Mount Victoria on the same footing as the other stations, and that Mount Victoria was simply a part of a whole, and he declined to accede to any cancellation, except of the entire contract with compensation as provided by the agreement. No definite conclusion seems to have been arrived at in the matter.

Mr. Castner still continued to make representations and complaints about the delay in giving him the necessary sites, especially at Junee, and of the losses he was sustaining, and in November, 1882, Commissioner minuted that Mr. Castner by agreement had certain rights in connection with the refreshment rooms, but that Mr. Lackey did not approve of the arrangement, and it was not acted upon; that, with a view to put an end to the difficulty, he (Commissioner) was disposed to recommend that Mr. Castner should be asked to release the Department from existing agreements, and that the Department should put up suitable buildings, and give Mr. Castner a five years' lease of them at a rent equal to 7 per cent. upon the cost. The Minister approved of this arrangement, and the matter was explained to Mr. Castner by the Commissioner verbally.

On February 22, 1883, Mr. Castner addressed a letter to Commissioner, formally intimating his acceptance of the proposed terms, releasing the Department from the existing agreement, stipulating that the leases should date from 1st July, 1883, and naming the following as stations at which he wished to have

have accommodation provided :—Goulburn, Yass, Junee, Mount Victoria, Bathurst, Wellington, and Mittagong, but making no mention of Wagga Wagga. Two or three months after, 2nd April, 1883, he wrote stating the omission of Wagga Wagga was an inadvertence, and asking to be allowed to rectify the oversight, but Commissioner replied on the 16th April, 1883, declining to include Wagga Wagga in the arrangement. Mr. Castner rejoined that his letter of 2nd April must be accepted, as forming a part of his letter of 22nd February on the same subject, and there the matter rested.

About the middle of 1883 the buildings at Junee were put in hand, and many additions to and alterations of the original design have been made at Mr. Castner's request. At Yass and Goulburn temporary rooms have been provided, and Mr. Castner is paying under this arrangement 7 per cent. on the cost. Plans for these and other stations are being prepared.

In January, 1884, the draft leases were handed to Mr. Castner for perusal. He made no objection to them, but expressed a wish to Mr. McLachlan, who made a memo. of the fact, that the leases might be made to date from 1st July, 1884, instead of the 1st July, 1883, the date originally fixed by himself. He thus, at that time, clearly recognized the validity of the leases. Commissioner declined to give the additional time asked for, and the leases were prepared accordingly.

In February, 1884, Mr. Castner was advised that the leases were ready for execution, but he not absolutely refusing to sign the deeds, expressed his surprise that they had been prepared, alleging that Commissioner by his letter of 16th April, 1883 (refusing to include Wagga Wagga) had declined his (Mr. Castner's) proposal respecting the refreshment room, and hinting that the 7 per cent. arrangement referred to Junee and Mount Victoria only.

No further step has been taken in the matter.

In his letter of 31st October, 1884, Mr. Castner states that he is in a position to prove that any failure to carry out the agreement is wholly and solely due to and caused by the Department, and there might be some show of reason in this if it were the old arrangement of 1878 that we had to deal with, because, as it will be seen by this history, proceedings under that arrangement were, at the request of Minister, stayed in every practicable way; but that agreement was cancelled, and any delay in connection with it, is condoned by Mr. Castner's release to the Department, and acceptance of Commissioner's substitute proposals. Mr. Castner knows this, and that his only chance against the Department is on the old agreement and, therefore, it is that he seeks to prove that the Commissioner has vitiated the new agreement, and that he (Mr. Castner) is entitled to fall back upon the old one.

NOTE.—The question at issue in this matter, as suggested by the foregoing history, appears to me to be the following :—

- 1st. Was Mr. Castner's letter of 22nd February, 1883, a valid release of the Department from the old agreement, and a sufficient acceptance of the new arrangement, and was he bound to execute when called upon an agreement in accordance with the terms of that letter?
- 2nd. As Mr. Castner in that letter actually dictated his own terms and conditions (based it is true upon Commissioner proposals), and made his own selection of stations, was it competent to him two months after to supplement the conditions by claiming to have another station (Wagga Wagga) included in the arrangement, and, admitting that that station was embraced by the original and abandoned arrangement, can Commissioner's refusal at that advanced stage to admit Wagga Wagga be fairly interpreted as a refusal to carry out the agreement, or, as in any degree, affecting the arrangement?
- 3rd. Did not Mr. Castner, by suggesting alterations in the leases, admit their validity in the main, and was it admissible for him afterwards to repudiate them on a plea quite apart from the matter of the suggested alterations, viz., on the alleged ground that Commissioner's letter of 16th April, 1883, declining to include Wagga Wagga (written nearly a year before Mr. Castner's inspection of the draft leases) was a refusal to carry out the terms of the agreement?
- 4th. Is the erection of the refreshment rooms at Junee the provision of temporary accommodation, pending the erection of the permanent buildings at Goulburn and Yass (and at Wellington also), sufficient action and evidence of bona fides on the part of the Department, bearing in mind also that the plans for these and the other stations have for some time been under preparation? Is there under these circumstances any justification of Mr. Castner's repudiation of the leases, and does not the whole responsibility rest with him?

C.A.B., 10/2/84.

Mr. J. L. Castner, to the Commissioner for Railways.

Sir,

Castner's Refreshment Rooms, Sydney, 31 October, 1884.

It is with regret I learn that while I was in England you took upon yourself the responsibility of compelling my attorneys to pay to you the sum of £2,443 16s. 1d., which amount you assume I owe you for carriage of materials and supplies required at and for the refreshment rooms or premises leased to me,—this being done in the face of correspondence which, it appears, should have removed any doubt, if it ever existed, as to my liability for the amount you claimed that I owed for account as stated by you.

This sum I am determined you shall pay me, if it is possible to compel you to do so, and it appears to me quite opportune that I should review the existing relations between us as to the refreshment room leases, in which I shall show, from the correspondence that has passed, that any lack or failure to carry out the agreements contained therein is wholly and solely due to and caused by the Department, and that the public, as well as myself, have suffered in consequence; that I have repeatedly placed myself in communication with you without the slightest attention or recognition on your part.

I have at times been inclined to attribute this non-attention to the magnitude and press of your business. Be that as it may, the time has now arrived when some attention should be given to the subject, and that my claim for compensation, consequent upon the neglect of the Department, should be adjusted; therefore, I submit a review of the correspondence, with remarks thereon, from which you will see, if you peruse it, that what I state is correct.

In my letter dated 9th March, 1878, I asked you to lease to me land at certain stations, on which I could erect buildings for refreshment rooms.

On

On the 12th April, 1878, you write to me in answer to mine of the 9th March, 1878, and say :— “There will be no objection to sufficient land being leased to you at Bathurst and Orange on the West, and Bowning and Wagga on the South, at a rental of £25 per annum for each allotment, the buildings to be erected subject to the approval, and to become the property of, the Government at the expiration of the lease, which must not exceed twelve years, and the Government to have the right, at any time, to take possession of the building on payment of compensation.”

On the 21st October, 1878, I submitted plans for refreshment rooms and hotels to be built at Bathurst, Orange, Bowning, and Wagga. These plans were approved of by the Secretary for Public Works and yourself in my presence.

At the same time I handed you a letter, in which I asked you to be good enough to place Mittagong and Mount Victoria refreshment rooms on the same footing as Bathurst, Orange, Bowning, and Wagga, at the same rent and for the same time, from January 1st, 1879. In this letter I proposed to alter Mount Victoria and Mittagong in a similar style to plan submitted.

14th December, 1878, you write and say :— “Mr. Secretary Sutherland has been pleased to approve of the terms proposed in my letter of the 2nd October, 1878, and that the work be carried out at once.” By this you say I shall have sufficient land at Mittagong and Mount Victoria.

On the 27th December, 1878 (thirteen days after), you write asking me when I propose to establish refreshment rooms at Bowning, as proposals have been made to you *re* Cootamundra.

11th January, 1879, I reply to yours of 27th December, 1878, and say that just so soon as you give me permission to occupy the land asked for I shall at once proceed with the building of this Bowning Station.

On the 23rd January, 1879, you write and say that the matter of site for building at Bowning has been referred to the Engineer for Existing Lines, and he suggests another site. As you referred the matter to the Engineer for Existing Lines, he asked to see the plans and specifications, and I left them with him for his perusal. In a few days Mr. Mason informed me they must be altered, consequently the tenders I had invited had to be thrown aside, and so my operations were stopped. He arranged that my architect should call and see him with reference to the matter. The architect did call, the result being that the plans were altered as the Engineer for Existing Lines dictated, and at my expense. While these alterations in plans and specifications were being completed, it transpired that Murrumburrah was, by the Department, thought to be preferable to Bowning as a refreshment station. As the site at Bowning had not been decided upon, and being desirous, if I could, of meeting the views of the Department and be certain as to your determination, I wrote to you 9th August, 1879 on the subject, and on the 13th of same month you replied, saying that it had been decided to substitute Murrumburrah for Bowning.

So Bowning was disposed of, and that by the Department, it being no fault of mine this building is not erected, as tenders were received for it, but could not be accepted.

With your letter of 13th August, 1879, you send tracings for me to mark, which you requested I should return for consideration. These tracings were marked and returned 7th October, 1879, but I have not any intimation of your consideration or decision respecting them.

Twelfth November, 1879, you write to me, and say that the Engineer for Existing Lines has seen me with reference to site for refreshment room at Murrumburrah. Certainly Mr. Mason did point out to me a site on the plan in his office where I could build the refreshment room. This site was at the Sydney end of the station, and quite unsuited, as it joined the public urinals, and was hemmed in on the two sides by the workmen's w.c. I pointed out this to you personally on the ground in July, 1879, and you said the site would not do, but the site I had selected was the proper one, and I should have it. Well, Mr. Mason said he required my selection to use for a temporary station, while the new station was being built, and took it, and deprived me of the use of it.

Twelfth July, 1880, I wrote to you, and said, “I am ready to proceed to erect refreshment rooms at Murrumburrah, and that as soon as I got my reply, pointing out where the building was to be built, I shall begin the work.”

To this I have not received your reply.

Again, on 15th February, 1881, I wrote to you and said, “I should be glad if you would be good enough to put me in possession of the land I am to occupy at Murrumburrah or Harden, so I could proceed to exercise the privileges of my contract.”

To this letter I have not received your reply, nor have I been put in possession of the land I am entitled to.

So Murrumburrah is as it was, and the delay was caused by the Department.

Well, keeping to the Southern Line, the necessity for a refreshment room at Junee presented itself, and had to be met in a very short time, necessitating prompt, active, and costly operations, and on the 4th August, 1880, I wrote to you, and proposed to make the required alterations and additions to Junee Station, which, when required, I might remove with the understanding that you should provide a suitable site adjacent to the new station. The rent payable to be the same. Terms and conditions the same as at Mittagong, Mount Victoria, and other stations, and that all materials and supplies required for refreshment rooms shall be carried free by railway, thus associating and connecting Junee, Mount Victoria, Mittagong, and other stations together and under the same conditions.

On 13th August, 1880, you wrote and agreed to my proposal of the 4th instant, and compete this agreement, in which you say, I acquire no right to compensation should the station be removed to another site.

This provision was made, as it was then contemplated removing the station to what is termed the fork of the main line, where the Hay line intersects. I have complied with the conditions, and until the 26th January, 1882, the refreshment room at this station was very popular, so much so that its management was universally commended by the travelling public, and quoted in the Legislative Assemblies of the neighbouring Colonies as an example to be followed in the conduct of their refreshment rooms; in fact, it assisted largely to popularize your Southern Line with intercolonial travellers.

Twenty-sixth January, 1882, the premises were destroyed by fire. Before the ashes were cold I proceeded to make provision for another building, but was removed by your District Engineer, who put me and my men off the ground. I wrote to you and complained of this, but you took no notice of my letter.

Eighth February, 1882, I wrote to you, and asked to have the site adjacent to the new station and platform pointed out to me, that I might proceed to erect permanent refreshment rooms at Junee, but I have not received any reply to that letter.

You

You erect temporary iron buildings, which was and is simply a shed, and a poor apology for the requirements, and which, I am informed, I can occupy, but by such occupancy I shall acquire *no rights*, whatever that may mean.

About the 8th May, 1882, I wrote to you and asked my position as to this iron building, and on the 18th May, 1882, you write in reply in very peculiar terms and, I think, without reference or considering what had passed between you and myself, and I submit it was no concession on your part to permit me to occupy the building, and I have no doubt you would have been pleased if I had written and said I did not wish to continue as providore. In my letter of the 5th June, 1882, in reply to yours of the 18th May, 1882, I said the tone of that letter was, to say the least, harsh, and, I now say, uncalled for.

Again, on the 8th May, 1882, I wrote to you, asking where I can erect the permanent refreshment room. No notice taken of this letter.

On the 3rd November, 1882, I wrote to you about the site of the new building. No notice taken of this letter.

On the 20th December, 1882, I wrote again, asking for information about the site for the Junee building. No reply to this letter.

On the 10th January, 1883, I wrote again to you on this subject. No reply to this letter.

It seems to me that ordinary courtesy demands some acknowledgment of correspondence, especially in a matter where moneyed interests are in question.

I have previously intimated to you, and now repeat my determination to claim compensation from you in this matter, so that its mention here will be nothing new. See my letter, 3rd November, 1882.

As to Mount Victoria, to which you have repeatedly referred.

On the 24th October, 1878, I submitted to you plans for Mount Victoria Refreshment Room, which you took to the Secretary for Public Works, who with yourself in my presence, approved of them, and they bear the office number 78-11,822, and under date 14th December, 1878, you write and say: "Mr. Secretary Sutherland has been pleased to approve of the terms proposed by me in my letter of the 21st October, 1878, which letter accompanied and mentioned the plan for Mount Victoria station, therefore you acknowledge the plan as well as the letter and approve of the plan. Then I advertised for tenders for the alterations and had to withdraw the advertisement, as Mr. Mason, seeing them, asked who authorized them, as he knew nothing about it; and, on 28th December, 1878, you write and say I must not proceed with the work until I obtain the approval of the Engineer for Existing Lines of the steps to be taken, and refer me to that officer."

Here you stop me and say I must not proceed without Mr. Mason's consent.

I called upon the Engineer for Existing Lines with plans and specifications, your positive order gave me no option. I was obliged to act as Mr. Mason directed, in order to obtain his consent to proceed. He required so many alterations that new plans had to be prepared at extra cost to me. This occupied some time, and, when completed as directed, he approved of them, and you so endorsed the plan. I called again to inform him of your approval, and that I was prepared to go on with the building. He then informed me that a question as to room for the alterations proposed had arisen, which question must be settled before he could give permission to proceed.

The Engineer for Existing Lines in his minute to you, 30/4/79, says, "It is true Mr. Castner called at my office with drawings, but I told him I could do nothing further in the matter until he had got the Commissioner's sanction to depart from the original agreement." From this it appears the Engineer for Existing Lines was very clear on the point as to your acceptance and approval of my plan as well as letter.

19th April, 1879, I wrote to you for permission to depart from my original plan, as directed to do by the Engineer for Existing Lines, who, with myself, was anxious the work should proceed, and all that you would permit was done.

On the 9th May, 1879 you reply by saying that in your former correspondence it was stated that I would be allowed to build any storey, but that no extra land would be granted at either of these stations; that part of the correspondence has not yet reached me, and this is the first intimation I have that the land required by the approved plan would not be granted. The plan clearly shows that extra land will be required to carry out what is agreed for, hence the Engineer for Existing Lines saw the necessity of your consent being given to me to depart from the agreement. I have up to this time received only two letters from you on this subject, one, 14th December, 1878, accepting and approving of plan, which not only shows an additional storey, but additional rooms, nor does my letter of 21st October, 1878, with plans, imply that land will not be required at Mount Victoria. In this letter I ask to have Mittagong and Mount Victoria on the same footing as Bathurst, Orange, Bowning, and Wagga Wagga. When you say, 12th April, 1878, there will be no objection to my having sufficient land. 14th December, 1878, you say, "Mr. Secretary Sutherland has been pleased to approve of the terms proposed by me," this certainly warrants me in expecting sufficient land. The other letter is dated 28/12/78, wherein you say the alterations must not be undertaken without the approval of the Engineer for Existing Lines, and directs me to wait upon that officer for that purpose.

In your letter of the 9th May, 1878, you intimate that I am to submit new plans without reference to those you had already approved of, and these plans as much form part of the agreement as any part of the writing, and I could not throw them aside without your consent. Further on in the same letter you refer to the expiration of my then present lease, and that unless my proposals are proceeded with you will have no alternative but to make other arrangements. I must confess I was then, and am still, at a loss to understand this part of, or in fact the whole of, that letter. The correspondence therefore indicates that an agreement between you and myself is made. You direct me not to proceed with it under the conditions agreed upon. Then you write and say that unless I do proceed contrary to and in opposition to your express orders and those of your Engineer for Existing Lines, that you must make other arrangements. What they were to be I can only conjecture, and I maintain that up to the present time the matter as to Mount Victoria stands thus:—

21st October, 1878, I make a proposal.

14th December, 1878, you accept this proposal.

These two letters form the agreement.

28th December, 1878, you direct me to the Engineer for Existing Lines, and say I must not proceed to carry out my part of the agreement without his approval and consent.

With

With your letter of the 9th May, 1879, you enclose a copy of a report from the Engineer for Existing Lines, in which he says, "It is true Mr. Castner called at my offices with drawings, but I told him I could do nothing further in the matter until he had got the Commissioner's sanction to depart from the original agreement of raising the building one storey; until that is settled it would be useless to examine the drawings any further.

The Engineer for Existing Lines has taken this view of the case, that the plans and proposals are approved of and accepted by the Secretary for Public Works and yourself, and that it is requisite I should have your permission to depart therefrom before he can go further or give his sanction to me to proceed with the work. This I asked for in my letter of the 19th September, 1879, and which you have not so far granted to me, nor have you replied to the letter.

So far the delay as to this work it is clearly to be seen was caused by the Department, and I am the injured party. As I expected, I should have had the permission, I, in 1880, purchased the material for the building, and there it is ready to be used and represents so much money lying idle.

On 20th January, 1882, you write to me referring to the unsatisfactory conduct of the station, and in reply, January 24, 1882, with a view to learn if I could go on with the alterations or not, stated that my builder would soon be finished at Junee, and then could go on to Mount Victoria. This was with a view of bringing up the matter referred to in Mr. Mason's minute to you as to alteration of original agreement, but without the desired effect.

On 1st February, 1882, you write and say that this matter has been so long in abeyance, you must request I will not proceed until some understanding in regard to the question of refreshment rooms has been arrived at. This would imply that there was something under consideration of which I was ignorant, that some question was being debated in your mind as to whether I should be permitted to carry out my agreement or not.

On 8th February, 1882, I write to you as to this matter, and refer to the commencing of operations. A quantity of materials were on, which, representing so much cash laid out, operated much to my disadvantage. This, too, with the fact that I was cruelly punished by one of your officers, who unjustly and unnecessarily held thousands of pounds of my money, and with your full knowledge, so that I was deprived of a complete building whereby I might reap the benefit of cash customers, and deprived of my money which was held by the Department. Thinking that this reference might bring up the question of permission to go on with the building, made it, but without effect, and then ask how soon you desire me to proceed.

And as if you were determined to settle this "some understanding in regard to the question of refreshment rooms" on your own account, and without reference to the treatment I was then receiving from the Department, you, on the 25th April, 1882, write to tell me that "I hereby terminate your lease so far as it affects Mount Victoria," to which I replied, 26th April, 1882, and objected to the cancellation for Mount Victoria alone, but not to the lease being cancelled, as provided for originally, as a whole.

On 2nd May, 1882, I wrote again, and asked if the matter you referred to in your letter of 1st February, 1882, some understanding in regard to the question of the refreshment rooms, has been decided, to which I have not yet had any reply.

On the 6th November, 1882, I wrote to you again on the same subject, and under date of 23rd November, 1882, you reply to mine of the 6th, and say that I urge that some understanding should be arrived at. In this I think you misunderstand my letter. I do not urge that an understanding be arrived at. I merely quote your remarks in your letter of 1st February, 1882, when you say, "I request that you will not proceed with the alterations at that station until some understanding in regard to the question of refreshment rooms is arrived at." In the same letter you say, "For over two years you failed to proceed with the arrangement entered into with regard to this station." Why was this? Simply because you stopped me, nor have I yet any authority to proceed, although I have asked for it repeatedly, but on the contrary positive instructions not to proceed until I have the consent of the Engineer for Existing Lines, which he could not give (as he reported to you, 30th April, 1879), until you have given your consent for me to depart from the original plan. This I asked you for, but no doubt for some good reason you have not favoured me with, therefore you are responsible for the absence of proper accommodation and for the retention of a most disreputable place called a refreshment room, very much to the inconvenience of the public and my loss.

The first intimation I had of what you desired to effect or change in my agreement was on the 14th February, 1883, and on 23rd February, 1883, I handed you a letter, written as you dictated, agreeing to certain proposals for a change, and on the 2nd April, 1883, seeing that I had omitted Wagga Wagga station from my letter of the 22nd February, 1883, I wrote to you and said that as I had not received a reply to my letter of the 22nd February, 1883, this my letter of the 2nd April, 1883, should form a part, and the letter of 22nd February, 1883, and the letter of 2nd April, 1883, are one letter, to which, on the 16th April, 1883, you replied, declining my proposal, and on the 27th April, 1883, I wrote to you and stated that the two letters are to be received as, and are, one letter; therefore the letters having been declined by you, the 1878 and 1880 agreements still remain in force.

On the 14th June, 1881, I wrote to you and asked to be put in possession of land at Orange, according to the terms of my lease, to which I have not received your reply.

As to the carriage of goods, this question is understood in one way by me and acted upon in another way by you, therefore it has led to very much trouble and an expense that should have been avoided. I am quite aware of the fact that under the 1875 lease and also the 1878 lease I had no right to expect to have supplies carried free, but in the agreement made in my letter to you, dated 4th August, 1880, and your reply, 13th August, 1880, wherein it is expressly stated that all materials and supplies required for refreshment rooms shall be carried free by Railway, and you say "That the permission asked for is accorded me;" and then in yours of 2nd May, 1882, that the carriage free of provisions for passengers was never authorized; in fact, it is specially prohibited in the general contract for the lease of refreshment rooms. Certainly I fail to see that you can make the contents of your letters of 13th August, 1880, and 2nd May, 1882, agree.

If it should, for argument sake, be admitted that there is a doubt in the matter, is it at all probable that any business man would be so unwise as to take the responsibility of erecting premises at Junee at his own cost, that are liable to become useless in a few months, simply for the privilege of removing them to some other place at his own cost, and for which he has no right to compensation unless some other

condition exists whereby he may see a probability of compensating himself for the risk he takes. I took the risk of building at Junee upon the distinct understanding that all goods were to be carried free by Railway, incurring an expenditure of £1,800. This I was warranted in doing only because you had agreed to carry all the supplies I might require at the refreshment rooms free. This was the justification and the reason. The matter is very simple, very plain, and cannot be altered without my consent.

If not an actual, there is to me an apparent undercurrent, that works in opposition to my operations, and I think a careful perusal of the papers will disclose this to an unbiassed mind, and while that is the case, it is a very difficult task for me to carry out my arrangements with satisfaction and success.

The block that has been placed in my way has not in any sense brought credit to the Department or to me, but has been the cause of much dissatisfaction on the part of the public.

It is to be regretted that misunderstanding should occur. It is far better for all parties to an agreement to act in good faith one to the other, and if that cannot be done, it is better someone should interfere, and I submit the time has now arrived when I should know what you intend to do. As you say in yours of 1st February, 1882, nothing is to be done at Mount Victoria until an understanding is arrived at. What is this understanding other than that expressed in the agreement, as quoted above?

I have no doubt there are plenty who would be willing to take up the refreshment rooms now, but who was there that came forward before? Not one; I was the only tenderer for the 1875 lease. Others would not at that time risk their time and money as I did; therefore, it seems hardly fair that any obstructions should be placed in my way, nor do you hold out any inducement for one to devote his energies towards any improvement or further expenditure.

No one can deprecate more than I do the presumption that any misunderstanding should exist between the Department and myself, and I think that my conduct will bear me out when I say that I have spared no time, trouble, or expense to carry out my engagements when permitted, and that the repeated unsuccessful applications I have made to you to be permitted to carry out my arrangements which you could and did effectually block (very much to my loss) tends to discouragement and annoyance, and that I have been willing to meet the wishes of the Department where it did not interfere too much with my views.

The time devoted, and the expense incurred in England and America in 1878, the plans prepared after my return, as well as the expenditure with which the requirements were met, Junee, where the building consisting of sixteen rooms was begun and finished in twenty-one days, in order to be ready for the opening of the Southern line to Gerogery, together with the attention I have given, warrants, I think, a fair, if not a liberal, treatment from the Railway Department.

In order to substantiate the above I append correspondence referred to, that you may peruse and consider, with a view to an amicable as well as a speedy settlement of this unsatisfactory condition of things.

I also attach a statement of account showing the amounts I claim as compensation for the loss of business at the stations named for the period ending 31st October, 1884, and which amount I trust you will cause to be paid to me without delay. I may say I wish this matter dealt with in a satisfactory way, on or before the 10th November, 1884, or it will be placed in the hands of my solicitors to be dealt with for speedy settlement.

I have written to you so many times without effect, I am reluctantly compelled to adopt a course that you must reply to, although it may appear to be quite unnecessary, but, as before intimated, this seems to be the only course open to me.

I have, &c.,

JOHN L. CASTNER.

Amounts claimed as compensation for loss of business, as I have not been permitted to exercise my rights, as per agreement:—

Bowning or Murrumburrah.

This I was prepared to have completed 1st July, 1879.

Mount Victoria.

Tenders were called for this, April, 1879, and received. This could have been completed, October 1879.

Orange.

Having waited so long, receiving no acknowledgement as to approval of site marked on tracings, I ask for this, June, 1881.

Junee.

Compensation claimed from 3rd November, 1882.

	£
<i>Bowning or Murrumburrah.</i> —1st July, 1879, to 31st October, 1884,—274 weeks at £5	1,385
<i>Mount Victoria.</i> —October, 1879, to 31st October, 1884,—260 weeks at £6	1,560
<i>Orange.</i> —June, 1881, to 31st October, 1884,—173 weeks at £8	1,384
<i>Junee.</i> —November, 1882, to 31st October, 1884,—104 weeks at £25	2,600
	£6,929

Mr. G. L. Castner's claim for compensation, for loss of business alleged to be due to his having been debarred by the act of the Department from exercising his rights in connection with the refreshment rooms (£6,929).

In 1874 Mr. Castner took the lease for five years of the Mount Victoria and Mittagong Refreshment Rooms, at a progressive rent, and one of the conditions of the lease that it might be terminable at any time by a month's notice. It should be stated that Castner already held leases for five years, dating from 1873, of the other refreshment rooms.

Per letter of 9th March, 1878, in view of the approaching termination of the last named leases, Mr. Castner submitted to Commissioner certain proposals with regard to the refreshment rooms.

Commissioner

Commissioner replied (12th April, 1878), that there would be no objection to lease to Mr. Castner sufficient land at Bathurst, Orange, Bowning, and Wagga, for the erection of suitable buildings, at £25 per annum for each site, the buildings to be subject to approval, and to become the property of the Government at the expiration of lease, twelve years; Government to have the right to take possession at any time, on payment of compensation.

On the 21st October, 1878, Mr. Castner submitted plans for Orange, Bathurst, Bowning, and Wagga Wagga, and proposed that Mount Victoria and Mittagong should be placed on the same footing as these four stations, the buildings already there to be raised a storey higher.

On the 14th December, 1878, Commissioner replied that the Minister had approved of the terms proposed for the above four stations and the addition of another storey at Mount Victoria and Mittagong, and on the 28th December, 1878, Mr. Castner was informed that his plans for Mount Victoria and Mittagong must be submitted to the Engineer for Existing Lines. Mr. Castner accordingly submitted his plans to Mr. Mason, who reported that they were not in accordance with the arrangement approved by the Minister, inasmuch as they involved additional land, while the Minister sanctioned only the addition of an upper storey. Mr. Castner was so informed by letter of 9th May, 1879, and that if proper plans were submitted they would be considered, with a view to approval. It was also intimated to him upon the general question that if his proposals were not proceeded with at once other arrangements would be made.

Per letter of 13th August, 1879, intimation was made to Mr. Castner of the substitution of Murrumburrah for Bowning, and tracings were enclosed of the stations, with a request that he would mark upon them the land required for refreshment rooms.

On the 7th October, 1879, Mr. Castner wrote that he had visited Bathurst, Orange, Murrumburrah, and Wagga, with an officer deputed by the Engineer for Existing Lines, and had selected sites as marked on tracings.

Referred to Mr. Mason. That officer reported that he had seen Mr. Castner and pointed out to him a site for the refreshment room at Murrumburrah, and that sites at the other stations would be arranged for as soon as Mr. Castner was ready. Castner was so informed by letter of 12th November, 1879.

On the 4th August, 1880, in view of the opening of the railway to Gerogerie, Mr. Castner proposed to make additions and alterations at the Junee Station, on the following conditions:—That a site should be granted to him, adjacent to the new station to be built at Junee, upon the same terms as in the case of Mittagong, Mount Victoria, and other stations, and that all materials and supplies for refreshment rooms should be carried free.

Commissioner replied (13th August, 1880), that the permission asked for was acceded, but that Mr. Castner acquired no right to compensation should the station be altered or removed to another site.

On the 5th October, 1880, Commissioner informed Mr. Castner that he could occupy a room at Wagga Station, relative to which he (Castner) had made inquiry, for refreshment purposes, at a rent of 20s. Castner, however, objected to pay more than £25 a year, and some correspondence ensued. In February, 1881, Mr. Castner wrote that, in compliance with request, he had marked on tracings sent to him suitable sites for refreshment rooms at Bathurst, Orange, Bowning, and Wagga; that these sites were approved by Commissioner and Mr. Mason; that the station at Wagga being in the hands of the contractor, Mr. Mason informed him (Castner), that he could not be put in possession of the land there for the present, and that it was finally decided that the building could not be proceeded with until the new station was ready for occupation. Mr. Mason minutes that Mr. Castner's statement was correct, and Commissioner ultimately fixed the rent at the £25 a year, the rent which Castner was to pay for the land.

Per letter of 14th June, 1881, Mr. Castner pressed to be put in possession of land at Orange, It does not appear that any reply was sent.

A letter of Mr. Castner's, dated 15th February, 1881, has been omitted in its proper sequence. It states that his arrangement with Commissioner was to have rooms at Murrumburrah and Wagga; that he selected sites which were approved of, and that these sites have been occupied for other purposes; presses to be put in possession of land, and insists that he is suffering heavy loss through not having the rooms open. The consideration of this letter was deferred from time to time, until—I quote the Commissioner—"until the Minister decides whether Castner's arrangements with the Department is to stand." It was not answered.

On the 30th January, 1882, Mr. Castner wrote with reference to the fire at Junee that although his contract gave him the right to land at Junee, he had been prevented by the District Engineer from putting up temporary accommodation even on the site previously occupied by him; that he was suffering a heavy loss pecuniarily, and that he hoped the Commissioner would make good this loss. This letter was not answered.

On the 9th February, 1882, Castner wrote again, stating he was making arrangements for materials for the permanent refreshment room at Junee, asking for a site to be pointed out, and referring to the loss he was sustaining. This letter was not answered, but Commissioner minuted that no goods for the new building were to be carried except on prepayment of freight.

On the 8th May, 1882, Mr. Castner again asked for a site at Junee, and stating that he was sustaining a loss of £25 a week. This letter was not answered.

In January, 1882, Commissioner wrote to Mr. Castner, complaining of the way in which he was conducting the refreshment room at Mount Victoria, and the latter explained that he was about to make certain alterations in the rooms at that place. The Commissioner thereupon wrote to Mr. Castner (1/2/82) that, as the matter had been left so long in abeyance, the alterations must not be proceeded with until some understanding as to the refreshment rooms had been come to.

Mr. Castner replied on the 8th February, 1882, that the alteration had been commenced a year before, and would have been completed had not moneys due to him been withheld from him by an officer of the Department with the object of retarding his progress. That, moreover, Commissioner desired him to give special attention to Southern Line; that the responsibility of the delay was with the Department; that he would stop as desired for a limited period, but that he desired to lose as little time as possible in availing himself of the privileges of the contract.

Hereon

Hereon Commissioner minuted that, at the request of the Minister, he had stayed in every way possible the arrangements with Mr. Castner, and that he feared Castner would claim compensation, and delay would increase the claim.

On the 23rd April, 1882, Commissioner gave Castner notice to terminate the lease of Mount Victoria.

Mr. Castner replied on the 26th idem, asking if it was intended to terminate the whole of the leases, or Mount Victoria only. If the latter, he must object. First, because the lease made no such provision; secondly, because he had been led to believe for eighteen months that the Government had it in contemplation to make some change in his position respecting the refreshment rooms, a view which was confirmed by Commissioner's letter of 1st February, 1884, requesting him (Castner) to delay the alterations at Mount Victoria, until some understanding in regard to refreshment rooms had been arrived at; thirdly, because, at Commissioner's request, he had removed the person in charge at Mount Victoria, although there was no provision in the existing arrangements for anything of the sort. If Commissioner desired to cancel the whole of the leases, he (Castner) had no objection, provided compensation was awarded as provided in Commissioner's letter of the 12th April, 1878. Insisted that Mount Victoria was part of a whole, and saw no reason why he should consent to a division of the contract. Commissioner, per letter of 22nd May, 1883, reminded Mr. Castner that he held Mount Victoria under special lease, which provided that Commissioner could take possession at any time.

Mr. Castner replied (26/5/83), ignoring Commissioner's reference, and repeating his former objection. Commissioner minuted that the lease he referred to was that in force for Mount Victoria, but no reply was sent to Castner.

On the 3rd November, 1882, Mr. Castner wrote to Commissioner, complaining of the delay to his operations at Junee, in consequence of a site not being pointed out, and stating that he was losing at least £25 a week thereby; also stating that if the Department chose to put up the building he had no objection, and he was willing to pay 6 per cent. on cost. Commissioner minuted that this matter had been before the Minister for nearly four years; that Mr. Castner had certain rights by agreement with the previous Government, but Mr. Lackey, not approving of the arrangement, no step was taken to give effect to it; would suggest that Mr. Castner be asked to release Department from existing agreement; that buildings be erected by the Department; that Mr. Castner should have the lease of them from 1st January, 1883, he paying 7 per cent. on the capital outlay. This proposal was approved by the Minister, and was explained to Mr. Castner verbally on the 14th February, 1884.

But before the solution of the difficulty was proposed to Mr. Castner, other correspondence had passed bearing on the question. On the 6th November, 1882, he wrote with reference to Commissioner's request, that proceedings at Mount Victoria might be suspended, and to the "understanding" referred to by Commissioner, the nature of which he wished to learn.

In reply, Mr. Castner was informed (23/11/82) that his delay at Mount Victoria having vitiated the agreement, he could not be allowed to proceed with alterations there until some definite understanding was arrived at, and that Commissioner would be glad to hear from him on the subject.

Mr. Castner rejoined (29/11/84), quoting Commissioner's letter (of 1/2/82) *in extenso*, denying that he had vitiated the agreement, as he had occupied the premises, and paid rent for them, alleging that the delay in carrying out the alterations at Mount Victoria was due to the act of the Department in withholding his money from him, and expressing his willingness that the arrangement for Junee, proposed in his letter of 3rd November, should be applied to Mount Victoria also.

Commissioner minuted hereon, stating the nature of the new arrangements proposed [see Commissioner's minute upon Mr. Castner's letter of 3rd November, 1882], that for Mittagong, where Castner had put up buildings, the lease would be for twelve years from 1st January, 1882, the building then to become the property of the Government, and that as regarded Mount Victoria, the rent in consideration of the alterations to be made had been reduced from £150 to £25, but Castner had vitiated the agreement by neglecting for two years to make alterations.

On the 20th December, 1882, Castner wrote complaining of delay in assigning him a site at Wagga, and stating that a license had been granted to him conditionally upon his having the rooms ready in nine months, and, that five months of that period having already elapsed, he was apprehensive of losing the license, for which he should hold the Department responsible.

The Commissioner replied that the Department took no responsibility in connection with the arrangements.

On the 22/2/83 Castner wrote with reference to Commissioner's verbal intimation of 14th idem., formally consenting to the cancelment of existing agreement and the substitution of a new one upon the following terms:—The Department to put up buildings as under, at cost as stated. Goulburn, £2,500; Yass, £2,000; Junee, £4,000; Mount Victoria, alterations, £1,500; Bathurst, £2,000; Wellington, or Orange, £2,500; Castner to pay rent at the rate of 7 per cent. upon cost, the new lease for five years to take effect from 1st July, 1883, and Mittagong to remain at present rental.

Crown Solicitor was instructed to prepare leases accordingly.

On the 2nd April, 1883, Mr. Castner wrote that, in his letter of 22nd February, he had inadvertently omitted to include Wagga with Mittagong, and asked to be allowed to rectify this omission.

Commissioner replied (16th April, 1883) that he was unable to include Wagga.

Mr. Castner rejoined (27th April) that his letter of 2nd April formed part of his letter, dated 22nd February, on the same subject.

In January, 1884, the draft leases were submitted to Mr. Castner, and he objects (verbally) to the date, which he wished to be made July, 1884, instead of July, 1883. He also objected to a matter of detail in connection with alterations; upon the latter point the Commissioner gave way, but he refused to alter the date.

On the 18th February, 1884, Mr. Castner was notified that the leases were ready for signature.

He

He replied (28th idem) that he was at a loss to know why the leases had been prepared, as Commissioner, by letter of 16th April, 1883, had declined his proposals respecting the refreshment rooms, and that, as regarded Junee and Mount Victoria, he had at Commissioner's request written a letter to say he would pay 7 per cent. on cost.

It should be stated that about the middle of last year, in anticipation of the execution of the leases, the buildings at Junee were put in hand, and are now far advanced towards completion. Pending the erection of the new buildings, temporary accommodation had been provided at Goulburn and Yass, for which Mr. Castner is paying 7 per cent. on cost of erection, and at Wellington, for which he is paying an annual rental. Plans for these and the other stations have been for a long time under preparation, and tenders are about to be called for some of the stations.

D. V., 10/12/84.

The Crown Solicitor to The Commissioner for Railways.

You *ats.* Castner.

Sir,

Crown Solicitor's Office, Sydney, 27 February, 1885.

I have the honor to inform you that this case is down for trial on the 10th March next, in the Jury Court. I send herewith a reply of Counsel's advice on Evidence, and I shall be glad if you will furnish me with the names of witnesses on your behalf by Saturday, the 5th March next.

I have, &c.,

JOHN WILLIAMS,

Crown Solicitor.

The Commissioner for Railways *ats.* Castner.—Advice on Evidence.

It is admitted upon the instructions before me that the original agreement made with Castner was broken, and that he will be entitled to damages for the breach unless defendant can make out the acceptance of the new contract in lieu of the old one and in satisfaction of existing claims thereunder. At the present I have not all the correspondence before me, and therefore can express no opinion upon this point; but it is one which arises upon the documents, and must ultimately (I presume) be decided by the full Court. It is only necessary now to say that no evidence will be required to prove the substituted agreement except the various letters and documents relating thereto. Notices to produce should be served in respect of all such documents, as are in the plaintiff's possession; and they should be described in the notice as fully as possible. Those that are in the custody of the officers of the Legislative Assembly should be obtained by *subpoena duces tecum*. The evidence of the Commissioner or other officers who have had material conversations with plaintiff will however probably be required in case any erroneous version of such conversations should be deposed to by the plaintiff.

Assuming that the plaintiff's contention is held correct, and that he is entitled to damages for breach of the original agreement, it will be advisable to be prepared with any available evidence to cut down the damages which, as usual, may be anticipated will be claimed upon an exorbitant scale. I can only suggest in a general way the nature of such evidence. It should be directed, to show how far the breaches of the agreement affected plaintiff's moneys, what arrangements he made (if any) to carry on the business, notwithstanding the difficulties in his way. If plaintiff was altogether prevented from opening refreshment rooms during the time the defendant failed to provide sites, &c.

Show, if possible, in a general way the quantity of traffic and the probable amount of custom and profits derivable from the business. It is probable that no evidence of value can be obtained on these heads, but possibly some data may be obtained by comparing the relative traffic and importance of the several stations with those where plaintiff had for some time carried on business.

It might be useful to get plaintiff's books showing accounts and receipts, &c., by notice to produce.

Plaintiff's claim for gas appears to be also a question of law arising upon a construction of the letters constituting the contract. It seems, however, that plaintiff was entitled to something for the extra lights while in actual use, in accordance with a verbal contract made with him. Has this amount been paid to him? If not, ought it not to have been paid into Court? If anything is due to plaintiff on this head it would be advisable to amend the plea of payment into Court, about which no time should be lost.

With regard to plaintiff's claim for a return of the money paid for freight for supplies to the refreshment rooms, the contention is again a question of law depending upon the construction of the letters. I presume that the amount named in the particulars under this head is correct, otherwise defendant should be prepared with evidence to show what the correct amount was.

Defendant should call as witnesses those persons who are cognizant of the circumstances out of which plaintiff's claim arises for the locomotive head lamp.

I understand that they will prove that the whole thing was an experiment, conducted by plaintiff at his own cost. Any memoranda or correspondence relating to this should be produced.

Defendant should be prepared to prove, if possible, that plaintiff was not ready and willing to carry out his contract by calling those persons who know the delay or other neglect on plaintiff's part to fulfil the contract on his part.

Chambers, 26th February, 1885.

CECIL B. STEPHEN.

Minute of The Commissioner for Railways.

I think it would be well to compromise this case if possible. I do not think, from information received, that the plaintiff would be unwilling to do so.

I would be prepared to recommend the following concessions:—

In respect to refreshment rooms to give an additional year or two to present term, and to allow Mr. Castner the power to sublet or to transfer, Mr. Castner to be allowed a term of five years from date of completion of the refreshment rooms not yet finished.

This to be accepted in full satisfaction of all demands in respect of refreshment rooms either under cancelled agreement or existing agreement.

Gas.

Gas.—The sum claimed is £1,645. I would allow Mr. Castner £1,000 on this account.
 Fitting locomotive with head lamp.—Claim £40, would allow £25 on this account.
 Carriage supplies, which we have deducted from the amount awarded under arbitration for purchase of gas-works, £2,558.

It would seem that out of this amount there is really due to Mr. Castner—

Deduction made improperly for building material	... ..	£ 92 19 3
Bricks from Goulburn to Junee	... ..	90 12 7
For the carriage of water to Junee, supposed to be for gas works	... ..	791 0 1
		974 11 11

To this might be added the charge made for bricks carried from Lithgow to Goulburn, which, under legal advice, it was contended Mr. Castner was not entitled to claim, as being an unreasonable distance to require bricks to be carried

184 5 6

£1,158 17 5

There would remain under this head the sum of £1,039 16s., which I would agree to divide = £544 18s.—with Mr. Castner, but I could not consent to any allowance being made for following items:—

Supplies for Mount Victoria	... ..	£106 12 9
„ Mittagong	... ..	26 17 4
„ Yass	... ..	37 14 8
„ Wagga Wagga	... ..	23 17 11
		£195 2 8

Amount to be allowed—found to be absolutely due	... ..	£92 19 3
„ „	... ..	90 12 7

183 11 10

Assumed to be due, but liable to considerable reduction if water was not wholly used for making gas	... ..	791 0 1
Concessions made in respect of bricks, between Lithgow and Goulburn	... ..	184 5 6

1,158 17 5

Concession made of one moiety of freight for ordinary refreshment supplies, Junee	544 18 0
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1,703 15 5

Head lamp to engine—£40, compromised for	25 0 0
For gas supply—claim of £1,645, compromised for	1,000 0 0

2,728 15 5

2nd March, 1885.

CH. A. GOODCHAP.

The Crown Solicitor to The Commissioner for Railways.

Sir,

Crown Solicitor's Office, Sydney, 4 March, 1885.

I have the honor to state that upon receipt (this morning) of your memo. of date 2nd March inst., marked "confidential," with reference to the settlement of the action "Castner v. you," I called upon the plaintiff's solicitors, and informed Mr. Westgarth, who has the conduct of the case, that we were desirous of settling, if reasonable terms could be made, and (without prejudice) suggested a settlement on the basis of the terms mentioned in your memo. Mr. Westgarth told me that he would submit the proposal to his client, but that he felt that it would not be accepted, as they had taken the opinion of their counsel as to their client's claim with respect to the damage he sustained by the breach of the agreement as to the refreshment rooms, which he estimates, and is prepared with evidence to show, amounts to several thousands of pounds. Mr. Westgarth said he felt convinced that nothing but an ample money payment would be accepted in respect of this portion of their client's claim.

The chance of settlement appears to be so small that it is necessary that the evidence of the defence be at once furnished to me, as I think it is certain that the plaintiff will press the case in for trial.

Will you let me know at once, therefore, what evidence you desire shall be called for the defence. At present I am without any information as to this, and the only instructions I can give to counsel will be to watch the plaintiff's case and require him to prove same strictly.

As this matter is very urgent, will you let me hear from you as early as possible.

I have, &c.,

JOHN WILLIAMS,
Crown Solicitor.

The Crown Solicitor to The Commissioner for Railways.

You *ats.* Castner.

Sir,

Crown Solicitor's Office, Sydney, 9 March, 1885.

I have the honor to forward herewith a letter I have just received from Messrs. Norton & Co., plaintiff's attorneys, declining to accept the terms of settlement proposed by you.

I have, &c.,

JOHN WILLIAMS,
Crown Solicitor.

[Enclosure.]

[Enclosure.]

Castner v. The Commissioner for Railways.

John Williams, Esq., Crown Solicitor, Sydney.

Sir,

Marlborough Chambers, 2, O'Connell-street, Sydney, 9 March, 1885.

We have submitted your offer of settlement in this action to our client, and he instructs us to decline.

We have, &c.,

NORTON & CO.

Castner v. The Commissioner.

I HAVE seen the Crown Solicitor with Castner's offer of terms of compromise, and he is of opinion that it is a most favourable and fortunate "get off," and that the offer should be accepted without delay or demur. I asked Mr. Williams if we should contest the points of half costs, and he said "certainly not," accept the offer while you have the chance, and get the case taken off the list at once.—C.A.B., 17/3/85. Secretary.

Commissioner.—G.B. Mr. Castner has expressed to me his willingness to allow Penrith and Sydney to remain under existing arrangements.—C.A.B., 18/3/85.

Mr. J. L. Castner, to The Commissioner for Railways.

Sir,

Railway Refreshment Rooms, Sydney, 16 March, 1885.

With reference to account rendered by me to you, and which is the cause of action at law, I beg to say that in order to bring about a settlement, I am willing to agree to the following, which, if concurred in by you, shall be accepted by me as full satisfaction of claim referred to, that is to say—

That you pay to me £3,500 in cash, and half costs (say) £250.

That I shall have the occupation of all refreshment stations that now are, or will, be erected or established on the Southern or Western railway lines and the branches therefrom, excepting Albury, during and upon the terms and conditions of letters forming lease made 1878, which expires 31st December, 1890, and 7 per cent. on cost of buildings erected by you for refreshment-room purposes, the plans of which should be submitted to me for approval.

That I will be permitted to have water at Junee and other stations, where any water difficulty may exist, from your tanks, without charge, when required by me.

That I shall have the liberty of subletting or disposing of any or all of the stations to parties approved of by you, and that I shall have a first-class free pass over the railways for self and an Inspector during the above term.

Upon the acceptance of your approval of this, and a cheque for the amount stated above, I will sign receipt as payment in full and withdraw the action.

I have, &c.,

JOHN L. CASTNER.

The Commissioner for Railways to Mr. J. L. Castner.

Sir,

Department of Public Works (Railway Branch), Sydney, 18 March, 1885.

I have the honor to acknowledge your letter of the 16th instant, offering to withdraw the action which you have commenced against the Department for the sum of £11,179 8s. 10d. on the following terms, viz. :—

1. A cash payment of £3,500.
2. Payment of the sum of £250 towards your cost.
3. The lease until the 31st December, 1890, of all refreshment rooms existing and to be built on South and West lines, except Albury, at a rental equal to 7 per cent. on the cost of such buildings.
4. You to have the power, subject to the approval of the Commissioner for Railways, to sublet or transfer the rooms.
5. A first-class free pass to be allowed to yourself and an Inspector during the above term.
6. A free supply of water to be given you at Junee and at other refreshment stations where natural difficulties about water supply exists.
7. On payment of the sum of £3,500 and £250 before mentioned, you to give a receipt in full of all demands to date.

In reply, I am instructed by Mr. Secretary Wright to convey to you due intimation of his acceptance of these terms, and that a cheque for the sum of £3,750 shall be paid to you.

You to sign a release indemnifying the Commissioner from any future action at law in respect of these matters.

I have, &c.,

CHAS. A. GOODCHAP,

Commissioner for Railways.

The Crown Solicitor to The Commissioner for Railways.

Sir,

Crown Solicitor's Office, Sydney, 18 March, 1885.

I have the honor to state that I have now (quarter past 2) received your letter of this day's date, forwarding Mr. Castner's original letter offering terms of compromise in action now pending, and a copy of your acceptance thereof, both herewith, and asking whether you will be justified in paying Mr. Castner the sum which under the proposed settlement, £3,750, is to be paid to him before a formal deed is to be drawn up. You also request that I will reply to your letter this afternoon.

Upon receipt of your letter I called upon Mr. Westgarth, Mr. Castner's solicitor, who was then engaged in the Supreme Court, to know if he had been advised of the arrangement, and showed him Mr. Castner's letter and the copy of your reply. He said he has not been informed by Mr. Castner of the matter, and could not in any way stay the proceedings. As the matter is apparently settled I thought the case, without being finally withdrawn, might be struck out of the list of cases and entered for trial at a subsequent day, but Mr. Westgarth informs me that yesterday afternoon he was directed by Mr. Castner in no way to consent to anything that would delay the case being brought on for trial.

I certainly cannot take the responsibility of advising you to pay the £3,750 until a formal release or agreement has been signed by Mr. Castner. If that amount is paid before a final release is obtained it may be that difficulty will arise with Mr. Castner as to the form of release, and that the dispute with Mr. Castner will be kept open, with the additional disadvantage to you of Mr. Castner having received all that he is to receive.

Whether the £3,750 shall be paid at the present stage of the arrangement is not a question of law but of expediency, which I cannot determine.

I have, &c.,
JOHN WILLIAMS,
Crown Solicitor.

The Crown Solicitor to The Commissioner for Railways.

Sir,

Crown Solicitor's Office, Sydney, 19 March, 1885.

I have the honor to state that Mr. Westgarth, Mr. Castner's solicitor, informed me this morning that he had received a letter from Mr. Castner to the effect that your letter of the 18th inst. was not simply an acceptance of the terms offered in his letter, but proposes other terms, which he declines to accept, and no final agreement for settlement has been come to. Mr. Castner, however, states that he is still willing, if you will write accepting the terms, mentioned in his letter without alteration or qualification, and forward a cheque for the amount, which under such an arrangement will be payable to him, to so arrange.

Mr. Castner has, it is said, left town, and will not return before Monday. If, therefore, anything is to be done in the matter, it must be before then.

I have, &c.,
JOHN WILLIAMS,
Crown Solicitor.

The Commissioner for Railways to The Crown Solicitor.

Department of Railways, 19 March, 1885.

I HAVE the honor to acknowledge your letter of this day's date, intimating that Mr. Westgarth has informed you that Mr. Castner was still prepared to compromise his action upon the terms (without alteration or qualification) set forth in his letter of the 16th instant.

As I have already taken occasion to intimate to you, the case is, in my opinion, one which ought to be settled, and if no better terms can be obtained than those demanded by Mr. Castner, I think they should be accepted.

I addressed a letter to you this morning on this subject, enclosing Mr. Castner's letter above referred to. The present letter must be read as a continuation of mine of this morning.

If the £3,750 be paid to Mr. Castner, care must be taken that it is accepted in full of all claims and demands, and that it is understood that the amount is intended to include any sum that may have been paid into Court, and that the proposed new leases are to be in substitution of existing agreements, which latter are to be cancelled and become null and void.

I have, &c.,
CHAS. A. GOODCHAP,
Commissioner for Railways.

The Crown Solicitor to The Commissioner for Railways.

Castner *v.* the Commissioner for Railways.

Sir,

Crown Solicitor's Office, Sydney, 19 March, 1885.

I have the honor to return herewith your letter of this day's date, and Mr. Castner's letter of 16th March, forwarded therewith, received shortly after I had written to you this morning on the same subject.

As mentioned in that letter, Mr. Castner's attorney states that Mr. Castner will not settle upon any terms short of a complete and unqualified acceptance of the terms mentioned in his letter of 16th March instant.

With reference to the payment of £3,750, that is £3,500 as for compensation, and £250 as for costs, Mr. Westgarth states that he understood that the amount paid into Court with the amended particulars on 16th instant, £842 15s. 3d., will, if a settlement is agreed to, be deducted from the £3,500, that is as suggested in your minute, the £3,500 included in the amount as paid into Court.

I forward herewith an extract from Mr. Castner's letter to Messrs. Norton & Co.

Will you, therefore, instruct me what offer (if any) I am to make to Mr. Castner's solicitor. From the information they have given to me the question appears to be limited to whether or not you will accept the terms in his letter, and at once pay the money or not.

I have, &c.,
JOHN WILLIAMS,
Crown Solicitor.

Extract of Mr. Castner's letter to Messrs. Norton & Co.

RESPECTING the case between the Commissioner for Railways and myself, there has been a good deal of negotiations, but no satisfactory results have been arrived at; therefore it is my desire the case should be proceeded with, unless I receive, or you receive on my behalf, a clear acceptance of my letter of the 16th instant, and its conditions as therein stated. Copy of letter appended hereto.

The Commissioner did send to me a letter accepting in part the conditions of my letter, but in one particular it was varied, *i.e.*, he excepted Sydney and Penrith stations from the other stations, to which clause I asked to have added, "At the present rental and lease to expire with others, 31st December, 1890."

This letter was taken away to have the words added and to be initialled, but has not been returned to me, so that I am really without an answer to my letter.

Minute

Minute of the Commissioner.

Mr. Castner sues the Commissioner for £11,500.

First—For breach of agreement in respect of refreshment rooms, £6,929.

Second—For carriage of supplies to refreshment rooms, £2,885.

Third—For under-payments on account of gas supplied to Redfern Station, £1,640. And a small amount for supply of head lamps for locomotive.

The settlement of the case for £3,500, and £250, half costs, on the terms given.

Mr. Castner's letter of the 16th instant is considered by the Crown Solicitor to be a favourable settlement for the Department, and I recommend that it be settled accordingly.—CHAS. A. G., 18/3/85.

Approved.—F.A.W., 18/3/85.

The Crown Solicitor to The Commissioner for Railways.

Castner v. You.

Sir,

Crown Solicitor's Office, Sydney, 21 March, 1885.

Referring to your second letter of the 19th instant, I have the honor to state that on communicating with Mr. Castner's attorney, I find that they positively refuse to accept a release containing any reference to new leases, and insist that the release shall be simply a general lease and discharge of the action and all claims the subject of it. I have, therefore, prepared, and now forward herewith, a draft form of release with that object, which has been submitted to and approved of by Counsel, and shall be glad to know if it appears to you sufficient for the purpose, or whether you still require reference to future arrangements with Mr. Castner to be made in it.

On your returning the draft to me, and if it be approved, I will at once submit it to Mr. Castner's attorney for perusal on his behalf.

I have, &c.,
JOHN WILLIAMS,
Crown Solicitor.

The Crown Solicitor to The Commissioner for Railways.

Sir,

Crown Solicitor's Office, Sydney, 24 March, 1885.

I have the honor, in reference to your letter of this day's date, in which, respecting the settlement of Mr. Castner's action, you state "the voucher for £3,750 has been sent forward to the Treasury for payment," to remind you that this is not the sum to be paid; the amount paid into Court, £842 15s. 3d. has to be deducted, leaving the sum for present payment at £2,907 4s. 9d.

I have, &c.,
JOHN WILLIAMS,
Crown Solicitor.

The Crown Solicitor to The Commissioner for Railways.

Sir,

Crown Solicitor's Office, Sydney, 24 March, 1885.

I have the honor to forward herewith the draft release which has been settled by Mr. Castner's solicitor.

You will notice that they have inserted (in red ink) a statement that the settlement is also in consideration of the terms, &c., in Mr. Castner's letter to you of 16th March instant, that is, intending that the rights stipulated for in those letters shall remain. I think this is the arrangement you intended.

If this is so will you return the draft at once, and forward a pay voucher for the amount to be paid to Mr. Castner.

I have, &c.,
JOHN WILLIAMS,
Crown Solicitor.

THIS INDENTURE made the twenty-fifth day of March one thousand eight hundred and eighty-five between John Louis Castner of Sydney in the Colony of New South Wales gentleman of the one part and the Commissioner for Railways a corporation sole created by the Act of Council passed in the twenty-second year of the reign of Her Majesty Queen Victoria number 19 intituled "An Act to make more effectual provision for the construction by the Government of Railways in the Colony of New South Wales and for the regulation of the same of the other part Whereas an action has been lately commenced by the said John Louis Castner in the Supreme Court of New South Wales against the said Commissioner for Railways of the said Colony being number 4126 of the year one thousand eight hundred and eighty-four to recover certain sums alleged to be due and owing by the said Commissioner for Railways to the said John Louis Castner and also damages for alleged breaches of contract by the said Commissioner for Railways And whereas it has been agreed between the parties to the said action and to these presents that the said Commissioner for Railways should pay to the said John Louis Castner the sum of three thousand five hundred pounds less the sum of eight hundred and forty-two pounds fifteen shillings and threepence recently paid into Court in the said action in full satisfaction and discharge of all claims by the said John Louis Castner against the said Commissioner for Railways not only in respect of the said sums and damages in the said action but in respect of all claims of every nature or kind whatsoever which he the said John Louis Castner has or may have against the said Commissioner for Railways and the further sum of two hundred and fifty pounds for the costs of the said John Louis Castner in the said action and that upon payment of the said two sums of two thousand six hundred and fifty-seven pounds four shillings and ninepence and two hundred and fifty pounds the said action and all further proceedings therein should be wholly stayed discontinued and released to the said Commissioner for Railways Now this indenture witnesseth that in pursuance of the said agreement and

in consideration of the said two sums of two thousand six hundred and fifty-seven pounds four shillings and ninepence and two hundred and fifty pounds making together the full sum of two thousand nine hundred and seven pounds four shillings and ninepence now paid by the said Commissioner for Railways to the said John Louis Castner in full satisfaction as aforesaid the receipt whereof is hereby acknowledged he the said John Louis Castner doth hereby remise release and quit claim with the said Commissioner for Railways and the Government of the said Colony The said action now pending in the said Supreme Court and all claims for moneys compensation damages or costs therein and also further from all actions and suits cause and causes of action and suit accounts claims and demands whatsoever both at law and in equity which he the said John Louis Castner now hath or at any time hereafter can or may have or but for the execution of these presents could or might have had against the said Commissioner for Railways to the date hereof.

In witness whereof the said John Louis Castner hath hereunto set his hand and seal and the said Commissioner for Railways his common seal the day and year first before written.

Signed sealed and delivered by the said John Louis Castner in the }
presence of,— J. L. CASTNER.

I acknowledge to have received from the Commissioner for Railways abovementioned }
the sum of } £2,907 4s. 9d.
being the consideration money abovementioned to be paid by him to me. }
Witness,— J. L. CASTNER.

The Commissioner for Railways to The Crown Solicitor.

Sir, Department of Railways, Sydney, 16 April, 1885.

I have the honor to inform you that the following are the particulars of the arrangements lately made with Mr. Castner in connection with the compromise of the action which he had commenced against the Department:—

Mr. Castner to have a lease until 31st December, 1890, of all refreshment rooms, existing, or to be built or appropriated, on South and Western lines and branches (except Albury).

The plans of any new refreshment rooms to be submitted to Mr. Castner for approval.

Mr. Castner to have the power, subject to the approval of the Commissioner for Railways, to sublet or transfer.

Mr. Castner, in the case of each station, to pay rental equal to 7 per cent. upon the cost of the building devoted to refreshment purposes

The rent to be paid monthly in advance.

Water required by Mr. Castner for refreshment-room purposes at Junee and any other refreshment station, whether owing to natural difficulties in respect of the supply it has to be brought by railway, shall be supplied by the Department, and shall be carried over the Railway free of charge.

A first-class free pass for all refreshment stations on Southern and Western lines and branches shall be granted to Mr. Castner, and a similar pass for an Inspector employed by him.

I shall be much obliged by your preparing a deed embodying these conditions in such form as you may think suitable and best calculated to secure the Department against after claims.

I have, &c.,

CH. A. GOODCHAP.

Mr. J. L. Castner to The Commissioner for Railways.

Sir, Sydney, 22 March, 1887.

With respect to the Railway Refreshment Rooms Contract, or agreement, granted by you to me on the 18th March, 1885, and now operated by John Castner and Co. (Limited), I have the honor to say that the gentlemen forming that Company are desirous that you would transfer the said contract, or agreement, and its responsibilities and privileges, from me to them, and that you accept that Company as lessees in my stead, and that I shall be glad if you will be good enough to comply with their desire and accept John L. Castner and Co. (Limited), as lessees in the place of the undersigned.

For reasons which appear good the Company, which is composed of Mr. T. H. Kelly, merchant, Mr. J. Y. Mills, auctioneer, Mr. R. Jones, jun., of Harrison, Jones, and Devlin, R. Black, Esq., M.L.A., Mr. G. Durham, accountant, Mr. W. Beaumont, gentleman, Mr. J. R. Jones, of Messrs. Jones and Black, and J. L. Castner and others, believe it will be advantageous for all concerned if they communicate directly with you and the public instead of through myself, as they have been and now are operating the refreshment-rooms; and I may further say it seems to me this arrangement would be far more satisfactory. Awaiting your reply,

I have, &c.,

JOHN L. CASTNER.

I should be glad to see the Commissioner this afternoon on this matter.—J.S., 29/3/87.

I have seen the Minister, who thinks that there can be no objection to take the names of the Company instead of Mr. Castner. The Company should take a transfer from Mr. Castner I suppose. Please say what is the best way of effecting this.—CH.A.G., 29/3/87.

I saw the Commissioner and explained the nature of the deed which I thought would be necessary for the assignment of Mr. Castner's interest to the Company, and the Commissioner directed that the Crown Solicitor should be instructed and Mr. Castner informed.—C.A.B., 29/3/87.

The Commissioner for Railways to Mr. J. L. Castner.

Sir,

Railway Branch, Sydney, 30, March 1887.

I have the honor to acknowledge your letter of the 22nd instant, in which you ask that the contract or agreement granted to you in March, 1885, in respect of the lease of the Railway Refreshment Rooms may be transferred to the gentlemen now working the business under the title of John L. Castner and Company (Limited), and that they may be accepted by the Department as lessees in your stead, you being thereby relieved of all obligations and responsibilities in respect of the said refreshment-rooms, except such as will attach to you in your capacity of shareholder in the said Company.

In reply I have to inform you that Mr. Secretary Sutherland has approved of such transfer being made, and the necessary instructions have been given to the Crown Solicitor.

I have, &c.,

C. A. GOODCHAP,

(Per D.V.)

Commissioner for Railways.

Instructions accordingly were issued to the Crown Solicitor and the following form of assignment, was submitted, approved, and executed :—

In consideration of 5s. sterling to within named John Louis Castner, on signing hereof, paid by John L. Castner and Company (Limited), said John Louis Castner hereby transfers and assigns all that lease and premises, and all right and rights to a lease or leases of the premises mentioned in the within letter of the 18th day of March, 1885, to John L. Castner and Company (Limited), their successors and assigns, and John L. Castner and Company (Limited), thereby accept such transfer and assignment, and undertakes to pay all rents due or to accrue due in respect thereof as from the 18th March, 1885.

Signed, sealed, and delivered by the said John Louis }
Castner, in the presence of,— }
HENRY G. DOWNTON.

JOHN L. CASTNER.

The seal of John L. Castner and Company (Limited) was }
hereunto affixed by order of the Board of Directors,— }

[L.S.]

J. T. MILLS, }
T. H. KELLY, } Directors.

(For John L. Castner and Company Limited),
HENRY G. DOWNTON, Secretary.

Dated, Sydney, this seventh day of April, one thousand eight hundred and eighty-seven.

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(CORRESPONDENCE IN REFERENCE TO SUPPLY OF COAL FOR GREAT NORTHERN LINE.)

Ordered by the Legislative Assembly to be printed, 12 June, 1888.

RETURN to an *Order* of the Honorable the Legislative Assembly of New South Wales, dated 27th March, 1888, That there be laid upon the Table of this House,—

- “(1.) Copies of all correspondence, papers, minutes, &c., in reference to the Contracts for the Supply of Coal by Messrs. Read and Longworth to the Railway Department from Singleton.
“(2.) Copies of all correspondence, papers, minutes, &c., between the Railway Department and Messrs. Nowland, offering to supply coal on the Great Northern Railway at much lower prices than the price paid to Read and Longworth.
“(3.) Also, copies of all contracts entered into between the Railway Department and Read and Longworth, for supply of Coal on the Great Northern Railway.”

(*Mr. McElhone.*)

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No. 1.

The Under Secretary for Public Works to The Commissioner for Railways.

Department of Public Works, Sydney, 11 November, 1879.

Sir, The tenders, eleven in number, for the works specified in the margin, are referred to you for report, and you will have the goodness, as early as possible, to return them to me, direct for submission to the Minister.

I have, &c.,

GERALD HALLIGAN,
(For Under Secretary.)

Locomotive Engineer for report.—Coal to be tested if necessary. It is stated that the Greta coal is now superior to what it was formerly. I think it should be specially tested again; also the coal from Alnwick mine.—CH.A.G., 13/11/79.

ANALYSIS OF TENDERS.

Name.	Colliery.	Price per ton with freight added.
For Honeysuckle Point—		
D. Williams	Alnwick	s. d. 11 6
J. Mitchell	Not stated	11 9
E. Vickery	Greta	11 11
Bingle, White, & Co.	Ferndale	12 3
For Singleton—		
H. Longworth	Not stated	11 0
H. Marshall	Thornley	11 6
E. Vickery	Greta	11 9
J. Mitchell	A new mine	12 3
R. Read	Singleton	12 6

Coal delivered at Honeysuckle Point.

As the result of the trial of the coal offered by Mr. Williams at 11s. 6d., and by Mr. Mitchell at 11s. 9d. per ton, shows them to be unsuitable for our purpose, I cannot recommend the acceptance of either of their tenders. The choice then lies between the Greta coal, offered by Mr. Vickery at 11s. 11d., and the Ferndale, by Messrs. Bingle, White, & Co. at 12s. 3d. per ton.

As the Greta coal supplied under contract in 1874 did not give satisfaction (the contract having been cancelled), and the trial of the sample submitted for testing on this occasion shows that the coal is not free from former defects, while the difference in price between it and the Ferndale is only 4d. per ton, while the latter was very satisfactory when under contract in 1878. I recommended that the contract for 1880, for the Newcastle District, be given to Messrs. Bingle, White, & Co.

Coal for the Singleton District.

Although there are four tenders lower, by 1s. 6d., 1s., 9d., and 3d. respectively, than that of Mr. R. Read at 12s. 6d., I do not think that the result of the trial of the samples supplied for testing is such as to warrant the placing of the contract for 1880, in its entirety, with any of these tenderers. I, therefore, recommend that the contract be divided, and that the tender of Mr. R. Read at 12s. 6d. per ton be accepted for the coal required for the year 1880, at Singleton, for the long-journey trains, on the condition he states, viz., that the coal to be supplied by him will be from the same mine and seam as the coal supplied by the present contractor for that district, it having given satisfaction.

I further recommend that, on account of the low price quoted by Mr. Longworth, the contract for the coal required for the goods or short-journey trains of the Singleton District be given to him, subject, of course, to its being cancelled, in accordance with the specification, in the event of the coal failing to give satisfaction.

I attach the reports on the coals tested.
The Commissioner.

R.H.B., 24/12/79.

RETURN

RETURN showing the results of tests made of coal supplied by Mr. Vickery, of Greta; Mr. Williams, of Woodford; Mr. Mitchell, of East Maitland; Mr. Marshall, of East Maitland; and Mr. Longworth, of Singleton.

Name of Colliery Company.	Date of Test—December, 1879.	Weight of Coal tested.	Approximate weight of load in tons.		Gallons of water evaporated.	Consumption of coal in lb.		Refuse.				Character of the refuse from ash-pan at finish of test.			Remarks.	
			Down journey to Murrumbidgee.	Up journey.		Per train mile exclusive of shunting.	Per gallon of water evaporated.	Weight of clinker taken out of Fire-box.	Refuse from Ash-pan.	Small cinders from smoke-box.	Total.	Percentage of refuse or waste on consumption.	Percentage of clinker.	Percentage of cinder.		Percentage of dirt.
Mr. Vickery, Greta.	6th	t. c. q. 2 8 1	132	150	4,239	33·0	1·274	c. q. lb. 0 3 15	c. q. lb. 3 1 27	c. q. lb. 0 3 17	c. q. lb. 5 1 3	11·0	24	49	27	Very hot light wind.
Mr. Williams, Woodford.	8th	2 11 3	140	180	4,104	40·8	1·412	1 2 13	8 2 8	0 3 10	11 0 3	21·0	19	33	48	Hot light wind. Slight rain between Muscleebrook and Scone. Standing at Scone 3 hours.
Mr. Mitchell, E. Maitland.	11th	2 12 1	145	170	4,242	41·2	1·38	0 1 27	5 2 14	1 0 0	7 0 13	13·6	19	27	54	Cool light wind, occasional light showers to Grass Tree.
Mr. Marshall, E. Maitland.	13th	2 11 3	160	162	4,410	40·8	1·314	0 3 0	6 2 1	0 3 22	8 0 23	16·8	30	40	30	Heavy rain at Muscleebrook.
Mr. Longworth, Singleton.	15th	2 14 0	150	155	4,374	42·5	1·387	0 3 21	6 3 8	0 3 9	8 2 10	15·8	32	11	57	

G. NEWTON, 17/12/79.

THOS. BOAG, 18/12/79.

MR. BURNETT.

The value for locomotive purposes of the coal offered is best determined by the officer-in-charge of the Locomotive Department, and though the tenders recommended by him for acceptance are not the lowest, I think the best course will be to accept his recommendation, which has been made after a careful testing of the coal offered.—CH.A.G., 14/1/80.

Approved.—J.L., 15/1/80.

No. 2.

The Commissioner for Railways to Mr. R. Read.

Sir,

Department of Railways, Sydney, 16 January, 1880.

I have the honor to accept your tender, dated the 8th November last, to supply and deliver the engine-coal required for use at Singleton, for the long-journey trains, for the three years 1880, 1881, and 1882, on condition that the coal is supplied from the same mine and seam as that supplied by the present contractor, and that it is in all respects equal thereto.

I have to request that you will at once wait upon the Crown Solicitor, with your sureties, to execute the required bond, and to state that your tender is accepted, subject to the execution of such bond, within ten days from date thereof.

I have, &c.,

CH. A. GOODCHAP,

Commissioner for Railways.

No. 3.

The Commissioner for Railways to Mr. W. Longworth.

Sir,

Department of Public Works, Railway Branch, Sydney, 16 January, 1880.

I have the honor to accept your tender, dated the 6th November last, to supply and deliver, in accordance with specification, the engine-coal required for use at Singleton Station for the goods or short-journey trains, during 1880, and have to request that you will at once wait, with your sureties, upon the Crown Solicitor, for the purpose of executing the required bond, which must be signed within ten days from date hereof.

I have, &c.,

CH. A. GOODCHAP,

Commissioner for Railways.

No. 4.

The Commissioner for Railways to Mr. W. Longworth.

Sir,

Department of Public Works, Railway Branch, Sydney, 21 January, 1881.

I have the honor to accept your tender, dated the 2nd November last, to supply and deliver, in accordance with specification, the engine-coal required for use at Singleton Station for the goods or short-journey trains during 1881, and have to request that you will be good enough to wait, with your sureties, upon the Crown Solicitor, for the purpose of executing the required bond, which should be signed within ten days from date hereof.

I have, &c.,

CH. A. GOODCHAP,

Commissioner for Railways.

No. 5.

A. J. Gould, Esq., M.P., to The Commissioner for Railways.

Sir,

Singleton, 28 September, 1882.

I observe, by notice in the *Government Gazette* of 26th instant, that tenders are called for supply of coal to Locomotive Department, for Great Northern Railway, 12,000 tons, between Newcastle and Singleton, 2,500 tons, Singleton to termini, but no notice apparently taken of that required at Singleton, presently

presently supplied by R. Read, under contract for three years, terminating 31st December proximo. I presume tenders have not been called for this owing to some misapprehension as to termination of present contractor's contract. Will you, therefore, kindly take steps to have tenders called for same. I think estimated quantity required for Singleton when tenders were last invited was 3,500 tons.

I have, &c.,
ALBERT J. GOULD,
(Per W.W.R.)

Memo. to Storekeeper,—

Newcastle, 29 September, 1882.

By the newspaper I notice only 2,500 tons of coal are tendered for delivery at Singleton; there is some mistake in this, as Dr. Read's three years' contract terminates on 31st December, 1882, and I think 15,000 tons would be nearer the mark.

HENRY FLIGG.

For the information of the Commissioner:—I was not aware that tenders had been invited for coal.—A.R., 30/9/82. Locomotive Engineer, B.C., 3/10/82. Urgent.—G.B.

The specification herewith marked A is the only one which I saw that I can remember, and refers to the Northern Line. It will be seen I altered it from 10,000 to 12,000 tons.—THOS. MIDELTON, 11/10/82. Mr. Berner.

The three specifications, viz., for the South and West, and the two for the Northern Line were duly sent to the Locomotive Engineer's office for revision, and the tenders were invited in accordance with the specifications as returned from that office.—D.C.M'L., 17/10/82.

What does Locomotive Engineer suggest now.—G.B., B.C., 17/10/82. Mr. Boag knew the quantity required, and advised intending tenderers, so there is nothing further required, besides the quantity is only given as an approximate.—R.J.S. (per L.E.), 18/10/82. The Commissioner.

Storekeeper.—G.B., B.C., 28/10/82.

I think it is a matter of the greatest importance that we should have some degree of accuracy in the estimates of coal requirements. These are certainly approximate, but 2,500 tons instead of 15,000 cannot surely be so termed. I have only to point out the voluminous correspondence and trouble which is now taking place owing to this very want of approximation of the estimates. Might I, at the same time, respectfully ask if there is any reason why these coal matters do not come through the store branch, as do all other tenders for supplies. I think it would be well that they should do so.—A.R., 31/10/82. The Commissioner.

There should be, certainly, some approximation between the actual quantity taken of any supplies contracted for and the estimated quantity, and this should not be wider than say a difference of 12½ per cent. either way would cover. The coal supplies should go through the store, as do all other supplies.—CH.A.G., 3/11/82. Locomotive Engineer, B.C.

Seen.—T.M., 6/11/82. The Commissioner.

No. 6.

A. J. Gould, Esq., M.P., to The Commissioner for Railways.

Sir,

Singleton, 20 September, 1883.

Herewith I have pleasure in handing you letter from R. Read, one of the contractor's for the supply of locomotive coal, asking for the reasons therein that you will be pleased to call for tenders for a three or five years' contract for the locomotive coal required at Singleton; this course I trust you will adopt, as I believe it will be found on inquiry to be in the interest of the Department, and ensure the regular and full supply of coal, without the inducement of a three or five years' contract, the construction of the proposed railway most certainly would not be proceeded with.

I have, &c.,
ALBERT J. GOULD.

[Enclosure.]

Sir,

Singleton, 20 September, 1883.

As the time is approaching when fresh tenders will be called for the coal supply for the Great Northern Railway at Singleton, and all stations north, might I suggest to you the advisability of calling for the supply for three or five years.

The consumption of coal on the railway from Singleton northwards has, during the last years, increased enormously, and has overgrown the facilities for supplying the contract with regularity, the drawing of the coal from the pit to the railway siding, a distance of 1½ mile nearly, being the great drawback. Should I be the successful contractor next year, I purpose at once laying a line of rails from the Great Northern Railway to the pit screens, in order to load the trucks direct at the screens, and will deliver them on the Great Northern Railway. The advantage to the Department would be a more regular supply with facilities for increasing it should occasion arise; again the coal would be delivered much larger as it would be less broken by being but once handled, and as it is handled over again in the railway yard, this would be a consideration to the Department.

The quality of the coal cannot be surpassed for locomotive purposes.

As a contract for one year would not justify the expenditure for a railway, &c., which would amount to about £2,000, I beg to leave the matter for your favourable consideration, and would suggest that the tenders be called for early, in order that the work could be commenced and completed before the expiration of present contract.

I am, &c.,
RICHARD READ.

To the Commissioner for Railways, Sydney.

Superintendent of Stores for report.—CH.A.G., B.C., 21/9/83.

I have asked the Locomotive Engineer to furnish me with the information necessary for calling for tenders for coal. I see no objection to making the Singleton coal contract a triennial one, especially under the representation made by Dr. Read.—A.R., 27/9/83. The Commissioner.

Make the contract for three years. Should not tenders be invited early.—CH.A.G., 1/10/83. Superintendent of Stores, B.C. Yes. Please give as early as possible the information asked for.—A.R., 4/10/83. Locomotive Engineer. Urgent. Mr. Boag for estimated quantity of coal required at each depôt during 1884.—R.J.S., 8/10/83. Please see attached paper giving estimated quantities of coal required.—S.L.L. (Pro Locomotive Foreman), 13/10/83.

Memorandum

Newcastle, 13 October, 1883.

Memorandum to Locomotive Engineer,—
Sir,

Estimated quantities of coal required for engine purposes, Locomotive Department, Great Northern Railway :—

1884—	To be delivered at Honeysuckle Point	12,000
1884—	„ Singleton	16,000
1885—	„ „	17,000
1883—	„ „	20,000

I beg to suggest that a clause be inserted in the coal specifications, to the effect that all coal delivered by the contractors must be of a quality that can be used on an engine running any description of train on any part of the Great Northern Railways. Hitherto tenderers have been under the impression that coal delivered at Honeysuckle Point Works is only to be used between Newcastle and Singleton; and that Singleton coal is not to be used south of Singleton, but such is not intended, as engines running from Newcastle do not require recoaling before arrival at Murrurundi, and to coal at Singleton would cause inconvenience and delay. I do not think the Department should be restricted to use any particular coal, so long as the estimated quantity is not exceeded by more than 10 per cent., so that in the event of a contractor's coal being of such a dirty clinkering nature that it is unsuitable to run long journeys with, the Department may procure suitable coal at the contractor's expense.

THOS. BOAG.

I really do not see that the specification need be altered as Mr. Boag suggests, as if the coal is the best quality, as stipulated, it should suffice.—W.S. (*pro* R.J.S.), 16/10/83. Mr. Richardson. The quantities required on the Northern Lines are, at Honeysuckle Point, 12,000 tons; do. do. Singleton, 16,000 tons.—R.J.S., 16/10/83. Mr. Richardson.

No. 7.

Minute from the Superintendent of Stores to The Commissioner for Railways.

29 October, 1883.

I ENCLOSE draft advertisement calling for tenders for engine-coal required for use on the Great Northern Line for the year 1884.

A. RICHARDSON,
Superintendent of Stores.

For Minister's approval.—D.V., 30 3. Approved.—F.A.W., 31/10/83.

[Enclosure.]

TENDERS will be received at this office until 11 a.m. on Tuesday, 13th November, from persons willing to supply the engine-coal required on the Great Northern and North-western Lines, for the year 1884, at Honeysuckle Point, and at Singleton for the years 1884, 1885, and 1886.

Specification may be seen, and further particulars obtained, at the office of the Superintendent of Railway Stores, Eveleigh; at that of the Railway Storekeeper, Honeysuckle Point; and at the Railway Station, Singleton.

Tenders must be endorsed "Tender for supply of coal for Great Northern and North-western Lines."

Department of Public Works, Railway Branch,
Sydney, 30 October, 1883.

Commissioner for Railways.

SPECIFICATIONS for the supply and delivery of engine-coal at Singleton Station, required for use over the Great Northern and North-western Lines for the three years ending 31st December, 1886.

1. This contract shall be for the supply and delivery at Singleton Station of the following quantities of coal, required for use on the Great Northern and North-western Lines :—

For the year 1884	16,000 tons.
„ 1885	20,000 „
„ 1886	25,000 „

2. The above quantities are, however, so far approximate that the Commissioner reserves to himself the right to demand more, or accept less to the extent of 25 per cent.

3. All coal supplied must be of the best quality, free from slack, stone, schist, band, or other substance which may affect its quality and practical use on a locomotive engine. It must be thoroughly screened through a $\frac{3}{4}$ -inch iron mesh screen, to be provided and fixed by the contractor, and approved by the Locomotive Engineer.

4. All coal supplied not of sufficiently good quality will be rejected, and must, on notice in writing from the Superintendent of Stores, or other authorised officer, be removed by the contractor at his own cost, within twelve hours from the receipt of such notice; or if not so removed, it will be discharged from the trucks at the contractor's expense, and if not then removed within seven days, shall be forfeited, and become the property of the Commissioner for Railways, on behalf of the New South Wales Government.

5. Coal must be supplied in such quantities, and at such times as may be required from the 1st January, 1884, to the 31st December, 1886, but the contractor will not be called upon to supply more than a *pro rata* quantity monthly, based upon the twelve months' estimate with 25 per cent. added.

6. Payments will be made once in every month, but only on the certificate of proper officer; that the coal has been supplied according to contract.

7. Should any coal (not exceeding the *pro rata* monthly quantity based upon the twelve months' estimate with 25 per cent. added) not be promptly supplied on the usual printed order signed by the proper officer, the Commissioner may, in his discretion, purchase such coal in such manner as he may think best for the Public Service, and the excess of cost (if any) shall be deducted from any money payable to the contractor by the Commissioner.

8. The Commissioner reserves to himself the right to annul the contract at any time, on giving one month's notice in writing to that effect, should he not be satisfied with the quantity of the coal or the rate of delivery.

9. Persons tendering will be required to supply, free of cost, a quantity (not less than 5 and not more than 10 tons) of the coal, produced at the mine from which it is intended to supply coal under this contract. This coal is for the purpose of testing, and should, therefore, be a fair average sample of the produce of the mine.

10. The person whose tender may be accepted, will be required to enter into a bond with two eligible sureties, jointly and separately to be bound under a penalty of £1,500 for the due performance of this contract.

11. The Commissioner reserves to himself the right to purchase coal elsewhere than from the contractor for the 24/10/83. service of the Department during the currency of the contract, should he consider it necessary to do so without prejudice to his rights under, or in any way vitiating this contract.

A.R., 29/10/83.

No. 8.

No. 8.

The Under Secretary for Public Works to The Commissioner for Railways.

Department of Public Works, Sydney, 13 November, 1883.

Supply of Coal, Great Northern and
North-western Railways, 1884.

Tenders.	Per ton.
Newcastle .. C. J. Stevens ..	9-11
.. Waratah Co. ..	11/-
Singleton .. Longworth ..	11/9
.. Read ..	11/9
.. Vickery ..	9/6 & 10/-

Sir,

The tenders, five in number, for the work specified in the margin are referred to you for report, and you will have the goodness, as early as possible, to return them to me direct for submission to the Minister.

I have, &c.,

JOHN RAE.

Superintendent of Stores.—G.B., B.C., 13/11/83.

Tenders for the supply of coal at Newcastle and Singleton.

Honeysuckle Point and Newcastle—		s.	d.
C. J. Stevens	... ..	9	11 per ton
Waratah Coal Company	... ..	11	0 "
Singleton—			
Longworth	... ..	11	9 "
Read	... ..	11	9 "
Vickery & Sons	... ..	9s. 6d. and	10 0 "

Mr. Fligg will please consult with Mr. Boag and Mr. Newton, and then submit report.

The points seem to me to be these. If Stevens' coal will do for all purposes, well and good; but if other coal is required, is it advisable to take Waratah, which is indifferent, if we can get Co-operative or Wallsend for the same money.

With regard to the Singleton coal, will it not be advisable, in view of the lower prices asked for Greta coal, to make a contract for a certain quantity of that, even though it be of inferior quality.

The qualities of the coals are now well known, so that I think no further trials need be made.

Mr. Fligg; urgent.

A.R., 14/11/83.

The quantities recommended to be contracted for in each case should be stated.—A.R.

Greta coal has been tested some time ago and found not suitable for locomotive purposes. Stevens' coal likewise is not suitable for the goods or mail trains. The qualities of these coals are well known. Reports in reference to Woodford and Greta coal with the Locomotive Engineer. Mr. Boag recommends the Waratah coal for Newcastle end, as per specification, and Read and Longworth for Singleton.—H.F., 17/11/83.

This report is most feeble and unsatisfactory. No good reason, or, in fact, any reason at all has been given for the entire exclusion of coal at Honeysuckle Point, 1s. 1d. per ton cheaper than that recommended, and at Singleton, coal 1s. 9d. per ton cheaper. I must have a very full and careful report, and the course which will result in the greatest economy to the Department is that which must be taken. Mr. Fligg has not answered my question with regard to Waratah coal. I know it is inferior to Co-operative or Wallsend, and yet the price is no lower than we are at present paying for Co-operative. I am firmly of opinion that a certain quantity of both Stevens and Greta coal should be taken; if not, very good cause must be shown to the contrary. It is by no means necessary to accept one contract for the whole supply in either case. It has been proved that Stevens' coal can be perfectly well used in running certain trains, and his tender should be accepted for the quantity of coal required for running such trains, and the same with Waratah. We are told that Greta coal is unsuitable, but in view of the 1s. 9d. saving in cost, is it not possible to utilize a quantity of it either for certain trains, or mixed with Read's and other coal. I beg that Mr. Fligg will look very carefully into this matter, in conjunction with Messrs. Boag and Newton, and submit a report accordingly.—A.R., 19/11/83. Storekeeper, North.

Urgent.—Will Mr. Newton be good enough as to report upon the suitability of Greta coal for locomotive purposes, either for use separately or to be mixed with the coal supplied by Dr. Read and Longworth. Mr. Newton will notice by my memo., 17/11/83, that Mr. Boag does not approve of using Greta coal in any way. A copy of a report of his is attached when these coals were tested in 1874, and again in 1877, said report conveying Mr. Boag's opinion at the present date.—H.F., 20/11/83.

I have now looked into this coal matter carefully with Mr. Boag and Mr. Newton, and now beg to forward their opinions:—Mr. Boag says: With regard to Stevens' coal being used at Honeysuckle Point for next year for short-journey trains, my experience of the coal during 1883, as shown me, that it is not by any means a good coal for our use, and its dirtiness and clinkering qualities makes it an expensive coal at almost any price. Comparing Stevens' coal at 9s. 11d. with Waratah at 11s., is, in my opinion, all in favour of Waratah, and I feel sure that the use of the latter coal will give great satisfaction, and prove almost, if not altogether, as cheap as Stevens' coal.

Supply of coals at Singleton for three years, 1884, 1885, 1886.

Mr. Boag and Mr. Newton say with regard to Greta coal:—Our reports of Greta coal have always been adverse to its use. In the year 1874 the Greta Company held the contract, but it had to be cancelled before the end of the year owing to the coal being unsuitable. There are very few short-journey trains run out of or above Singleton, and they are run between the running of long and heavy trains. To work these trains with two classes of coal will involve the expense of separate coal stages at all the depôts, the present one being too small to keep the different coal separate, the cost of extra labour charging coal, cleaning coal-bunkers, ash-pans, fire-boxes, &c., and seeing that engines running short-journey trains will not use over 20 tons of coal per month, would, we think, prove much more expensive than paying the higher rate for coal; and seeing that the trains run on single lines, over heavy gradients, it is most desirable that they should be supplied with the best and cleanest coal procurable, otherwise, having bad coal, the enginemen's attention is so much occupied by the bad fire that other important matters respecting their duties are likely to be overlooked. Good coal mixed with bad coal does not improve the good coal, nor reduce the evils in the bad; but on the other hand the fire-bars to suit bad coal are required to be so far apart

apart that the good coal is wasted by falling through. The trains that run into Singleton and north are of such an important character, being passenger, goods, and live-stock trains, trains only running over very heavy gradients, and following each other as regulations will permit we consider it would be a mistake to use any but the best of coal.—H.F., 22/11/83.

Extract from Mr. Boag's report on coal tenders for supply of engine-coal for Northern Lines for year 1882. Mr. Vickery's (Greta Coal Company).—"I may inform you that this Company had the contract to supply the engine-coal for 1874 for this Department at Honeysuckle Point, and it was proved then that their coal was entirely unfit for locomotive use on account of the large amount of clinker made. This coal was tested by us in 1877, and the result showed that though an excellent steaming coal for open furnaces it clinkered so much that it was quite unfit for locomotives running heavy trains."

Minute to the Commissioner,—

TENDERS for the supply of engine-coal for the Great Northern Railways for the year 1884, as regards delivery at Newcastle and Honeysuckle Point, and for the years 1884, 1885, and 1886, as regards delivery at Singleton.

Tenders for one year's contract (1884).		s.	d.
1. Waratah Coal Company	... ..	at	11 0 per ton
2. C. J. Stevens	... ..	at	9 11 "

For several reasons I recommend the acceptance of the Waratah Coal Company's contract for delivery at Newcastle Station in Government trucks, or upon the Honeysuckle Point coal stage as required, the quantity of coal specified for during the year 1884, viz., 12,000 tons, more or less, to the extent of 25 per cent. at 11s. per ton.

My reasons are the following:—

1. The recent death of Mr. C. J. Stevens, the Manager of the mine, renders it highly improbable that the contract would be taken up if the tender were accepted.
2. As it has been proved that this coal can only be used for certain trains, it would be necessary to enter into another contract for a certain portion or purchase it "out of contract" as we are now doing. This is exceedingly undesirable.
3. The reports of the officer at Newcastle are to the effect that Waratah coal at 11s. is better value than Stevens' at 9s. 11d., even in the case of trains upon which the latter can be used.

Tenders for three years' contract, 1884, 1885, and 1886, for delivery at Singleton:—

		s.	d.
1. Dr. Read (half quantity)	... ..	at	11 9
2. Thos. Longworth (half quantity)	... ..	at	11 9
3. Greta Colliery (E. Vickery)	... ..	at	10 0

In this case I recommend that the tenders of Dr. Read and Mr. Thos. Longworth be accepted respectively for half the quantities required at Singleton Station during the years 1884, 1885, and 1886, and which are, as per specification, as follows:—

For 1884	... ..	16,000 tons
" 1885	... ..	20,000 "
" 1886	... ..	25,000 "

more or less to the extent of 25 per cent. at 11s. 9d. per ton.

I recommend these tenders, and pass over that of the Greta Colliery for the following reasons:—

1. The coals supplied by Dr. Read and Mr. Longworth respectively have been proved to be of good quality, and suitable for our requirements.
2. The price at which they tender is fair and reasonable (11s. 9d. per ton, as compared with 11s. 10d. the present contract price), and we could not do as well by taking Newcastle coal. If any alteration occurs in the Newcastle rate it is likely to be upwards not downwards.
3. Our experiences in 1874, and further trial in 1877, show conclusively that Greta coal is a very inferior coal, unsuitable for the heavy gradients north of Singleton. It could at most be used only on a few trains, and the report of the Newcastle officers shows that this could only be arranged at considerable expense, in the direction of extra stages, while there is nothing in the slight difference in price, 1s. 9d. per ton—some 8 per cent. only—to warrant its acceptance even to the limited extent referred to.

I thus unhesitatingly recommend—

For 1884—Newcastle and Honeysuckle Point, Waratah Coal Company, at 11s.

For 1884-85-86—Singleton, Dr. Read and Longworth, at 11s. 9d.

A. RICHARDSON,
Superintendent of Stores.

24/11/83.

For the reasons given by Mr. Richardson, I must recommend the acceptance of Waratah Company's tender and of Dr. Read and Mr. Longworth, though higher in price than Stevens and the Greta Company. I feel assured that the coal recommended will prove to be more economical.—CH.A.G., 26/11/83.

I should like a bag of each coal sent to Sydney for trial by assay.—F.A.W., 29/11/83.

No. 9.

Mr. D. Williams to The Commissioner for Railways.

Sir,

Hartley Colliery, Woodford, Newcastle, 27 November, 1883.

Referring to the tender of Mr. C. J. Stevens of the 7th instant, for the supply of coals required on the Great Northern and North-western Railway for the year 1884 from my Hartley Colliery, I hereby withdraw the said tender owing to the death of Mr. Stevens.

I am, &c.,

DANIEL WILLIAMS,
(per T. F. SMITH).
Sent

Sent to the Superintendent of Stores for the Commissioner.—H.F., 27/11/83.

This gets rid of any objection to the acceptance of the Waratah coal as recommended, but I have nevertheless included this coal in my directions to the storekeeper, Newcastle, to send a bag of each coal for analysis, as directed by the Minister.—A.R., 1/12/83. The Commissioner.

See that the coal is submitted to chemical analysis directly it is obtained. I would, however, trust to the result obtained from practical use of the coal on the locomotive rather than to the results of a chemical analysis.—Ch.A.G., 3/12/83.

Superintendent of Stores.—G.B., B.C., 4/12/83. I will send the coal to the Government Analyst directly it comes to hand.—A.R., 5/12/83. The Commissioner. See that coal is sent for.—Ch.A.G., 7/12/83. Superintendent of Stores, B.C.

No. 10.

E. Vickery & Sons to The Commissioner for Railways.

Sir,

78, Pitt-street, Sydney, 28 November, 1883.

Having tendered for the supply of coal for Government railways at Singleton, we endeavoured to ascertain at Newcastle to whom and when the sample coal (as per specification) should be sent in, and have been referred to you. We have now the honor to request that you will give us the desired information, also instruct the proper authority at Newcastle to receive the same.

We have, &c.,

E. VICKERY & SONS.

This coal is now in the hands of Mr. Watt, the Government Analyst, with others, for analysis and report.—A.R., 6/12/83. Chief Clerk.

No. 11.

The Government Analyst to The Commissioner for Railways.

Sir,

1, Albert-street, Sydney, 8 December, 1883.

In reply to a memorandum from the Store Branch, Government Railways, requesting "the relative steaming properties" of five samples of coal, marked R, L, G, S, and W, and "the percentage of pure burning matter or otherwise which they may contain," I have the honor to submit the following analysis and report:—

	R.	L.	S.	G.	W.
Hygroscopic moisture	2.1	2.2	1.9	1.9	2.4
Volatile hydrocarbonic	37.4	38.9	31.3	43.0	35.5
Fixed carbon	52.3	51.8	48.0	48.0	56.1
Ash	8.2	7.1	17.9	7.1	6.0
	100.0	100.0	100.0	100.0	100.0

Of these, W would probably be the best and S the worst for steam purposes; but, with reference to the others, so much would depend on the method of staking, construction of fire-grate, &c., that it is impossible to say which should have any decided preference.

I have, &c.,

EDWARD H. RENNIE,

(Acting for CHAS. WATT),

Government Analyst.

I think this test places the coal in the following order:—1. Waratah; 2. Read's; 3. Longworth; 4. Greta; 5. Stevens'. The tender sent in by the late Mr. Stevens has been withdrawn, and I think this analysis, taken in conjunction with the practical experience gained in the use of Read and Longworth's coal on the one hand and Greta on the other, points to the advisability of accepting the tenders originally proposed, viz., Waratah Coal Company for Newcastle and Honeysuckle Point, Read and Longworth's in equal quantities for Singleton.—A.R., 17/12/83. The Commissioner.

Waratah had better be closed for Newcastle, and Read and Longworth for coal above Singleton.—F.A.W., 19/12/83. Read and Longworth's tenders accepted for coal required at Singleton, and Waratah Coal Company's tender for coal required at Newcastle or Honeysuckle Point, 20/12/83.

No. 12.

The Commissioner for Railways to Mr. Read and Mr. Longworth. [Letter to each.]

Sir,

Department of Railways, Sydney, 20 December, 1883.

I have the honor to accept your tender, dated the 10th November last, to supply and deliver, in accordance with specifications, one-half of the quantity of the engine-coal required at Singleton, for the years 1884, 1885, and 1886, at 11s. 9d. per ton.

Your tender is accepted on condition that the coal is supplied in such quantities as may be required by the Department during the currency of the contract.

I have to refer you to the Crown Solicitor for the purpose of executing the required bond.

I have, &c.,

CH. A. GOODCHAP,

Commissioner for Railways.

P.S.—Please submit the names in full of the persons you propose as sureties, with their addresses and professions.

No. 13.

Bond.

18th day of February, 1884.

Mr. Richard Read and his sureties to the Commissioner for Railways,—

[A similar bond was also entered into by Mr. Thos. Longworth and his sureties.]

Know all men by these presents:—

THAT we, Richard Read, of Singleton, in the Colony of New South Wales, contractor, William Walker, of Singleton, in the Colony aforesaid, accountant, and William Wells Robinson, of Singleton, in the Colony aforesaid, solicitor, are jointly and severally held and firmly bound unto the Commissioner for Railways, a Corporation, sole created by the Act of Council passed in the twenty-second year of the Reign of Her Majesty Queen Victoria, number nineteen, intituled, "An Act to make more effectual provision for the construction by the Government of railways in the Colony of New South Wales, and for the regulation of the same," in the penal sum of one thousand five hundred pounds sterling, to be paid to the Commissioner for Railways aforesaid and his successors, for which payment, well and truly to be made, we bind ourselves and each of us, one and each and every of our heirs, executors, and administrators, jointly and severally, and firmly by these presents.

Sealed with our seals, dated the eighteenth day of February, in the year of our Lord one thousand eight hundred and eighty-four.

WHEREAS the above bounden Richard Read made the tender hereunto annexed, under the terms and conditions of a notice, dated the second day of November, now last passed, and published in the New South Wales *Government Gazette*, of the sixth day of November last (of which notice a copy signed by the said Richard Read, William Walker, and William Wells Robinson is also hereunto annexed) to find and provide all labour and every other thing requisite and necessary for, and provide, supply, and deliver at Singleton Railway Station one-half the quantity of engine-coal required for use on the Great Northern and North-western Lines of railway, in such quantities and at such times as may be required during the years one thousand eight hundred and eighty-four, one thousand eight hundred and eighty-five, and one thousand eight hundred and eighty-six, in accordance in all things with the annexed specification, marked "A," and at or for the rate or price of eleven shillings and ninepence per ton, as provided in the said tender. And whereas the above bounden William Walker and William Wells Robinson have severally offered to become and be bound to the Commissioner for Railways aforesaid and his successors for the due performance and fulfilment of the said tender within the time mentioned in that behalf, according to the terms and conditions of the said notice. And whereas the said tender has been duly accepted by the Commissioner for Railways aforesaid, on condition that this bond should be entered into by them, the said Richard Read, William Walker, and William Wells Robinson. Now the condition of the above-written bond and obligation is such that if the said Richard Read do and shall well and truly perform and fulfil the said tender and the contract arising out of such tender, and the acceptance thereof as aforesaid, and all and every the terms, conditions, and stipulations thereof, within the time hereinbefore in that behalf mentioned. Then this obligation will be void and of none effect, otherwise to remain in full force and virtue.

RICHARD READ.

Signed, sealed, and delivered by the abovenamed Richard Read, }
in the presence of,—

WM. DUDDING.

WILLIAM WALKER.

Signed, sealed, and delivered by the abovenamed William Walker, }
in the presence of,—

WM. DUDDING.

WILLIAM W. ROBINSON.

Signed, sealed, and delivered by the abovenamed William Wells Robinson, }
in the presence of,—

WM. DUDDING.

Department of Public Works, Railway Branch, Sydney, 2 November, 1883.

TENDERS will be received at this office until 11 o'clock on Tuesday, the 13th November, from persons willing to supply the engine-coal required on the Great Northern and North-western Lines at Honeysuckle Point for the year 1884, and at Singleton for the years 1884, 1885, and 1886.

Specification may be seen, and further particulars obtained at the office of the Superintendent of Railway Stores, Eveleigh, and that of the Railway Storekeeper, Honeysuckle Point, and at the Railway Station, Singleton.

Tenders are to be endorsed "Tender for supply of Coal for Great Northern and North-western Lines." The Commissioner does not bind himself to accept the lowest or any tender.

CHAS. A. GOODCHAP,

Commissioner for Railways.

Witness—WM. DUDDING.

RICHD. READ.

WILLIAM WALKER.

WILLIAM W. ROBINSON.

Singleton, 10 November, 1883.

To the Commissioner for Railways, Sydney,—

Sir,

I hereby tender for the supply of one-half the estimated quantity of coal required for the Great Northern and North-western Railway for the years 1884, 1885, and 1886, for Singleton and stations north, according to specification. Coal to be in accordance with specification, delivered in the Commissioner's trucks at coal-siding, Great Northern Railway, near Singleton, at the rate of 11s. 9d. sterling per ton. Such coal to be of same quality and from the same seam as that at present supplied by me. The facilities for drawing coal from the pit to the siding, a distance of 1½ mile, do not permit me to guarantee

guarantee the delivery of a greater quantity than half that estimated. Should my tender be accepted, according to specified time (three years), I propose laying a line of rails from the pit to a point on the Great Northern Railway adjacent to the present siding, which, when completed, will enable me to deliver the quantity tendered for with regularity and certainty.

I have, &c.,
 RICHD. READ.

This is the tender referred to in our annexed bond to the Commissioner for Railways, dated the 18th day of February, A.D. 1884.
 Witness—WM. DUDGING.

RICHD. READ.
 WILLIAM WALKER.
 WILLIAM W. ROBINSON.

(A.)

SPECIFICATION for the supply and delivery of engine-coal at Singleton Station, required for use on the Great Northern and North-western Lines, for the three years, ending December 31st, 1886.

1. This contract shall be for the supply and delivery at Singleton Station of the following quantities of coal required for use on the Great Northern and North-western Lines:—

For the year 1884, 16,000 tons.
 " 1885, 20,000 "
 " 1886, 25,000 "

2. The above quantities are however so far approximate that the Commissioner reserves to himself the right to demand more or accept less, to the extent of 25 per cent.

3. All coal supplied must be of the best quality, free from slack, stone, schist, band, or other substance which may affect its quality and practical use on a locomotive engine. It must be thoroughly screened through a $\frac{3}{4}$ -inch iron mesh screen, to be provided and fixed by the contractor and approved by the Locomotive Engineer.

4. All coal supplied not of sufficiently good quality will be rejected, and must, on notice in writing from the Superintendent of Stores or other authorised officer, be removed by the contractor at his own cost within twelve hours from the receipt of such notice, or if not so removed, it will be discharged from the trucks at the contractor's expense, and if not then removed within seven days, shall be forfeited and become the property of the Commissioner for Railways on behalf of the New South Wales Government.

5. Coal must be supplied in such quantities, and at such times as may be required, from the 1st January, 1884, to the 31st December, 1886, but the contractor will not be called upon to supply more than a *pro rata* quantity monthly, based upon the twelve months estimate with 25 per cent. added.

6. Payment will be made once in every month, but only on the certificate of the proper officer that the coal has been supplied according to contract.

7. Should any coal (not exceeding the *pro rata* monthly quantity based upon the twelve months' estimate with 25 per cent. added) not be promptly supplied on the usual printed order signed by the proper officer, the Commissioner may in his discretion purchase such coal in such manner as he may think best for the Public Service, and the excess of cost, if any, shall be deducted from any money payable to the contractors by the Commissioner.

8. The Commissioner reserves to himself the right to annul the contract at any time on giving one month's notice in writing to that effect, should he not be satisfied with the quality of the coal or the rate of delivery.

9. Persons tendering will be required to supply, free of cost, a quantity (not less than 5 and not more than 10 tons) of the coal produced at the mine from which it is intended to supply coal under this contract. This coal is for the purpose of testing, and should, therefore, be a fair average sample of the produce of the mine.

10. The person whose tender may be accepted will be required to enter into a bond, with two eligible sureties, jointly and separately, to be bound under a penalty of £1,500 for the due performance of this contract.

11. The Commissioner reserves to himself the right to purchase coal elsewhere than from the contractor during the currency of the contract, should he consider it necessary to do so, without prejudice to his rights under or in any way vitiating this contract.

A. RICHARDSON,
 Secretary of Stores.

30 October, 1883.

This is the specification marked (A) referred to in our annexed bond to the Commissioner for Railways, dated the 18th day of February, A.D. 1884.

Witness—WM. DUDGING.

RICHD. READ.
 WILLIAM WALKER.
 WILLIAM W. ROBINSON.

No. 14.

A. J. Gould, Esq., M.P., to The Commissioner for Railways.

Dear Sir,

Sydney, 28 February, 1885.

Messrs. Read and Longworth are desirous of seeing you in reference to their coal contracts at Singleton, and purpose calling upon you on Friday next, at 11.30 a.m., if that day will suit you. Kindly send me a line in reply, addressed to the Assembly, on Monday.

Yours, &c.,
 ALBERT GOULD.

I do not think I shall be in town on Friday next. Better postpone meeting till Friday week.—
 CH.A.G., 28/2/85. Mr. Gould informed.

Dear

Dear Sir,

Singleton, 11 March, 1885.

Replying to your letter of the 4th instant, appointing Friday next, 13th instant, for the desired interview with the Commissioner by Messrs. Read and Longworth, I find that day will not suit either them or myself. We shall be glad if the Commissioner will see us on Wednesday next, 18th instant, at, say, 11 a.m. Kindly favour me with a reply by return post, addressed to Singleton.

Yours, &c.,

ALBERT J. GOULD.

The Secretary for Railways, Sydney.

Will Wednesday, the 18th instant, suit the Commissioner's convenience to receive Messrs. Read and Longworth.—D.C.M'L., 13/3/85. Yes.—Ch.A.G., 13/3/85. Mr. Gould informed.

No. 15.

T. Longworth, Esq., to The Commissioner for Railways.

Sir,

Singleton, 18 March, 1885.

Adverting to the interview of Dr. Read and myself with you this morning relative to an extension of our respective contracts for the supply of coal to the Locomotive Department at Singleton at a reduced price, I beg to say that upon an extension of three years being granted to me of my present contract to supply one-half the coal required on the Great Northern and Western Railways at Singleton, from the 31st December, 1886, I am prepared to construct a line of railway junction with Dr. Read's to my screens, a distance of about 26 chains, by 1st July proximo, suitable for locomotive purposes, and to deliver the coal into the trucks of the Department at my screens at the rate of 10s. 6d. per ton from 1st July proximo, and to allow your Department the use of my portion of the railway, and to arrange for the use of Dr. Read's portion at all times during the contract for the haulage of coal, free of charge, and to keep my line in good and efficient working order and repair.

I shall be glad of your early reply, as, if favourable, I will have to start my line of railway.

I have, &c.,

THOMAS LONGWORTH.

No. 16.

Mr. R. Read to The Commissioner for Railways.

Sir,

Singleton, 18 March, 1885.

Adverting to the interview of Mr. Longworth and myself with you this morning relative to an extension of the respective contracts held by us for the supply of coal to the Locomotive Department at Singleton, at a reduced price, I now beg to say that upon an extension of three years being granted to me of my present contract to supply half the coal required on the Great Northern and Western Railways at Singleton, and north and north-west of that point, from 31st December, 1886, I am prepared to deliver the coal into the trucks of the Department at my screens, at the rate of 10s. 6d. per ton, such rate to commence from 1st July proximo, and to allow the Department the use of my line of railway at all times during the contract for the haulage of coal, &c., free of charge, and further, to keep my line in good and efficient working order and repair.

In conjunction with Mr. Longworth, I am prepared to pay the wages of a porter-in-charge at the junction of my line with the Great Northern Railway, should the Department erect a weighbridge at that position.

I am, &c.,

RICHD. READ.

Let me know what amount this would represent a saving of, on present price for coal, from 1st July to the end of the period stipulated for. The present price is 11s. 9d. a ton, and the saving would be equal to 1s. 3d. a ton. What quantity of coal are we likely to require within the period named?—Ch.A.G., 19/3/85.

Superintendent of Stores, B.C., 19/3/85. Can Mr. Fligg estimate our probable requirements with any degree of accuracy during the time specified.—A.R., 21/3/85. Storekeeper, Newcastle.

I beg to enclose statement showing an approximation of the quantity of coal required at Singleton.

1st—For six months, from 1st July to 31st December, 1885.

2nd—For four years, being one year to 31st December, 1886, closing the present contract with Dr. Read and Longworth, and an additional three years, showing the saving to the Department at the reduced rate from 11s. 9d. to 10s. 6d. The quantity of coal required is taken from the last six months' consumption.

3rd—15 tons a day extra from the presumed opening of the line, December, 1885, Glen Innes to Tenterfield.

And, again, the opening of the line, Glen Innes to Grafton and Inverell, may perhaps cause some increase before the additional three years' contract is closed. The approximate saving, without considering the Glen Innes branches, would be £5,843 8s. 2d.

H.F., 24/3/85.

[Enclosure.]

[Enclosure.]

ESTIMATE of coal—Dr. Read's contract.

Date.	Weight.	Rate.	Amount.	Rate.	Amount.	Difference saved.
	Tons cwt. qr.	s. d.	£ s. d.	s. d.	£ s. d.	£ s. d.
1st July to 30th December, 1885	7,954 19 0	11 9	4,673 10 8	10 6	4,176 7 0	497 3 8
For four years' ending 1889.....	63,639 12 0	11 9	37,388 5 4	10 6	33,410 15 10	3,977 9 6
15 tons a day extra for increased supply for four years, 1st January, 1886, to termination of contract	21,900 0 0	11 9	12,866 5 0	10 6	11,497 10 0	1,368 15 0
						£5,843 8 2

HENRY FLIGG, 24/3/85.

I forward this with Mr. Fligg's statement for the information of the Commissioner. The figures appear to be accurate. I have just returned from Newcastle after making a coal trial (Burwood), and from observation I do not think we can do better than secure a continuance of Read and Longworth's supplies, especially on such advantageous terms.—A.R., 27/3/85. Commissioner.

Recommended. We have a difficulty in getting suitable coal for the line beyond Singleton. The coal supplied by both Dr. Read and Longworth has proved to be excellent. I should have been prepared to have recommended an extension of their contract without reduction in price, but such a reduction representing a saving of over £5,800. I do not think we can do otherwise than accept.—Ch.A.G., 30/3/85.

Approved.—F.A.W., 30/3/85.

No. 17.

The Commissioner for Railways to Dr. Read.

Sir,

Department of Railways, Sydney, 1 April, 1885.

I have the honor to acknowledge your letter of the 18th ultimo, respecting your proposal for an extension of the contracts for supply of coal held by yourself and Mr. Longworth, offering, if an extension of three years be granted (subject to the conditions specified in your communication) to supply coal at the rate of 10s. 6d. per ton from 1st July next.

In reply I have to inform you that your offer is accepted at the price quoted, and upon conditions as to delivery, &c., which will be embodied in bond to be prepared by the Crown Solicitor. Meanwhile I shall be glad if you will submit the names of two responsible persons as sureties for the due fulfilment of contract.

I have, &c.,

CH. A. GOODCHAP,

Commissioner for Railways.

No. 18.

The Commissioner for Railways to Mr. T. Longworth.

Sir,

Department of Railways, Sydney, 1 April, 1885.

I have the honor to acknowledge your letter of the 18th ultimo, respecting your proposal for an extension of the contracts for supply of coal held by yourself and Dr. Read, offering, if an extension of three years be granted (subject to the conditions specified in your communication) to supply coal at the rate of 10s. 6d. per ton from 1st July next.

In reply I have to inform you that your offer is accepted at the price quoted, and upon conditions as to delivery, &c., which will be embodied in bond to be prepared by the Crown Solicitor.

Meanwhile, I shall be glad if you will submit the names of two responsible persons as sureties for the due fulfilment of contract.

I have, &c.,

CH. A. GOODCHAP,

Commissioner for Railways.

Telegram from H. Fligg, Newcastle, to Superintendent of Stores, Sydney.

9 July, 1885.

FREIGHT charged on Government line is 1s. 6d. per ton miscellaneous class; but over the Company's Road, from pit to main line, there is another charge as arranged by the Commissioner. Minimum 15s. up to 45 tons; over 45 tons, 4d. per ton is to be charged.

I cannot for the life of me understand what Mr. Fligg means by this. Surely it is not intended for a reply to my memo. If so, I can make nothing of it, and instead of time being saved in this most urgent matter it has been wasted by telegraphing. Mr. Fligg will be good enough to look at my memo. again, and answer the questions it contains. I have not asked a single syllable about freight:—

Question No. 1.—Where do Read and Longworth deliver coal under present contract?

Question No. 2.—Is it into Commissioner's trucks at the screens of contractors at respective collieries, Rix Creek?

I then state that this is what is proposed under new contract which commenced 1st July, terminable 31st December, 1889, and ask—

Question No. 3.—Does this mean extra expense to the Department?

The only conclusion I can arrive at after reading Mr. Fligg's telegram over and over again is that he implies that Read and Longworth mean to charge the Commissioner freight for coal running from Rix Creek to main line. Is this what he implies, and if it were so, would not the contract be a bad instead of a good one for the Commissioner, even at the reduced rate. This is a most important matter, and the Crown Solicitor is waiting. I will thank Mr. Fligg therefore to deal fully and carefully with the question. I avoided sending the papers on account of their great bulk, but I now detach what will be sufficient for Mr. Fligg's full guidance and information.

A.R., 10/7/85.

Storekeeper, Newcastle.

New

New coal contract for coal to be delivered at Singleton by Dr. Read and Mr. Longworth.

My telegram, 9th July, has reference to the contract ending December, 1886. I was not aware of a new contract existing from 1st July instant. What you require to know I think I understand, and the following will explain:—Read and Longworth's contract is to deliver coal from "pit to main line," at 11s. 9d. per ton; the carriage from main line to Singleton is charged to Locomotive Department.

Under the new contract the coal will be delivered at the pits at 10s. 6d. per ton, the haulage being done by the Commissioner, in both cases in the Commissioner's trucks. I am not aware of any charge to be made by contractors in either contract for the coal running from the pits, at Rix's Creek to main line.

The contract stands thus:—		s.	d.
The old contract price of coal ... ..	...	11	9 per ton.
The new " " " " " " " " " " " "	...	10	6 "
Loss to Commissioner of haulage charged from old contract from pits to main line, per ton ... ..	...	0	4
		<hr/>	
		10	10
The Commissioner gains the difference between ... ..	...	11	9
and ... ..	...	10	10
		<hr/>	
		0	11

say 11d. per ton in favour of the Commissioner.

Under present contract the coals are delivered on the main line at Rix's Creek, and the Commissioner charges 4d. per ton haulage from pits to main line.
Superintendent of Stores.

HENRY FLIGG, 11/7/85.

I presume you have now gathered from the papers particulars of the new contracts, and noted that they commenced on 1st July and are to terminate on 31st December, 1889.—A.R., 13/7/85.
Storekeeper, Newcastle. Yes.—H.F., 14/7/85.

No. 19.

Bond.

Mr. Richard Read and his sureties to The Commissioner for Railways,—

30th July, 1885.

Bond for supply of engine-coal for Great Northern and North-western Railway, from 1st July, 1885, to 31st December, 1889.

[A similar bond was entered into by Mr. Thos. Longworth and his sureties, Mr. M. Moore and Mr. W. H. Mullen.]

Know all men by these presents:—

THAT we, Richard Read, of Singleton, in the Colony of New South Wales, contractor, William Wells Robinson, of Singleton, in the Colony aforesaid, solicitor, and Albert John Gould, of Singleton, in the Colony aforesaid, a Member of the Legislative Assembly of the said Colony, are jointly and severally held and firmly bound unto the Commissioner for Railways, a Corporation, sole created by the Act of Council passed in the twenty-second year of the Reign of Her Majesty Queen Victoria, number nineteen, intituled "An Act to make more effectual provision for the construction by the Government of railways in the Colony of New South Wales and for the regulation of the same," in the penal sum of one thousand pounds sterling, to be paid to the Commissioner for Railways aforesaid and his successors. For which payment, well and truly to be made, we bind ourselves and each of us, our and each and every of our heirs, executors, and administrators, jointly and severally, firmly by these presents.

Sealed with our seals, dated the thirteenth day of July, in the year of our Lord one thousand eight hundred and eighty-five.

WHEREAS by a certain bond or obligation in writing bearing date the eighteenth day of February, one thousand eight hundred and eighty, from the above bounden Richard Read, William Wells Robinson, and one William Walker, became jointly and severally held and firmly bound unto the Commissioner for Railways aforesaid in the penal sum of one thousand five hundred pounds for securing the due performance by the said Richard Read of his contract for the supply and delivery at Singleton Railway Station of one-half the quantity of engine-coal required for use on the Great Northern and North-western Lines of Railway in the said Colony, in such quantities and at such times as may be required during the years one thousand eight hundred and eighty-four, one thousand eight hundred and eighty-five, and one thousand eight hundred and eighty-six, in accordance with the specification annexed to the said bond, and at or for the rate or price of eleven shillings and ninepence per ton, as provided by the tender of the said Richard Read to the said bond, also annexed. And whereas it has been agreed between the Commissioner for Railways aforesaid and the said Richard Read that the said contract created by the said tender of the said Richard Read and the acceptance thereof shall terminate on the thirtieth day of June, one thousand eight hundred and eighty-five, instead of on the thirty-first day of December, one thousand eight hundred and eighty-six, as provided by such contract, and that the said Richard Read shall and will continue to supply the said coal from and after the first day of July, one thousand eight hundred and eighty-five, up to and until the thirty-first day of December, one thousand eight hundred and eighty-nine, in accordance in all things with the amended specification hereunto annexed, marked "A," and at or for the rate or price of ten shillings and sixpence per ton. And whereas the above bounden William Wells Robinson and Albert John Gould have severally offered to become and be bound to the Commissioner for Railways aforesaid and his successors, for the due performance and fulfilment of the said agreement for the supply of

of said coal from the said first day of July, one thousand eight hundred and eighty-five, to the thirty-first day of December, one thousand eight hundred and eighty-nine, according to the terms and conditions of the said amended specification hereunto annexed. Now the condition of the above written bond and obligation is such, that if the said Richard Read do and shall well and truly perform and fulfil the said agreement and the contract arising out of such agreement, and all and every the terms, conditions, and stipulations of the said specification hereunto annexed, and do and shall during the said term continue to supply and deliver the said coal at the said rate or price of ten shillings and sixpence per ton, then this obligation shall be void and of none effect, otherwise to remain in full force and virtue.

Signed, sealed, and delivered by the said Richard Read, }
in the presence of,— }
WM. DUDDING, J.P.

RICHARD READ.

Signed, sealed, and delivered, by the said William Wells }
Robinson, in the presence of,— }
WM. DUDDING, J.P.

WILLIAM W. ROBINSON.

Signed, sealed, and delivered by the said Albert John Gould, }
in the presence of,— }
WM. DUDDING, J.P.

ALBERT J. GOULD.

(A.)

SPECIFICATION for the supply and delivery of engine-coal at Singleton Station, required for use on the Great Northern and North-western Lines, from 1st July, 1885, to 31st December, 1889.

1. This contract shall be for the supply and delivery into Commissioner's trucks at the screens of Contractor, Rix Creek, of the following quantity of coal required for use on the Great Northern and North-western Lines. From 1st July to 31st December, 1885, 4,000 tons. From 1st January, 1886, to 31st December, 1889, 43,500.

2. The above quantities are however so far approximate, that the Commissioner reserves to himself the right to demand more or accept less to the extent of 25 per cent.

3. All coal supplied must be of the best quality, free from slack, stone, schist, band, or other substance which may affect its quality and practical use on a locomotive engine. It must be thoroughly screened through a $\frac{3}{4}$ -inch iron mesh screen, to be provided and fixed by the contractor and approved by the locomotive engineer.

4. All coal supplied not of sufficiently good quality will be rejected, and must on notice in writing from the Superintendent of Stores or other authorised officer be removed by the contractor at his own cost within twelve hours from the receipt of such notice, or if not so removed, it will be discharged from the trucks at the contractor's expense, and if not then removed within seven days, shall be forfeited and become the property of the Commissioner for Railways on behalf of the New South Wales Government.

5. Coal must be supplied in such quantities and at such times as may be required from the 1st July, 1885, to the 31st December, 1889, but the contractor will not be called upon to supply more than the *pro rata* quantity monthly, based upon the estimated quantity with 25 per cent. added.

6. Payments will be made once in every month, but only on the certificate of the proper officer, that the coal has been supplied according to contract.

7. Should any coal (not exceeding the *pro rata* monthly quantity based upon the estimated quantity with 25 per cent. added) not be promptly supplied on the usual printed order signed by the proper officer, the Commissioner may, in his discretion, purchase such coal in such manner as he may think best for the Public Service, and the excess of cost, if any, shall be deducted from any money payable to the contractor by the Commissioner.

8. The Commissioner reserves to himself the right to annul the contract at any time on giving one month's notice in writing to that effect, should he not be satisfied with the quality of the coal or the rate of delivery.

9. The person whose tender may be accepted, will be required to enter into a bond with two eligible sureties jointly and separately, to be bound under a penalty of £1,000, for the due performance of this contract.

10. The Commissioner reserves to himself the right to purchase coal, elsewhere than from the contractor, during the currency of this contract, should he consider it necessary to do so, without prejudice to his rights, under or in any way vitiating this contract.

No. 20.

Mrs. M. Campbell to The Commissioner for Railways.

Sir,

Hanstead, Cook's River, 23 July, 1885.

I am the owner of the Rix's Creek Colliery, near Singleton, on the Great Northern Line, and am desirous of obtaining the following information:—

1. How many tons of coal are supplied per annum to the Railway Department at Singleton?
2. What price is given at present per ton?
3. Is the coal from Rix's Creek considered best?
4. Is it Rix's Creek coal that is now used, or that from the Singleton Coal Company's land?
5. When will the present contract expire?
6. Will tenders be called for the next one, and for how long a period, one or three years at a time?
7. Who are the present contractors?

Awaiting the favour of an early answer—

I have, &c.,
M. CAMPBELL.

Please

Please obtain this information as quickly as possible.—CH.A.G., 24/7/85. Superintendent of Stores, 24/7/85.

Mr. Fligg will please furnish careful report replying to each question in detail. I hope this may not turn out to be what it looks like, viz., that while there was a chance of competition, the Commissioner has been recommended to extend the contracts of Dr. Read and Mr. Longworth. Unless I am very much mistaken, Mr. Fligg was asked more than once if there was any chance of competition on the Northern Line beyond Newcastle, and replied in the negative; but even if this were not the case it would surely be Mr. Fligg's duty to draw attention to such a thing, or if unaware of it to seek information on the point. This would seem to furnish a reason for Messrs. Read and Longworth's anxiety to extend their contracts at a lower rate, which I confess I could not quite understand at the time.—A.R., 25/7/85. The Storekeeper, Newcastle.

I do not remember being asked if there was any chance of competition beyond Newcastle, but supposing such to be the case, I was quite right, as no other colliery did exist near Singleton at the time, although no doubt I sought for information; it appears, however, that there is a small colliery just opened by a Mr. Nowland between Glennie's Creek and Rix's Creek.—H.F., 27/7/85. Perhaps I am mistaken, but I do not think so.—A.R., 28/7/85.

No. 1. Quantity of coal supplied per annum, 14,000 tons.

No. 2. The price of coal is 10s. 6d. per ton.

No. 3. The coal used is from Rix's Creek Collieries. Read's pit and Longworth's pit; I believe there is no difference in the quality of the coals from the two pits, which are close together.

No. 4. It is Rix's Creek coal that is used; I know nothing about the Singleton Coal Company's land.

No. 5. Present contract will expire 31st December, 1889.

No. 6. I know nothing in respect to future tenders.

No. 7. Present contractors, Mr. Read and Mr. Longworth.

H.F., 27/7/85.

The Rix's Creek coal is of good quality.

Information herewith. It seems to me that if Messrs. Read and Longworth's proposal (which the Commissioner has accepted) to extend their contracts was made with a knowledge that another mine or other mines were about to be opened, the Commissioner has some cause to complain of their action. Mrs. Campbell's letter has taken me quite by surprise. I had not the slightest idea that there was any probability of another mine being opened, and have all along understood that there was no chance of securing competition in that direction.—A.R., 28/7/85. The Commissioner.

Let me see papers upon which the existing contracts were extended.—CH.A.G., 29/7/85. Herewith.

I cannot give to Mrs. Campbell the information she asks for in full. I have no objection to say that the present contract will not expire till 31st December, 1889, and that, when next tenders are invited, a contract will probably be entered into for three years at least; add that, the coal from Rix's Creek is considered to be good coal for locomotive purposes.—CH.A.G., 3/8/85.

No. 21.

The Commissioner for Railways to Mrs. M. Campbell.

Madam,

Department of Railways, Sydney, 5 August, 1885.

Referring to your letter of the 23rd ultimo, asking a series of questions respecting the arrangements of this Department for obtaining supplies of coal at Singleton for locomotive purposes, I have the honor to inform you that I cannot furnish in full the information you seek, but I have no objection to state that the present contract will not expire till 31st December, 1889, and when tenders are invited, a contract will probably be entered into for three years at least. I may add that the coal from Rix Creek is considered to be good coal for locomotive purposes.

I have, &c.,

CH. A. GOODCHAP,

Commissioner for Railways.

No. 22.

Mr. R. Read to The Commissioner for Railways.

Sir,

Singleton, 20 August, 1885.

A sum of £28 19s. has been charged against me, and deducted from my July account for coal supply for haulage from my screens during that month. This, as you are aware under my new contract, should not be charged. Will you therefore kindly give the necessary instructions on this matter, and direct the payment of this sum to me.

I further observe that the amount payable to me is calculated as £445 10s. 10d. This should be £446 1s. 4d., as the quantity of coal supplied by me during July was 849 tons 13 cwt., at 10s. 6d. I shall be glad if this also be rectified. In reference to this I have observed that on a few occasions this year the amount paid me has been a few shillings less than that actually due as per my account, and I am desirous that these monthly discrepancies should be corrected.

I have, &c.,

RICHARD READ.

Mr. Fligg for report.—A.R., 24/8/85. The difference was a clerical error, occurring at Singleton, in transmitting the weights. Dr. Read could have the matter settled without troubling the Commissioner.—H.F., 5/9/85. The Secretary, 7/9/85. Is the item £28 19s., also a clerical error.—D.C.M.L., 9/9/85. Superintendent of Stores. Mr. Fligg to say.—A.R., 10/9/85. The £28 9s. is a charge made by the Traffic Branch;—will the Traffic Manager please explain?—H.F., 11/9/85. Station-master, Singleton, for report.—J.H., 12/9/85.

With reference to the £28 19s. said to have been charged for haulage is in accordance with instructions contained in your M.P. 85-4,050:—"Inform Dr. Read that the minimum charge for the service will be 15s. a day, and every ton hauled over 45 tons, 4d. per ton." I do not remember seeing any instructions about the new contract referred to by Dr. Read.—GEO. DOWLING, 13/9/85. Traffic Manager.

Paper quoted, viz., 85-4,050 herewith, the deductions complained of are traction charges for coal drawn from mine to main line there, and free haulage thence to depôt at station.—JNO. HIGGS, 15/19/85. Station-master, Singleton.

Traction charges from mine to main line is charged on all the coal brought out. Freight from the siding to Singleton is charged only on the coal kept in the yard. The greater quantity of the coal is sent north and north-west, and that is hauled into Singleton, weighed, and taken back to Rix's Creek (free of all charge), a distance of over 6 miles for nothing; we then invoice only from Rix Creek to Murrurundi, Narrabri, Armidale, Glen Innes, or to any station it may be consigned to.—GEO. DOWLING, 16/9/85. Traffic Manager.

Charges appear in accord with my instructions, but in opposition to conditions of last contract. Please forward papers dealing with contract for coal from 1st July, 1885, to December, 1887, without them I cannot fully understand the case.—J. HIGGS, 17/9/85. The Secretary.

Papers herewith. Superintendent of Stores.

I wish Mr. Fligg would look into this and report further. If under Read and Longworth's new contract, the Department loses all haulage charges for which it was paid under the old, the advantage to be gained by the reduction of 1s. 3d. per ton is more apparent than real. I put this to Mr. Fligg on my 85/7,080, when the bond was about to be signed.—A.R., 28/9/85. Storekeeper, Newcastle.

The gain to the Commissioner is 11d. per ton, as per my memo., 11/7/85.—H.F., 1/10/85.

Sir,

Singleton, 5 September, 1885.

I have received a duplicate account for haulage of coal from Rix's Creek Siding to Singleton during month of August ultimo. As the haulage was deducted from my account for July in error, I trust you will give immediate instructions so as to prevent a repetition of the error in respect of August account.

The deduction from my July account has not yet been refunded to me.

I have, &c.,

The Commissioner for Railways, Sydney.

RICHARD READ.

Superintendent of Stores, B.C., 7/9/85. Mr. Fligg for report. Why is this?—A.R., 10/9/85.

Will the Traffic Manager please say if he knows of the deduction for haulage from the Singleton contractor's account. A claim in Dr. Read and Longworth's contract for coal from 1st July, 1885, to 31st December, 1889, is that the Commissioner hauls the trucks from the pits, without charge, to the contractors. It is a charge against the Locomotive Department.—H.F., 11/9/85.

Station-master, Singleton, for report.—J.M., 11/9/85.

The charge for haulage is made in accordance with instructions contained in your M.P. 85-4,050. I do not remember seeing any instructions to discontinue the charge.—GEO. DOWLING, 13/9/85. Traffic Manager.

Charge as hitherto, but it would appear current contract conditions differ from those of former contract. Let me have a sight of contract papers please.—J. HIGGS, 17/9/85. The Secretary. Superintendent of Stores, 29/9/85.

1. What is the rate of haulage per ton which, under the new contract, Messrs. Read and Longworth have ceased to pay? 2. What compensating benefit, other than the reduction of 1s. 3d. per ton, does the Department gain? 3. Knowing the terms of the contract, why did Mr. Fligg make the deductions from the accounts, which he admits should not have been made?—A.R., 30/9/85. Storekeeper, Newcastle.

1. 4d. per ton for haulage from pits to main line. 2. No other benefit that I am aware of. 3. I know nothing about the deductions; they were made by the Station-master, Singleton.—H.F., 1/10/85.

I cannot spare the papers at present, as I am making a special *précis* for the Commissioner's information. Will Mr. Higgs please note, however, that Read and Longworth, under contract commencing 1st July, 1885, and ending 31st December, 1889, deliver coal at their screens, so that haulage to main line will be a charge upon the cost to Locomotive Department.—A.R., 5/10/85. Traffic Manager, Newcastle.

For perusal and information Station-master, Singleton. What deductions to date require adjustment?—J. HIGGS, 7/10/85. Station-master, Singleton.

Dr. Read has been debited with amounts for haulage as follows. Locomotive coal only;—

1st to 31st July	...	...	...	...	£28	2	8	} Paid in Sydney.
1st to 31st August	...	...	...	...	21	16	4	
1st to 30th September...	...	...	...	...	26	7	4	} Not paid yet.
1st to 6th October	...	...	...	...	8	2	2	
Total	...	...	...	...	£84	8	6	

Please advise me early. Am I to continue charging this haulage to Dr. Read, or is it to be charged to the Locomotive Department?—GEO. DOWLING, 8/10/85. Traffic Manager.

Locomotive Department, as directed in minute of the Superintendent of Stores, under date 5/10/85, during currency of present contract, which, it is stated, expires on 31st December, 1889.—J.H., 9/10/85. Station-master, Singleton.

Noted. Will clear the £8 2s. 2d. by cash book and debit same to Locomotive Department.—GEO. DOWLING, 10/10/85. Traffic Manager.

The papers show that £26 7s. 4d. and £8 2s. 2d. have been credited to Dr. Read, and charged to the Locomotive Department. If not already done, the two first-named amounts, £28 2s. 8d., and £21 16s. 4d. (deducted in Sydney) must be refunded to Dr. Read, and charged against Locomotive. The whole matter will then be adjusted.—J. HIGGS, 28/10/85. Station-master, Singleton.

Noted.—GEO. DOWLING, 29/10/85. Traffic Manager.

The matter has been arranged—J. HIGGS, 30/10/85. Superintendent of Stores. For the information of the Secretary, who will, I presume, communicate with Dr. Read accordingly.—A.R., 2/11/85. Yes, if correct.—D.V., 5/11/85. Mr. McLachlan.

This

This matter evidently requires some consideration before it is acted upon, as it would appear from these papers that the Commissioner is not getting the advantage it was expected he would from the new contract. Please attach the papers with reference to the extended contract and forward to Mr. Badham, who will make a statement of the case for decision.—D.C.M'L., 11/11/85.

Without wading through this bundle of papers I do not quite know what the facts are; but is this the case. In November, 1883, tenders were invited for the supply for three years, 1884-5-6, of locomotive coal at Singleton. Messrs. Read and Longworth were the only tenderers, as they had been for the previous three years, and it seemed to be clear that no other person would tender. In March, 1885, Messrs. Read and Longworth asked that their contracts which expired on the 31st December, 1886, might be extended till December, 1889, and in consideration offered to supply the coal from 1st July, 1885, at a reduction of 1s. 3d. per ton. As this represented a saving of £5,843 during the currency of the extended contract, the Minister, upon my recommendation, approved of its acceptance.—Ch.A.G., 20/9/85.

Mr. Badham, 21/9/85.

Extension of Messrs. Longworth and Read's contracts for the supply of coal.

THE contract for the supply of coal at Singleton in the years 1880, 1881, and 1882, was obtained by Mr. R. Read, Mr. W. Longworth, however, having a part of the supply for 1880.

The papers are not clear as to how the matter was dealt with in 1883. Probably the above contract was extended for a year.

In the latter part of 1883 tenders were invited for the supply of coal at Singleton for the years 1884, 1885, and 1886. Four tenders were sent in, and on the recommendation of Superintendent of Stores, and after competitive trials of the several coals, made by desire of the Minister, the tenders of Messrs. Read and Longworth were accepted; the contract being divided between them at 11s. 9d. per ton.

Messrs. Read and Longworth, per letters of 18th March, 1885, applied for an extension of their contract to the 31st December, 1889, offering their respective sidings for the use of the Department, free of charge, and to deliver the coal from their own screens direct into the Government trucks. As a further inducement they offered to reduce the price of the coal to 10s. 6d. per ton from 1st July, 1885, and to pay the wages of a porter-in-charge of the junction if the Department decided to place a weigh-bridge there.

Commissioner recommended, stating that there was difficulty in getting good coal, that that of Dr. Read and Mr. Longworth was excellent, that he would have been prepared to recommend an extension even at existing price, but with a reduction representing £5,800 there was no choice but to accept.

The Minister approved, and Messrs. Read and Longworth were duly informed of acceptance (1/4/85).

In the foregoing I have limited myself to a categorical reply to Commissioner's minute.

C.A.B., 24/9/85.

Commissioner.

The Superintendent of Stores will know all the facts. Ask him for a clear *précis*.—Ch.A.G., 25/9/85. Superintendent of Stores, 26/9/85.

Please reply carefully by return of post to the following:—1. Is Dr. Read supplying coal from the same colliery as coal was supplied from during 1879 by Messrs. Campbell and Jones. 2. Give list of contracts, with dates and values, entered into with Dr. Read, Mr. Jarman, Mr. Longworth, showing points of delivery.—A.R., 28/9/85. Storekeeper, Newcastle.

Can Mr. Boag oblige by giving me any information in respect to the above.—H.F., 29/9/85. Can Mr. Newton give the required information.—G.B., 29/9/85.

We have been supplied with coal from four places on this field. The pit from which coal was supplied by Messrs. Campbell and Jones was used only a short time. Dr. Read has drawn from two tunnels, and another pit has been lately opened. The four places cover a distance of about 120 yards.—G. NEWTON, 1/10/85. Mr. Boag.

Mr. Fligg, 2/10/85. To Superintendent of Stores, with memo. attached of dates of contracts and values.—H.F., 2/10/85.

No. 23.

Précis.

Précis of the Department's transactions in Rix Creek coal, more especially under contract with Messrs. Read and Longworth.

THE above, asked for by the Commissioner on the 25th September (date of reaching my hands, 28th September), would have been furnished before this had I not experienced considerable difficulty in getting the history of the case complete in the absence of some of the papers.

The first dealings of the Department with coal from the Rix Creek neighbourhood appears to have been in 1869 and 1870, when about 70 tons per month were used. The coal was well suited for our purposes. After this, with the exception of a small quantity from the same neighbourhood sent in for trial in 1873, this coal was apparently not heard of till 1879, when coal submitted by Campbell and Jones from the Rix Creek Colliery was approved of, and their contract for the year accepted.

In 1880 Dr. Read first appears as a tenderer for the supply of coal to the Department at Singleton, in company with four other tenderers, Messrs. Longworth, Marshall, Vickery, and Mitchell.

Dr. Read's tender was the highest of the five, but as it was a condition of his tender that the coal to be supplied would be from the same mine and seam as that supplied by Messrs. Campbell and Jones during 1879, which had given satisfaction, his tender was accepted for long-journey trains for the year 1880, and that of Mr. Longworth for the short-journey trains for the same period.

In saying that the coal to be supplied by Dr. Read was to be from the same mine and seam as that supplied by Campbell and Jones, I quote from the Locomotive Engineer's (Mr. Burnett) report in the absence of the tender. I am inclined to think the coal was to be from the same seam, not from the same mine.

Afterwards accepted for 1880-1-2 as far as Dr. Read was concerned.

I

I judge this because it is now reported that Dr. Read is not supplying from the same mine from which Campbell and Jones were supplying in 1879, and which I take to be the mine now reopened, about which a communication was first received some two months ago from Mr. Campbell, and now from Messrs. Nowland through the Minister for Mines, but this I cannot vouch for.

8s. per ton. For 1881, Longworth's tender, being the lowest, was again accepted for short-journey trains, Dr. Read's being still in operation for long-journey trains. A Mr. G. E. Carter also tendered for coal from the same district (Rix Creek) at 8s. 6d.

7s. 11d. per ton. In 1882, Dr. Read's tender still holding good for long-journey trains, Mr. Jarman's was accepted for short-journey trains. I have failed to obtain the papers referring to Jarman's supply, so am unable to say whether other persons tendered or not.

11s. 10d. per ton. In 1883 the tenders of Dr. Read and Mr. Longworth were respectively accepted for half the Singleton coal required during the year. I believe there were no other tenderers, but cannot state positively in the absence of the papers; but this is not so material to the point as that which has followed respecting which all particulars can be clearly detailed.

11s. 9d. per ton. For the years 1884-5-6, tenders were called for delivery at Singleton, and Messrs. Read and Longworth were (again) the only tenderers for coal from the Rix Creek District. Messrs. Vickery & Co., however, tendered at a lower rate for Greta coal, delivered at Singleton. The difference was 1s. 10d. per ton in favour of the latter, but the experience of the Department was to the effect that this difference in cost was far more than compensated for by the superiority of the Rix Creek coal. In fact, Greta coal could only be used on a few of the short-journey goods trains.

The tenders, therefore, of Messrs. Read and Longworth respectively were accepted for half quantities for the years 1884, 1885, and 1886.

In March, of the present year, Messrs. Read and Longworth proposed to deliver coal at their screens at 10s. 6d. per ton, commencing from 1st July, 1885, provided the Commissioner extended their contract for three years from the date of its proposed expiration. By this the Department would gain 1s. 3d. per ton on all coal supplied during the eighteen months of the current contract, less 4d. per ton haulage, which the contractors would cease to pay from the mines to the main line, or a net gain to the Department of 11d. per ton.

Estimated saving on 29,340 tons, at 11d. per ton, £1,344 15s. 10d.; or, on the assumption that no lower tenderers would have come forward for the three years over which it was proposed to extend contract 1886-9, the estimated saving would be, on 93,494 tons at 11d., £4,285.

In July, however, of this year, Mrs. Campbell wrote to inform the Commissioner that she was the owner of the "Rix Creek" Colliery, and asked for certain information respecting the existing contracts.

Under date 12th September, covered by the Minister for Mines, 19th September, Messrs. J. & H. Nowland, of Camberwell, wrote on the same subject, with reference to a coal mine which they have opened upon their land.

With respect to this unfortunate and quite unforeseen opening up of new mines, just at the time when Messrs. Read and Longworth had succeeded in obtaining an extension of their contract, I would offer the following remarks:—

1. The circumstances seem to me to point almost conclusively to the fact that Messrs. Read and Longworth were aware of this rising competition, and took steps to stifle it. This would account for the voluntary surrender by them of some £1,300, by lowering their contract price some eighteen months before there was any necessity for them to do so.
2. The Commissioner has reserved to himself the right, however, to purchase whatever coal he likes from other sources, and if Messrs. Read and Longworth have knowingly deceived the Department, the Commissioner will not, I presume, scruple to take advantage of this clause to the letter.
3. On the other hand, the parties complaining, Mrs. Campbell and the Messrs. Nowland, have no claim to come before the Department, as vendors of coal or tenderers for coal supply before December, 1886, the date on which the original contract of Messrs. Read and Longworth, entered into under public competition, would expire.

I trust this *précis* will answer the Commissioner's purpose, although, if I had been able to obtain further papers, and could have taken a little more time for inquiry, it would have been more perfect.

5/10/85.

A. RICHARDSON,
Superintendent of Stores.

No. 24.

Messrs. A. & H. Nowland to Mr. G. Newton.

Dear Sir,

Rosedale, Camberwell, 11 August, 1885.

We would like to have our coal tested for locomotive purposes, and would give you a truck to have it tested if you will kindly let us know when it would be convenient to take it out.

Yours, &c.,
A. & H. NOWLAND.

Messrs. Nowland are the proprietors of the new coal pit, 6½ miles north of Singleton. I presume they wish to know if their coal be fit for use in our locomotives. They have a siding.—G. NEWTON, 12/8/85. Mr. Boag.

I have no objection to this coal being tried if you approve.—S.H. (for Locomotive Foreman) Locomotive Engineer. Forwarded for your consideration.—W. SCOTT, 17/8/85. Commissioner. Approved.—CH. A.G., 24/8/85. Locomotive Engineer. Locomotive Foreman.—W.S. (*per* C.A.N.), 25/8/85. Mr. Newton to carry out and report result.—P.L., 27/8/85. Report herewith.—G.N., 21/9/85. Forwarded for your information. Will Messrs. Nowland be acquainted with results of test from your office.—P.L. (*pro* Locomotive Foreman), 22/9/85. You had better inform Messrs. Nowland of result.—W.S. (*per* R.J.S.), 24/9/85. Mr. Newton will please inform Mr. Nowland.—J. D. BOAG, 25/9/85. Carried out.—G.N., 26/9/85.

Memo.

Locomotive Engineer's Office, Newcastle, 21 September, 1885.

Memo to Mr. Boag,—

I have to report that I tested the sample coal sent by Messrs. Nowland, of Camberwell, on 17th instant, on an engine running goods train, fairly loaded, from Singleton to Murrurundi and back.

The coal made steam fully throughout the journeys, not requiring the use of pricker or of clearing out the fire-box from start to finish of the 142 miles run.

The coal consumed was at the rate of 13 lbs. per gallon of water evaporated. The ashes amounted to 8.5, and the clinker to 1.8 per cent. on consumption.

The coal is harder than that now used, and will not break up into small so readily. It made a less percentage of ash, but a larger percentage of clinker. The clinker can, however, be easily dealt with, and presuming the sample to be a fair one, I believe the output from this pit will prove a good serviceable coal for locomotive use.

G. NEWTON.

No. 25.

Dr. Read to The Commissioner for Railways.

Dear Sir,

Singleton, 19 October, 1885.

The supporters of Mr. H. C. Browne's candidature for Patrick's Plains against Mr. A. J. Gould, have endeavoured to raise an electioneering scare against Mr. Gould from the fact of him introducing myself and Mr. Longworth to you on the occasion of our interview *re* extension of contract, and I have found it necessary to publish the enclosed letter, explanatory of the matter. Mr. Browne has promised the Messrs. Nowland to do all he can to break our agreement if he is returned, and is obtaining their support from this promise. Any information I can supply you with in the matter will be willingly given. Nowland's place was not opened up at the time of our interview, the outcrop was struck, but nothing was known as to quality or otherwise of the coal.

Yours, &c.,

RICH. READ, M.D.

[Enclosure.]

To the Editor of the "Singleton Argus."

Sir,

You will agree with me that election times are "stirring," and that unfortunately during those times a great amount of "dirt" is stirred up by the supporters of different candidates, and I regret to say the election contest now going on in this district is not an exception to the rule, as has been instanced within the last twenty-four hours in this electorate, in connection with the heading of my letter. And as the underhand traducers of Mr. A. J. Gould, in whose interest it is well known I have, on this as on a former occasion, taken a lively interest, have failed on a public challenge, in the midst of Mr. Browne's own supporters on last night, to place before the electors the facts of the case; and as I am well aware the untrue reports have caused some uneasiness amongst Mr. Gould's supporters, I hasten to lay the matter before the electors without fear of contradiction, and challenge our opponents to prove otherwise at Mr. Gould's meeting on to-morrow (Saturday) evening at "Nichols' Hotel."

The following correspondence which passed between Mr. Gould and Mr. Browne, after the defeat of Mr. Browne at the last election, will satisfy, I am sure the most doubting:—

"My dear Sir,

Singleton, 12 December, 1882.

Mr. Munro showed me a telegram he had received from Mrs. Browne that if I were a shareholder in Rix's Creek Colliery the election was illegal. As I had some time prior to the election disposed of the whole of my interest, I was enabled to inform Mr. Munro I was not a shareholder. I should not have troubled further in this matter but for a rumour that has got abroad that you intend taking some steps in reference to it. Although I do not believe there is any truth in this rumour, yet I have thought it well, in order that you may be acquainted with the merits of the matter, to inform you that I am not, and was not at the time of the election a shareholder in the colliery, or in any way whatever interested in it, or any contracts held in connection therewith.

With kind remembrances to Mrs. Browne and family.

Yours, &c.,

ALBERT J. GOULD.

H. C. Browne, Esq., 'Kellet House,' Upper William-st., Sydney."

EXTRACT from letter from H. C. Browne.

My dear Mr. Gould,

"Kellet House," Sydney, 13 December, 1882.

Yours of yesterday duly to hand. Like a great many other rumours there is not one scintilla of truth that I intend taking steps to try the validity of your election. You are honorably elected, and I would, as I am sure you know, be the last person to take so mean an advantage. I have to thank you for your courteous and gentlemanly demeanour to me throughout the whole contest.

So far for Mr. Gould's position, which is the same now as it was three years ago.

Now with reference to my part of the affair in securing an extension of the contract of locomotive coal, the following are the facts, viz. :—

During the currency of previous contracts I found great difficulty in securing a regular supply of coal to the Locomotive Department during wet weather, as the pit was over a mile distant from the Great Northern Railway, so I determined to construct a branch line of railway, sufficiently substantial to carry the traffic of the Government locomotive, at a cost of over £2,000. After joining partnership with the Messrs. Longworth I found that it would be necessary, to ensure proper supplies, to construct a branch line of railway, a distance of nearly half-a-mile, to connect the two pits from which the coal was obtained. But before doing this we determined to make an effort to insure an extension of the contract in order to secure some return for the large outlay incurred in the railway construction, and Mr. Longworth and I determined to interview the authorities on the matter. This was as late back as March in this year. We requested our Member to arrange for an interview with us with the Commissioner, and he, with the usual courteousness that he has at all times extended to his constituents, did so, and introduced us to the Commissioner. Matters were discussed, and after the refusal of our offer and an offer submitted by the Commissioner, Mr. Longworth and I agreed to the terms stipulated by him and secured an extension of the contract for three years at a considerable reduction in the contract price, and with this additional stipulation in favour of the Government, that the reduced price was to commence from the 1st July this year—eighteen months before the expiry of the contract obtained by tender—that we were also to complete and keep in repair the branch line, and allow the Government the free use of our railway.

Now I will ask all fair-thinking electors what has this matter to do with the election. Corruption our opponents say. Prove it in the face of the above correspondence. The matter is a simple business transaction between the Government and ourselves, and I feel confident that if Mr. H. C. Browne represented the district instead of Mr. A. J. Gould, when we solicited the interview, he would have assisted us in like manner.

Where the shoe pinches is with the Messrs. Nowland and my late Manager, who find they are, by the exhibition of a superior business tact on our part, at a sacrifice of a portion of the existing contract, and in the interest of the large expenditure we laid out on the works, thrown out from reaping the benefits which we, by our pluck in investment, will reap; and if it ever comes to a matter of competition we can meet them with good hopes of success. The Commissioner is

as

as shrewd a man of business as there is in this Colony, and he knew that he was doing a good thing for his Department and the revenue generally by securing the supply from us, and this matter has allowed party spirit to so degenerate the principles of interested individuals as to make them turn their coat, and within twenty-four hours transfer their support from one whose candidature they were active and prominent supporters of, to one of sworn antagonism. Let the electors understand that this is a private matter between the Messrs. Nowland and Minto and Messrs. Read and Longworth, and that it has been endeavoured by underhand means, and by an unanswered challenge, to work this matter to the detriment of Mr. Gould's return at the forthcoming election by endeavouring to implicate him as an interested party in the contract.

I may add that Mr. Gould will have something to say to the electors on the subject in his address from Nichols' balcony, Saturday night, and that I will be prepared to answer any questions on the subject.

"Carisbrook House," Singleton, 16 October, 1885.

I am, &c.,
RICHARD READ.

This paper is marked private, but it refers to a public matter, and therefore must be put with papers on the subject.

I certainly made good terms for the Department with Mr. Read and Mr. Longworth, but I do not think I should have listened to the proposal for extending the contract had I been aware that there was any likelihood of competition for the supply of good coal at Singleton.

CH.A.G., 21/10/85.

No. 26.

Messrs. A. & H. Nowland to The Commissioner for Railways, Sydney.

Sir,

Rosedale Colliery, Camberwell, 22 October, 1885.

We have the honor to inform you that we are now ready to supply best screened coal from our colliery, in quantities up to 20 tons per day, or 6,000 tons per annum, at the rate of 10s. per ton delivered on your trucks at Blackwall Siding, on the main line, Great Northern Railway. The quality of the coal will be the same as sample forwarded to, and tested by, Locomotive Inspector for us in September ultimo.

We would be glad if you could let us have a share of the trade to supply locomotive coal from Singleton North, in order to enable us to keep our pit working until such time as tenders are called for that contract.

We are now making arrangements to have our pit ready during next year to turn out any quantity of coal up to 40,000 tons per annum. We may add that our pit adjoins the railway line, and we have a large area of coal land, estimated to contain a practically unlimited supply of coal.

Soliciting the favour of an early reply.

We have, &c.,
A. & H. NOWLAND.

Superintendent of Stores for report. We certainly have the power to get coal at other points of the line, and it would not form a breach of contract with Read and Longworth. I would like to get coal from Rosedale Colliery, but it will depend upon its quality and price, the convenience or inconvenience it will be to us to go out to Blackwall to obtain the coal (for the Messrs. Nowland will deliver only at the junction of their line with main line), and the legal difficulty in the way (if there be any legal difficulty) in obtaining coal so close to the source from which Messrs. Read and Longworth supply. A couple of trucks a day might to be taken from the Messrs. Nowland at first, if all these conditions are favourable.—CH.A.G., 6/11/85.

I shall be glad if Mr. Fligg will look carefully and thoroughly into the matter and report. He might visit locality, if necessary. Has a trial been made of the coal? Messrs. A. & H. Nowland appear to state that there has.—A.R., 10/11/85. Storekeeper, Newcastle.

In reporting upon the facilities offered by the Rosedale Colliery, at Blackwall Siding, in supplying coal to the Government, a sketch of the locality of Messrs. Nowland's mine will go far to show the convenience or otherwise for the supply of coal. Thus it will be seen that Messrs. Nowland's mine is $3\frac{1}{2}$ miles further north than Messrs. Read and Longworth's, a $6\frac{1}{2}$ miles further run from Singleton and back, and this extra distance of $6\frac{1}{2}$ miles might be taken to mean an additional expense, but I think it is more imaginary than real, as the engine which is put in steam every day to haul Messrs. Read and Longworth's coal to Singleton could, I fancy, at no extra expense of oiling, firing, or men's wages, proceed to Blackwall Siding and pick up the trucks ready to bring away. The price asked by Messrs. Nowland of 10s. per ton, or 6d. per ton less than we pay Read and Longworth, and presuming two trucks were brought from the Blackwall Siding at a time, it would give a margin of 6s. for running the extra mileage, which, I think, would well cover the expense. As regards the quality of the coal, it was tested in September by the Locomotive Foreman, and I understand his report is favourable. The minute papers relative to the test will be found with the Locomotive Engineer. I would further state that I think if a weighbridge was put down at Muscleebrook, so that the coals, instead of taking a retrograde course in carrying to Singleton to weigh could be taken on by the goods trains, it would be a greater convenience and a saving of time and expense, now that the Railway is likely to be supplied from the coal mines about the locality of Singleton for some time to come.—H.F., 13/11/85.

Will you kindly let me have Mr. Boag's report upon the test made of the coal from A. & H. Nowland's colliery in September last, to which Mr. Fligg refers.—A.R., 14/11/85. Locomotive Engineer. Herewith.—W.S., 16/11/85.

There appears to me to be no reason why the Commissioner should not use a small quantity of this coal. (1) It seems to me to be of equal quality to that supplied by Messrs. Reid and Longworth. (2) The price, 6d. per ton less, may be said to be the same, taking the extra haulage into account. (3) Clause XI enables the Commissioner to legally use coal other than that supplied by the contractors, should he consider it necessary to do so, and, as the action taken by Messrs. Read and Longworth in securing the extension of their contract with (as it is presumed) the knowledge that other mines were about to be opened up, is, perhaps, open to question. The course may, under the circumstances, be considered an equitable one to all parties.—A. RICHARDSON, 17/11/85. The Commissioner.

What is the quantity of coal we get from Read and Longworth per week.—CH.A.G., 14/11/85. Superintendent of Stores. Mr. Fligg.—A.R., 21/11/85. 150 tons per week each, or together, 300 tons.—H.F., 23/11/85. The Commissioner.

I do not think that we can equitably take coal from a mine so near to Read and Longworth's, as this mine is. The clause in the conditions of contract was inserted to meet a possibility of its being advantageous to the Department (if coal were found some distance from the service of supply contracted for) to obtain such coal. For instance, we are getting our coal at Lithgow; if, however, good coal were found at Dubbo, we should wish to use it, as it would save us the trouble and expense of hauling Lithgow coal to Dubbo, but the clause would not give us the right to take coal from another mine at Lithgow. This case would be on all fours with the circumstances surrounding Read and Longworth's coal, and Nowland's coal.—C.H.A.G., 28/11/85.

I think the Commissioner's interpretation is correct.—W.J.L., 9/12/85. Messrs. Nowland informed, 1/12/85.

No. 27.

The Commissioner for Railways to Messrs. A. & H. Nowland.

Gentlemen,

Department of Railways, Sydney, 11 December, 1885.

Referring to your letter of the 22nd ultimo, asking that a portion of the coal required for railway purposes at Singleton may be taken from your mine, I have the honor to inform you that the matter has had careful attention, but I regret I am unable to approve of a supply of coal being taken from your colliery, as such action would be an infringement of the contract entered into with Messrs. Read and Longworth at Singleton.

I have, &c.,

CH. A. GOODCHAP,
Commissioner for Railways,
(Per D.V.)

No. 28.

Minute by The Secretary for Public Works.

Contract for Coal, Singleton.

I SHALL be glad to learn what action (if any) has been taken recently in connection with Messrs. Read and Longworth's contract for the supply of locomotive coal at Singleton, Northern Railway. I shall be glad to know how matter stands.

W.J.L., 2/11/85.

Papers herewith. Seen —W.J.L., 7/12/85.

No. 29.

J. P. Abbott, Esq., M.P., to The Commissioner for Railways.

My dear Sir,

Sydney, 6 November, 1885.

The bearers are Messrs. A. & H. Nowland. They are the gentlemen who desire to tender for the supply of coal for the Northern Railway from Singleton upwards, and about whom I wrote to you some time ago. As there is a clause in the contract with the Singleton Company by which you can take your coal, or a part of that required, from other sources, I shall be glad if you will give the Messrs. Nowland some assistance in opening up their mine by taking some coal from them. Of course I ask this on the assumption that their coal is as good and as cheap as what you are now getting. By helping them now you will help the Department when the time comes for competition.

Yours, &c.,

J. P. ABBOTT.

Sir,

Rosedale Colliery, Camberwell, 27 November, 1885.

Referring to our letter of 22nd ultimo, and a subsequent personal interview with you *re* obtaining a portion of the trade to supply coal to the Locomotive Department from Singleton North, we have the honor to request that you will be good enough to favour us with a reply at your early convenience.

We have, &c.,

A. & H. NOWLAND,

(Per A.N.)

The Commissioner for Railways, Sydney.

Sir,

Wentworth Court, Sydney, 7 January, 1887.

Referring to my personal interview with you in company with Mr. Nowland on the 22nd ultimo, when the latter urged you to take some coal from his pit for the supply of some of the engines in use on the Great Northern Railway, and suggested that Mr. Nowland should put his offer in writing, I have the honor now to produce such offer to you.

I hope you will be able to assist Mr. Nowland in this matter, and by doing so, at the same time benefit the Department.

I have, &c.,

J. P. ABBOTT.

The Commissioner for Railways, Sydney.

J. P. Abbott, Esq., M.P., Sydney,—

Sir,

Rosedale Colliery, Camberwell, 29 December, 1886.

Referring to our interview with the Commissioner for Railways on 22nd instant, *re* obtaining a share of trade in supplying coal to the Railway Department, we have now the honor to state that we are prepared to deliver best screened coal on trucks at Blackwall Siding, at the rate of 9s. per ton, provided the quantity be not less than two trucks per day. This will enable us to keep our pit at work until the time comes for tendering for the next contract, when we will be in a position to compete at a considerable reduction on the present contract price.

Our coal could be taken delivery of by down-trains going north in the same way that we send out our private coal, which saves the trouble of haulage to Singleton and back.

We have, &c.,

A. & H. NOWLAND.

Locomotive

Locomotive Engineer for report. This coal was, I believe, tried some time ago.—A.R., 12/1/87. Mr. Boag.—R.J.S., 14/1/87. Seen. This coal was tested in 1885.—J. D. BOAG, 15/1/87. Locomotive Engineer. The Commissioner.—W.S., 17/1/87. I do not see any report from Mr. Scott upon the proposition. This was asked for.—A.R., 19/1/87. Locomotive Engineer. Please report upon the proposal to take some coal from this mine.—R.J.S., 20/1/87. Mr. Boag. Mr. Newton.—S.L.L., 21/1/87.

I understand that a weighbridge will be put down at Muscleebrook shortly. When it is completed the coal used north of Singleton will not have to be hauled into Singleton and back; therefore, as Messrs. Nowland's Siding is $3\frac{1}{2}$ miles north of Messrs. Read and Longworth's line, and that line a mile long, there will be a saving of $4\frac{1}{2}$ miles haulage by taking coal from Messrs. Nowland for north of Singleton, in addition to the 1s. 6d. per ton less than present price they offered to supply at. The coal sent north of Singleton during 1886, amounted to 10,923 tons, so that a reduction of 1s. 6d. per ton will effect a saving of £900 per annum, supposing the coal to be as good, which at present I see no reason to doubt. The Singleton Coal-mining Company (who are known as Mr. Read and Mr. Longworth) tendered to supply coal for Newcastle District during 1886 at a lower rate (I forget what) than they now charge. It may be that, rather than lose the trade, they are prepared to serve this district at a lower rate.—G. NEWTON, 27/1/87. Mr. Boag.

Locomotive Engineer.—J. D. BOAG, 28/1/87.

It appears to be to our advantage to use this coal at depôts north of Singleton, and provided there is no difficulty likely to arise with the present contractors, I am of opinion we should use it, provided, of course, that the coal turns out equal to the sample tested.—W. SCOTT, 31/1/87. The Commissioner.

The Commissioner decided, in November, 1885, that he would not take coal from this mine, because it was too near to Read and Longworth's to allow of its being fairly used on the score of the Department's convenience, as might fairly be urged if coal were found at some distant point (say) Murrurundi or Tamworth.—A.R., 3/2/87.

I think it would be straining the condition to cease ordering from Read and Longworth, simply on the ground that the mine of Mr. Nowland is some 4 miles nearer to the northern stations. The provision was not intended to meet a case of that kind. At the same time I am not satisfied with Read and Longworth as regards the extension they got of their contract; or rather I am dissatisfied that the officers of the Department were not more on the alert. However that may be, I do not think we can ignore Read and Longworth's just rights.—CH. A. G., 7/2/87.

Gentlemen,

Department of Railways, Sydney, 16 March, 1887.

With reference to your letter of the 12th ultimo, in which you offer to supply portion of the coal required for the Great Northern Railway, I am directed by the Commissioner for Railways to inform you that after a due consideration of the matter he is not prepared to order coal from your mine.

I have, &c.,

D. VERNON,

Secretary for Railways.

Messrs. A. & H. Nowland, Rosedale Colliery, Camberwell.

Sir,

Department of Railways, Sydney, 16 March, 1887.

With reference to the offer made through you by Messrs. A. & H. Nowland, to supply the Department with coal for depôts north of Singleton, I have the honor to inform you that the rights of existing contract will not admit of coal being taken from Messrs. Nowland's mine.

I have, &c.,

CH. A. GOODCHAP,

Commissioner for Railways.

J. Abbott, Esq., M.P., Sydney.

No. 30.

Extracts from Votes and Proceedings.

LEGISLATIVE ASSEMBLY.—TUESDAY, 12TH JULY, 1887.

(5.) Coal for Railway Department, Singleton:—*Mr. O'Sullivan*, for Mr. McElhone, asked the Secretary for Public Works,—

- (1.) What are the names of the persons who got the contract to supply the Railway Department at Singleton with coal?
- (2.) What is the contract price per ton for coal, when was the contract made, and when does the contract end?
- (3.) Were tenders called for this contract, is the coal taken from the pits in Government waggons, and do the Government get paid for hauling the coal from the pits to Singleton?
- (4.) Is it his intention to cause tenders to be called for the supply of coal at Singleton when the present contract ends?

Mr. Burns answered,—

- (1.) Thomas Longworth and Richard Read.
- (2.) 10s. 6d. per ton. The existing contract was made to commence on 1st January, 1887, and terminate on the 31st December, 1889.
- (3.) Tenders were invited for the original contract, which expired on the 31st December, 1886. The price was 11s. 9d. per ton. It was extended for three years, upon the price being reduced to 10s. 6d. from the 1st July, 1885. The coal is hauled in Government waggons from the pits, at which place agreement was made for delivery.
- (4.) Yes.

No. 31.

Messrs. A. & H. Nowland to The Commissioner for Railways.

Sir,

Rosedale Colliery, Camberwell, 12 December, 1887.

Adverting to our previous offers to supply the Locomotive Department with coal, and to your promise that if we reduced the price of our coal you would let us have a portion of the trade from Singleton North, we now beg to offer you our best screened coal at 8s. per ton, delivered on the trucks at Blackwall Siding, 55½ miles from Newcastle, if you will guarantee to take 70 tons per week for the next two years.

Our coal is generally admitted to be far superior in quality for steam purposes to that now used by the Locomotive Department, and the saving to the Government would be about £1 per truck to Murrurundi, as shown by the following comparison of the cost of that now in use from Rix's Creek and ours from Blackwall:—

	£	s.	d.	
Contract price for Rix's Creek coal	0 10 6 per ton.
6 tons, at 10s. 6d. per ton	3 3 0
Freight on 6 tons, 75 miles	1 17 6
Total	£5 0 6
Nowland's coal from Blackwall—				
6 tons, at 8s. per ton	2 8 0
Freight on 6 tons, 65 miles	1 12 6
Total	£4 0 6

As the Government have to haul the coal from Rix's Creek pits to Singleton, 4 miles, and thence to Murrurundi, 71 miles, would make the total distance 75 miles, as stated.

We trust that you will take into consideration the fact that we were deprived of all chance of competing for the contract through it being extended to Messrs. Read and Longworth for three years from the commencement of the present year without tenders having been called as usual, and after our having gone to considerable expense in opening up the mine, fully expecting that tenders would be called at the proper time.

We have, &c.,
A. & H. NOWLAND.

Superintendent of Stores,—Please report carefully upon this proposition after noting previous papers and consulting with Locomotive Branch.—A.R., 13/12/87. Superintendent of Stores.

For supply at Murrurundi the offer compares favourably with price of Read and Longworth's coal, provided samples are equal. Mr. Scott has no knowledge personally of Nowland's coal but suggests that about 6 or 10 tons be obtained for test purposes.

	s.	d.	
Read and Longworth's coal, cost at Rix's Creek	10 6 per ton.
Freight to Murrurundi, 71 miles, at 3s. 4d.	4 5½ „
Cost at Murrurundi	14 11½ „

If coal from Rix's Creek is, as stated by Messrs. Nowland, hauled to Singleton first, and then forwarded to Murrurundi, the cost for 4 miles, at 3s. 4d., must be added, and cost at Murrurundi will show as 15s. 2¼d. On this point Locomotive Engineer has written to Mr. Boag:—

	s.	d.	
Nowland's coal at Blackwall Siding will cost	8 0 per ton.
Freight to Murrurundi, 65 miles, at ¼d. per mile	4 0¼ „
Cost at Murrurundi	12 0¼ „

H. CARRUTHERS,
(Pro Supt. of Stores), 20/12/87.

Assistant Secretary.

We have decided to take coal at Werris Creek from coal mine at Gunnedah. This will limit the orders to Read and Longworth. What will be left to them if we take 70 tons a week from Nowland's.—C.H.A.G., 23/12/87. Superintendent of Stores.

We now take from Read and Longworth 270 tons per week. Deduct from this, to be ordered from Mr. Porter, 70 tons, and, as suggested, from Nowland, 70 tons = 140 tons, will leave to be supplied by Read and Longworth, 130 tons per week.—H. CARRUTHERS (pro Superintendent of Stores). Assistant Secretary.

Has Nowland's coal been tested, and how did it compare with Read and Longworth's. Please say.—A.R., 31/12/87. Superintendent of Stores.

Nowland's coal has not been tested. I have written to Nowland asking him to supply 6 tons, free of cost, for test purposes. Please arrange for competitive trial.—H. CARRUTHERS (pro Superintendent of Stores), 3/1/88. Locomotive Engineer.

Please make arrangements for trial.—C.A.N., 5/1/88. Mr. Boag. Mr. Newton to test Blackwall coal and report.—J. D. BOAG, 7/1/88. Report herewith.—W. SCOTT, 22/1/88. Commissioner.

Locomotive Engineer's Office, Singleton, 16 January, 1888.

Memo. to Mr. Boag,—

I have to report that a competitive test of the coal sent by Messrs. Nowland, with that supplied by contractors, was made on goods engine running the Nos. 9 and 24 trains, on 11th, 12th, 13th, and 14th instants.

The

The first two trips were made by No. 40 engine, consuming contractor's coal. The engine was in first-class order, but, unfortunately, the trucks were not heavily laden. The consumption of coal on the two down and up trips was 3 tons 10 cwt. 2 qrs.; the gallons of water evaporated, 6,876, or 27·80 lb. of coal per mile, and 1·148 per gallon of water.

On the following two trips, with same engine and men, consuming Messrs. Nowland's coal, the consumption was 4 tons 2 cwt; water evaporated, 7,958 gallons, making the consumption per mile, 32·34 lb., and 1·156 lb. per gallon of water evaporated.

The refuse from contractors' coal amounted to 7·1 per cent. of consumption; that from Messrs. Nowland's to 8·187. The refuse from contractors' coal was principally ashes, that from Messrs. Nowland's was principally unburnt cinder, indicating that with fire-bars closer the consumption would have been less.

The clinker from Rix's Creek coal (contractors), amounted to 1·275 per cent. on consumption; that from Messrs. Nowland's to 1·1 per cent.; but the clinker of Messrs. Nowland's was larger and stronger.

I think it may be confidently assumed that these two coals are of about equal quality for locomotive use.

G. NEWTON.

Superintendent of Stores.—A.R., 24/1/88.

70 tons per week of Messrs. Nowland's coal represents 3,640 tons per annum. Including freight, at 4s. 0 $\frac{1}{2}$ d. per ton, this will cost the Department £2,191 11s. 8d. Taking the actual consumption in the recent trials as a basis, 3,129 tons of Read and Longworth's coal would be required to produce the same result. This would cost, delivered at Murrurundi, £2,376 1s. 8d., or a difference, in favour of Nowland's coal, of £184 10s. per annum. From Mr. Newton's report, however, the conditions of the trial appear to have been unfavourable to Messrs. Nowland's coal, and he states that it may be assumed that the two coals are of about equal quality for locomotive use. If this be the case then the saving would amount to £568 15s. per annum.—H. CARRUTHERS (*pro* Superintendent of Stores), 4/2/88. Assistant Secretary.

I cannot, with equity, order coal from Nowland's mine.—CH. A.G., 7/2/88. Messrs. Nowland informed.

No. 32.

Extract from Votes and Proceedings.

LEGISLATIVE ASSEMBLY.—TUESDAY, 28TH FEBRUARY, 1888.

(3.) Supply of coal for Railway Department, Singleton:—Mr. McElhone asked the Secretary for Public Works,—

- (1.) What are the names of the parties who have the contract for supply of coal for Railway Department at Singleton?
- (2.) The price paid per ton, and when does the contract terminate?
- (3.) Did Mr. Nowland, or any other person, offer to supply coal at Singleton, or at his coal-pits close by, at 8s. per ton in or about December last?
- (4.) If so, was Nowland's or other person's offer to supply coal at 8s. per ton accepted?

Mr. Sutherland answered,—

- (1.) Messrs. Read and Longworth.
- (2.) 10s. 6d. per ton. Contract terminates on 31st December, 1889.
- (3.) Yes; but subsequent to the contract made with Messrs. Read and Longworth.
- (4.) No; it cannot be, without a breach of the contract already made.

No. 33.

Mr. R. Minto to The Hon. J. F. Burns.

Sir,

Rosedale Colliery, Camberwell, 13 February, 1888.

I am writing to you complaining of a great injustice being played upon us. Myself, in company with Messrs. A. & H. Nowland, are proprietors of a coal mine. In January, 1885, we applied for a coal-siding to be put in here at a point about 6 miles north of Singleton, at the same time offering to supply the Government with coal at a much cheaper rate than they then were receiving it for. In March, 1885, the Singleton Coal Company applied for an extension of their contract for three years, which was granted by the Commissioner for Railways privately, although there was a year and nine months of the original public contract to go, and Mr. Goodchap knew perfectly well there was competition in the field.

We have offered the coal for 2s. 6d. per ton less than is at present paid for it, and taking into consideration the 10 miles less haulage, amounts to something like £1 per truck, we can supply the coal cheaper.

We have applied for 70 tons per week, which means a saving to the Government of about £600 per year, on receipt of which application, Mr. Goodchap asked for a truck of our coal at our earliest convenience for test purposes, which was supplied. He made no complaint whatever of the coal in his communication of the 10th instant, but blankly states he cannot give any order at present, at the same time never offering any reason for refusal.

As I have been, and always will be, a supporter of yours whilst representative for the Hunter, I trust you will in this, as you did with reference to my deeds for land at Greta, give me your most valuable aid in bringing justice to light. There are several of the Greta residents requested me to write to you, knowing that you will see fair play.

Trusting you will favour me with an early reply.

I have, &c.,
ROBERT MINTO.

No. 34.

Minute of The Commissioner for Railways.

THE facts of the case are as follows:—

In March, 1885, Messrs. Read and Longworth, contractors for the supply of coal, at 11s. 9d. per ton, until 31st December, 1886, offered, on condition that the Commissioner would extend their contract for a period of three years, to supply from 1st July, 1885, at the rate of 10s. 6d. per ton. This gave an immediate gain to the Department of £1,345, and the Commissioner, who could not learn that any other mines were opening in the neighbourhood, recommended the step, which was approved by the Minister of the day (Mr. Wright).

Six months later the Commissioner was informed of the opening up of Nowland's mine, which is a few miles only from Rix's Creek, and was asked to take some coal from thence, but came to the conclusion (also concurred in by the Minister, Mr. Lyne) that he could not equitably take coal from a source so near that of the permanent contract supply, notwithstanding the following clause in the specification of the contract:—

"The Commissioner reserves to himself the right to purchase coal elsewhere than from the contractor during the currency of the contract, should he consider it necessary to do so, without prejudice to his rights under or in any way vitiating this contract."

In January, 1887, the subject was again brought forward, and again the same decision was conveyed to Messrs. Nowland Bros., through Mr. J. P. Abbott, M.P., who addressed the Department on their behalf.

Recently the Commissioner, seeing an opportunity of obtaining coal at Gunnedah, from a mine recently opened up, at a considerable saving to the Department, considered that he was quite within his contract rights in taking a certain quantity of coal from that place, and reducing to that extent the supply of coal by Messrs. Read and Longworth.

This was no sooner done, than Messrs. Nowland Bros. once again requested to be allowed to supply the Department, and the Commissioner, as on previous occasions, replied that he did not feel himself justified in ordering coal from them for the reasons already given.—CH.A.G., 23/2/88.

The right reserved was to have the power to order coal, if a mine should be discovered a considerable distance up the country, for instance, at Gunnedah, which is 145 miles from Singleton, not from a mine $3\frac{1}{2}$ miles away.—CH.A.G.

1887.

(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

RAILWAYS.

(O'ROURKE & McSHARRY v. COMMISSIONER FOR RAILWAYS.)

*Ordered by the Legislative Assembly to be printed, 5 October, 1887.**[Return in further answer to Question No. 1 in Votes and Proceedings, No. 7, 4th October, 1887.]*

As to the circumstances leading to this case being referred to arbitration, at whose suggestion, and by what authority the reference to arbitration was made, I beg to state that the case was entered for trial on 13th September, 1886, before a Special Jury of Twelve, briefs were delivered, and the defendant was prepared to go to trial.

One of the issues raised on the pleadings was as to the want of certificate by the Engineer, in respect of the so-called extra works sued for in the action.

To get rid of the effect of this plea, the plaintiffs, on 7th September, filed a claim in the Equitable Jurisdiction of the Supreme Court, praying that an injunction to restrain the defendant from availing himself of that plea should be granted.

The application was made to Sir William Manning, Primary Judge in Equity, on Friday, the 10th September, and opposed by Messrs. Stephen, Salomons, and C. B. Stephen, on the defendant's behalf; but the order was granted.

A copy of the shorthand writer's notes of this application is forwarded herewith. Against this order, defendant gave notice of appeal to the Full Court, and on Monday, 13th September, made application to the Chief Justice (Sir James Martin) for an order to postpone the trial until the next sittings, on the ground that the defendant was unduly prejudiced by having his defence altered by the injunction.

The Chief Justice granted the order. Upon the application for the injunction, Sir William Manning spoke strongly as to the plea being inequitable, and these observations were reported in the daily papers.

Shortly after this, I received a note from the Engineer-in-Chief, informing me that the Minister had directed him to state that the case was to be left to arbitration, and requesting me to see the Minister on the subject.

I informed defendant's counsel that it was proposed to leave the case to arbitration. They, especially Mr. Salomons, strongly advised that this course should not be adopted, and expressed very confident opinions that we should succeed upon the appeal from Sir William Manning's order.

I, therefore, saw the Minister, Mr. Lyne, and informed him of the opinion of counsel, and stated further that both Mr. Whitton and myself thought it would be better to allow the action to be proceeded with. He, however, told me that he had made up his mind that the case should be arbitrated, and that he had so informed the plaintiff's attorney, or counsel—I am not sure which.

The matter was then proceeded with; but a formal agreement as to the terms of the arbitration was not arrived at, and it was ultimately determined that the Minister, the Attorney-General (Mr. Want), who was plaintiff's counsel, and Mr. Pilcher, who had taken Mr. Salomon's place, should meet at the Attorney-General's Chambers. This meeting, at which I attended, was held on 19th November, when the Minister adhered to his previously expressed intention. A formal agreement was assented to, and I was directed by the Minister to carry out same.

On the following day I wrote to you informing you of this.

I may here mention that the defendant's counsel then were Mr. M. H. Stephen, Mr. Pilcher, and Mr. C. B. Stephen.

The agreement to refer to arbitration prevented the appeal against Mr. Justice Manning's order for an injunction being proceeded with, and the order of reference was taken out in the usual way.

3rd October, 1887.

JOHN WILLIAMS.

1887.

(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

RAILWAY SLEEPING-BERTH.

(CASE, NASH V. COPELAND—CORRESPONDENCE AND PAPERS.)

Ordered by the Legislative Assembly to be printed, 4 November, 1887.

RETURN to an *Order* of the Honorable the Legislative Assembly of New South Wales, dated 12th July, 1887, That there be laid upon the Table of this House,—

“A copy of all correspondence, and other papers, between the Railway Department and Messrs. Nash and Copeland, with respect to a sleeping-berth.”

(Mr. Hurley.)

No.	SCHEDULE.	PAGE.
1.	Letter from Mr. Copeland to Station-master, Newcastle, asking for two berths to be reserved. 11 December, 1886.	1
2.	Letter from Mr. Nash, complaining of being deprived of use of berth he had reserved, and reply. 18 December, 1886.	1
3.	Reply from Mr. Nash to above, 25 December, 1886, with minutes, &c.	2
4.	Letter from Mr. Copeland, 2 April, 1887, with minutes and reply.	3
5.	Letter from Messrs. Norton & Co., asking for names and addresses of certain officers at Newcastle, 28 April, 1887, and reply.	3
6.	Letter from Norton & Co., asking for permission to obtain statements from officers at Newcastle, 11 May, 1887, with reply.	4
7.	Letter from Mr. Copeland, M.P., claiming that Department should pay cost of action, 16 August, 1887, with minutes and opinion of Attorney-General as to legality of claim.	4

No. 1.

H. Copeland, Esq., M.P., to The Railway Station-master, Newcastle.

Dear Sir,

11 December, 1886.

Will you kindly reserve two sleeping-berths in the northern train which leaves on the arrival of the steamer next Friday, 17th instant, at midnight.

Yours truly,

HENRY COPELAND.

No. 2.

A. Nash, Esq., to The Commissioner for Railways.

Sir,

Bective, Tamworth, 18 December, 1886.

I have to complain of the treatment I received while travelling on the Northern Line last Friday night. I was a passenger by the train leaving Tamworth shortly after midnight, and had secured a sleeping-berth. The train was very full, and many more wanted berths than could obtain them. While my bed was being made up Mr. Copeland, the Minister for Lands, claimed it, and thinking I must have made a mistake as to the number, I asked the conductor, a man of the name of Adams, which was my berth, showing him my ticket. He told me Mr. Copeland had taken my berth. I asked if Mr. Copeland had a ticket. He replied, “No, he has no ticket either for the train or the berth.” “Well, then,” I said, “it is your

your duty to turn him out and give me my berth." "Oh," he said, "Mr. Copeland is a Minister; I dare not." I then went to Mr. Copeland, who was lying down on my bed, and told him he had my berth, and showed him my ticket; but he, with an oath, refused to let me have it, so I was obliged to wait for some time till the conductor made me up a makeshift to lie down upon in another part of the carriage.

I wish to know if such conduct as Mr. Copeland's will be permitted by the Department, and also whether you consider the conduct of Adams in refusing to do anything to help me in obtaining my berth does not deserve censure.

I have, &c.,

AUGUSTUS NASH.

Memo. for the Commissioner for Railways.

WITH reference to Mr. Nash's letter, I desire to say that the facts are as follows:—

On Saturday, 11th instant, I wrote the Station-master, Newcastle, asking him to reserve me two berths—one for myself, the other for Mr. Fred. Gannon—for the following Friday night, and having given a week's notice I naturally expected to have the berths.

I asked the conductor which was my berth, and he pointed to the one I occupied as my berth. I then took possession, and some person, probably the writer of the letter, told me that that was his berth. I replied that the conductor informed me it was my berth, and I intended sleeping in it, which I did.

There were no cross words or oaths used on the occasion, and if any difficulties arose the blame must rest entirely with the officials at Newcastle, as they had a whole week's notice of our requiring the berths.

HENRY COPELAND.

Sir,

Department of Railways, Sydney, 24 December, 1886.

I have the honor to acknowledge your letter of the 18th instant, complaining that on the recent journey from Tamworth you were debarred the use of the sleeping-berth which you had engaged, in consequence of its being appropriated by Mr. Copeland, the Minister for Lands.

In reply, I have to inform you that Mr. Copeland has been interviewed by an officer of the Department, and has been good enough to furnish a statement of the occurrence from his point of view.

It appears that Mr. Copeland gave notice at Newcastle a week beforehand that he would require berths for himself and a friend by that particular train, and the berth in question being pointed out to him by the conductor as the one reserved for him, he very naturally occupied it.

You will see that there was no "rushing" of your berth by Mr. Copeland; you and he, owing to some misunderstanding, were simply rival claimants for the same accommodation, and Mr. Copeland succeeded in establishing himself in possession of it. He says there were no cross words or oaths used, and the difficulty which arose must rest entirely with the officials at Newcastle.

I cannot yet say who was to blame. That there was blundering somewhere is beyond dispute, and special inquiry is being made as to who it was who blundered.

In the meantime I beg you will accept the expression of my regret for the inconvenience you were put to on the occasion.

I have, &c.,

CHAS. A. GOODCHAP.

Commissioner for Railways.

A. Nash, Esq., Tamworth.

The Commissioner wishes you to make special and particular inquiry in this matter. Why was not Mr. Copeland's written application of a week before attended to? There should be no delay in dealing with this matter.—D.C.McL., 24/12/86. Mr. Higgs.

Obtain the conductor's statement.—J. HIGGS, 30/12/86. S.M., Newcastle.

It is stated Mr. Copeland, Minister for Lands, occupied a berth in sleeping-car on night of 19th December, 1886, for which Mr. Augustus Nash held the ticket. Manager wants your immediate report.—W. B. SMITH, 3/1/87. Conductor Adams.

What I have to say about the matter is, that Mr. Copeland was in a lower berth, when another gentleman, Mr. Nash, came to me with a ticket the number the same as the one Mr. Copeland was occupying, which he refused to leave when I asked him, so I made Mr. Nash an upper berth as comfortable as I could; I asked that gentleman the same morning if he slept well, and he said yes; there were three or four upper berths unoccupied, but no lower berths.—E. ADAMS, Conductor, 3/1/87.

Mr. Owen, for report.—W. B. SMITH, 3/1/87.

Mr. Copeland's letter was received in ample time for securing two lower berths, but I regret to say that I misread his letter. I understood it to read that he would leave here on the 17th instant, whereas it was he would leave Sydney on the 17th instant. I provided for Mr. Copeland's request for the 17th instant, when it was intended by him to leave here on the 18th. I explained to Mr. Copeland at the time how it occurred, and booked him two upper berths, as the lower ones were taken.—E. OWEN, 3/1/87.

Special and particular inquiry has been made, and the result is that Mr. Owen, the booking-clerk at Newcastle, made a mistake as to date of Mr. Copeland's visit to Newcastle. See Mr. Owen's explanation. I am, as may be imagined, quite unable to account for Mr. Copeland's action in taking possession of a lower berth after being informed by Mr. Owen and the conductor that the lower berths were engaged.—J. HIGGS, 4/1/87. Chief Clerk.

Mr. Copeland was in the right to a certain point, and the Department in fault. Mr. Copeland booked lower berths for the night in question, and through an oversight of the clerk at Newcastle the application was understood to be for the following night. Mr. Copeland was informed of this, and offered upper berths. He, however, took the lower ones. I think a judiciously written letter, acknowledging the Department's error, and Mr. Copeland's occupation of the lower berth in consequence of a dependence upon his orders being executed, will smooth over the difficulty.—A.R., 10/1/87.

No. 3.

A. Nash, Esq., to The Commissioner for Railways.

Sir,

Bective, Tamworth, 25 December, 1886.

I beg to acknowledge yours of the 24th instant. The attitude Mr. Copeland has taken up necessitates a reply from me at greater length than I had wished.

I

I distinctly charge Mr. Copeland with seizing and occupying my berth knowing that he had no right to it, and knowing that I had the only right to it. Though I did not hear any communication pass between Mr. Copeland and the conductor, I feel certain that my berth was not "pointed out to him by the conductor." Mr. Copeland must admit that after he had been two or three minutes on the berth I came up to him and claimed the berth, and showed him my ticket for it, and asked him to give it up to me. His words were, verbatim, "Your berth is it? Then I'm damned if you shall have it, that's all." I had previously seen him on the berth, and at once went to the conductor, not suspecting anything more than a mistake, and had asked the conductor (showing him my ticket) which was my berth. He replied, "Mr. Copeland has it." I then asked him if he had any right to it, and if he had not to turn him out; he then said, "No; he has no ticket either for the train or the berth, but he is a Minister, and I dare not remove him." Though Adams is naturally a hostile witness to me, yet I cannot believe he will deny this having taken place, nor will he deny having said to Mr. Kingscote and myself the next morning that "it was a burning shame that Mr. Copeland should have so acted, but what was he to do."

Mr. Copeland states there were no oaths or cross words. The only oath is the one I have given above. I am not accustomed to wrangling in a railway carriage with a Minister, or any one else, and therefore it is true that high words were not made use of; but I felt, and still feel, that a gross and scandalous injustice was being done, and I relied, as I still rely, on the Department to see me righted.

It is, if my story be true, absurd to talk as Mr. Copeland does of our being rival claimants for the berth. Mr. Copeland knew and admits he had no ticket; he knew I had. He was admittedly aware when he came on board the car that the tickets for the berths were all taken or he would have secured one. What pretence had he for stating that he had any claim or right to my berth. I am glad to hear that you have kept your mind in suspense pending further inquiry, which inquiry I demand as a right. You can ask Mr. T. K. Abbott or Mr. W. A. Kingscote, both of whom were passengers on the night in question, and who know at least something of what took place. I ought to mention that until that night I did not know Mr. Copeland even by sight, nor did I know what position he occupied in the Ministry. Mr. Copeland was probably in equal ignorance of me. I am not therefore suggesting or alleging that the act was one of ill-will to me—that would be of small consequence; but what I do say is that he recklessly trampled on my rights as a member of the public, who having bought and paid for the berth was entitled to it against all the world.

I have, &c.,

AUG. NASH.

No. 4.

H. Copeland, Esq. M.P., to The Commissioner for Railways.

Sir,

Legislative Assembly, 2 April, 1887.

In acknowledging the favour of a copy of the correspondence with reference to Mr Nash's complaint of being deprived of a sleeping-berth, I desire to draw your attention to the conductor's statement that he asked me to leave the berth, and I refused to do so. This statement is absolutely untrue, for after telling me the berth I occupied was to be my berth he never spoke to me on that subject, and this is borne out by Mr. Nash's statement that when appealed to by him he (the conductor) refused to interfere with me.

I wish also to state, with reference to Mr. Higgs's memo. that the reason for my taking possession of a lower berth after the booking clerk had informed me that these had all been allotted is easily explained.

I had complained to the station-master of the clerk not having reserved the two berths, as requested, and that gentlemen came a few minutes after and informed me that he had arranged for me to have a lower berth, but that Mr. Gannon would have to take an upper one. I submit therefore that having the station-master's assurance that he had arranged for a lower berth for me, and the conductor having informed me that the berth in question was mine, I was perfectly justified in taking possession as I did.

I can only describe Mr. Nash's version of the language he alleges I made use of as a pure invention of his own mind, not having the slightest particle of foundation on fact, nor did he show me the ticket for his berth, as he states, evidently with a view of getting up a case.

I am, &c.,

HENRY COPELAND.

Send to Mr. Higgs with papers for early further report.—A.R., 5/4/87.

It appears that Mr. Copeland, on finding the lower berths engaged, complained to the station-master, who, after making inquiries, informed Mr. Copeland that he had arranged with the conductor for a lower berth, but the conductor did not quite understand what was wanted. It was intended to remove a lad from lower to upper berth (the lad referred to having no objection to the upper berth), but unfortunately this was not done, hence the trouble.—J. HIGGS, 9/4/87. Assistant Secretary.

Inform.—A.R., 13/4/87.

Sir,

Department of Railways, Sydney, 16 April, 1887.

Referring to your letter of the 2nd instant, respecting Mr Nash's complaint of being deprived of a lower sleeping-berth, I have the honor to forward herein copy of the Traffic Manager's further report on the matter.

I have, &c.,

CHAS. A. GOODCHAP.

Henry Copeland, Esq., M.P.

Commissioner for Railways.

No. 5.

Messrs. Norton & Co. to The Secretary for Railways.

Marlborough Chambers, O'Connell-street, Sydney, 28 April, 1887.

Sir,

Nash v. Copeland.

Referring to our conversation with you to-day, we have the honor, on behalf of Mr. Nash, to apply to you for the names and present addresses of the persons who filled the positions of station-master and booking clerk at Newcastle on Friday night, 16th December last, and also those of the conductor of that night's train, if possible. We have been informed that the ticket officer or booking clerk is named Barrett, and the conductor or guard, Adams.

We

We shall be obliged if you can let us have the information at an early date, as the case is set down for trial.

We have, &c.,

NORTON & CO.

Has Mr. Copeland written in to say that he considers the defence should be undertaken by the Department? Attach all papers at once.—A.R., 29/4/87. Herewith submitted for the Commissioner's information.—A.R. 29/4/87.

I remember now that Mr. Copeland verbally represented to me that as we admitted in our letter of 16/4/87 that the Department was in error we should undertake the defence. The circumstances of the case, as they will be revealed at the trial, may show that the Department should pay costs incurred, but this is a question which can be settled when raised. Give the information asked for.—C.H.A.G. 30/4/87.

Gentlemen,

Department of Railways, Sydney, 7 May, 1887.

In reply to the inquiry contained in your letter of the 28th ultimo, I have the honor to inform you that the names of the station-master, booking clerk, and car conductor who were on duty at Newcastle Station on the night of the 16th December are as follow:—Wm. B. Smith, station-master, Railway Station, Newcastle; Edward Owen, ticket clerk, Railway Station, Newcastle; Ernest Adams, car conductor, Railway Station, Newcastle.

I have, &c.,

A. RICHARDSON,

(For the Secretary for Railways).

Messrs. Norton & Co., Sydney.

No. 6.

Messrs. Norton & Co. to The Commissioner for Railways.

Marlborough Chambers, 2 O'Connell-street, Sydney, 11 May, 1887.

Sir,

Nash *v.* Copeland.

We have the honor, on behalf of Mr. Nash, of Sydney, barrister-at-law, to apply to you for permission to communicate with and obtain statements from the station-master, ticket clerk, and car conductor, in reference to this case which has been commenced against Mr. Copeland for taking and declining to deliver up a sleeping-berth taken and paid for by Mr. Nash. We shall feel obliged if you could let us have an early reply, as the case is coming on for trial very shortly, and we wish to see what evidence the above can give before bringing them down to Sydney. Subpœnas have been issued for them, but have not as yet been served, pending your reply.

We have, &c.,

NORTON & CO.

Gentlemen,

Department of Railways, Sydney, 18 May, 1887.

I have the honor to acknowledge your letter of the 11th instant, in which you solicit permission to communicate with and obtain statements from the station-master, ticket clerk, and car conductor at Newcastle, in reference to the case of Nash *versus* Copeland, now pending; and, in reply, I am directed by the Commissioner for Railways to inform you that he has no objection to your obtaining the information you require from the officials referred to.

I have, &c.,

D. VERNON,

Secretary for Railways.

Messrs. Norton & Co., Sydney.

No. 7.

H. Copeland, Esq., M.P., to The Commissioner for Railways.

Sir,

Yarraville, Newtown, 16 August, 1887.

I do myself the honor to bring under your notice the final result of the Supreme Court action Nash *v.* myself, in which the plaintiff recovered one farthing damages against me for an alleged refusal on my part to give up possession of a sleeping-berth in the Northern train for which the plaintiff had previously booked.

Although a jury of four awarded the plaintiff only one-fourth of a penny as damages, the Chief Justice certified for costs as against me, and a bill for which, after taxation, has now been presented and paid by me, which, with interest added after the manner of Shylock, amounts to £127 11s. 3d.

The costs (without taxation) on my side amount to £43, though I may here state that my solicitor, Mr. F. Gannon, being personally present at the cause of action, and knowing full well the whole of the circumstances, refused to take more than costs out of pocket.

The total costs to me, therefore, amount to £170 11s. 3d., which sum I now respectfully submit should, in common justice, be repaid me by your Department, and in furtherance of this claim I beg to refer you to the official correspondence of your officers on the subject; and I should be glad if you would also call for a copy of any correspondence between Station-master Smith and the plaintiff's attorneys with reference to this case, by which I feel assured you will come to the conclusion that, without taking upon myself any assumption as a Minister of the Crown (as alleged by the plaintiff), I simply, as any private citizen would do, carried out the instructions of your officers, viz., the station-master and the conductor.

The statement by the conductor, "that he afterwards came and told me he had made a mistake, and asked me to give up the berth," is simply untrue, and the jury clearly were of that opinion or they would have awarded something more than the nominal amount of one farthing; moreover, such statement is clearly refuted by the plaintiff's correspondence with you, as well as his sworn evidence to the effect that "when he appealed to the conductor to make me give up the berth, he (the conductor) refused to do so, saying that I was a Minister, and it was more than his place was worth," which refusal was said by the plaintiff to have been made in the presence of Mr. Kingscote as well as himself.

Although perhaps outside the lines of my present contention, I desire, in support of my former correspondence, to draw your attention to the fact that, notwithstanding the plaintiff's letters and own evidence in Court that I made use of the expression, "It's your berth is it? Then I'm damned if you shall have

have it, that's all." I also submit that the jury could not have believed that any such expression was made use of, inasmuch as the Chief Justice directed them that if they came to the conclusion that any such language had been used they should award substantial damages, which they declined to do. Moreover, not one of all the gentlemen present—either his witnesses or mine—heard any such expression made use of, although the plaintiff professed this to be the chief burden of his complaint; and I put it to you that, in view of the small size of the northern sleeping-cars, and the fact of a portion of this one being blocked off for ladies, if such an expression had been used whether Mr. Kingscote, Mr. T. K. Abbot, P.M., Mr. F. Gannon, solicitor, Mr. Gracie (a stranger then to both plaintiff and myself), or the conductor, would not, some one of them—they being the only persons present, and in such a small compass—have been certain to have heard the expression had it been used, and which is one that no person would be likely to make use of in a whisper if he used it at all.

Leaving out the gross injustice which I hold has been done me in this matter, I submit that in future any person, if poor, is liable to be ruined in one act through innocently taking instructions from your officers; and I venture to think that it will be injurious to the public and discreditable to the Department if the verbal directions of the officials should be found to be so many man-traps.

I, however, desire to base my claims on other grounds, and submit that at the time the cause of action arose a contract actually existed between you and me, not only that I was to have a lower berth, but that I was to have the particular berth of which I took possession. The question as to whether I had paid or not, I take it, amounts to nothing, as you yourself voluntarily waive that question. And the same with regard to "booking," as you also waive that, not only to Members of Parliament, but to the general public, in numerous cases every night. The position therefore I submit must stand thus:—I had written for two berths a week beforehand, but through the neglect of your ticket clerk I failed to secure them. Up to and beyond that time no contract existed, but when you, through your station-master, told me on the platform that arrangements had been made whereby I was to have a lower berth, which berth the conductor would point out to me, and this without any number being given (*vide* official correspondence), then, I submit, a contract as binding as that with Mr. Nash commenced to exist between you and myself, and that subsequently when you, through your conductor, pointed out the particular berth (which the conductor fully admits doing) and I took possession—no other person at that time either being or claiming to be in possession—I submit that my title was a legal and valid one at least with respect to you.

For the above reasons, and because I am averse to resorting to law Courts, I trust you will honorably recoup me the amount of costs of the action referred to. The amount of damages awarded by the jury I am willing to defray myself.

I attach copy of plaintiff's costs herewith, but without interest, which I, at plaintiff's request, have paid. I would also mention that though I previously paid the three officials the sum of £14, as witnesses' expenses, I have again had to pay them £20 5s. prepaid by the plaintiff.

I have, &c.,
HENRY COPELAND.

Nash v. Copeland.—Plaintiff's costs in an action wherein he recovered one farthing damages and the Judge certified for costs—£124 1s. 2d.

Forward to Mr. Higgs for the purpose of obtaining copy of the letter referred to sent by Mr. Smith to plaintiff's attorneys, and also to obtain refund of £14 which Mr. Copeland alleges were paid by him, the witnesses having been paid their expenses by the plaintiff. Please expedite this, as the question of meeting or resisting claim must be referred to Crown Solicitor.—CH.A.G., 17/8/87.

Mr. Higgs.—A.R., 20/8/87.

Mr. Smith has not a copy of the letter he wrote to Messrs. Norton, Smith, & Westgarth. He says he believes Mr. Copeland has it. As to the expenses, Mr. Smith says that what he and Mr. Owen got from both sides was but sufficient for the time they were away. Adams, on his last trip, received payment only from Mr. Copeland—the other side had given notice that they did not want him, and of course gave him nothing. Mr. Smith was in Sydney, altogether, 11 days; Mr. Owen, 12 days. The former received from Mr. Nash £9, and from Mr. Copeland, £4 13s. 4d.; total, £13 13s. 4d. Mr. Owen got £1 less from Mr. Nash, and £4 13s. 4d. from Mr. Copeland. Messrs. Smith and Owen allege that Mr. Nash's solicitors were aware that Mr. Copeland had paid a part. Under these circumstances they think that it would be hard to call upon them to refund. Whatever may be said about Messrs. Smith and Owen, Adams should not, in my opinion, have to repay the £4 13s. 4d. he received from Mr. Copeland.—J. HIGGS, 5/9/87.

Now forward to Crown Solicitor, who will please advise as to Mr. Copeland's request to be allowed, his costs, and will also say whether, under the circumstances, our employes who were paid under the circumstances stated should make any refund.—CH.A.G., 8/9/87.

Dear Sir,

29 September, 1887.

I beg to forward you a copy of Station-master Smith's letter to Mr. Nash's solicitors with reference to Nash's complaint of my refusing to give him possession of a sleeping-berth, and should be obliged if you would attach same to my letter asking the Government to refund me the costs of the action Nash v. Copeland.

C. A. Goodchap, Esq., Commissioner for Railways.

I am, &c.,
HENRY COPELAND.

Gentlemen,

Newcastle, 28 May, 1887.

In reply to yours of 19th instant, I beg to state that I, on the night of 18th December, 1886, saw Mr. Copeland on the platform a few minutes before the mail train left, and he seemed annoyed about a letter he had written to the station-master about a week previously (ordering two lower sleeping-berths) not having been attended to. I mentioned to Mr. Copeland that I was not then on duty, but would see if the oversight could be remedied, and on questioning the ticket clerk (Owen) found he had made an error in the date of Mr. Copeland's order. To rectify this, I arranged with a lady who had engaged a lower berth (for two little boys) to exchange for an upper berth, so that a lower berth would be available for Mr. Copeland, and I informed the conductor (Adams) of this arrangement, and also advised Mr. Copeland to see the conductor, who would give him a lower berth, no number being mentioned by me.

I

I know nothing of what took place between Mr. Nash and Mr. Copeland after the train left Newcastle.

Enclosed please find Mr. Owen's statement, and as the conductor is away on leave I am unable to obtain his report.

I am, &c.,

W. B. SMITH.

Sir,

Crown Solicitor's Office, Sydney, 28 September, 1887.

I have the honor, in compliance with a request from your Department, to return herewith Mr. Copeland's letter of date 16th August last, requesting payment of the costs and expenses paid or incurred by him in defending the action *Nash v. Copeland*.

I have, &c.,

JOHN WILLIAMS,

Crown Solicitor.

The Commissioner for Railways, Sydney.

Mr. Copeland was here to-day, and wished to know what action had been taken on his letter of 16th August, 1887. He was informed that the matter was in the hands of the Crown Solicitor, who would doubtless advise upon the course which should be taken in the course of a few days. Returned to Crown Solicitor. I shall be glad to be placed in a position to give Mr. Copeland a reply.—CH.A.G., 29/9/87.

Crown Solicitor's Office, Sydney, 21 October, 1887.

Sir,

Nash v. Copeland.

I have the honor to return herewith the papers relating to the above matter which were forwarded to me from your Department on the 7th day of October instant, and to state that I have submitted them to Mr. Attorney-General Wise, copy of whose advising thereon is attached.

I have, &c.,

JOHN WILLIAMS,

Crown Solicitor.

The Commissioners for Railways, Sydney,

Copy of Attorney-General's opinion.

THIS case does not appear to me to involve any matter of law. If it is submitted as a legal question whether the Department is liable to pay the costs incurred by Mr. Copeland in defending an action brought against him by Mr. Nash, I am of opinion that the Department is not liable. Even assuming that a contract was made and broken by the Department, the damages which Mr. Copeland claims do not follow necessarily from a breach of this contract, and would be disallowed by a Court as too remote.—B.R.W., 18/10/87.

Inform Mr. Copeland, and send him copy of Attorney-General's advising.—CH.A.G., 25/10/87. Copy sent to Mr. Copeland.—D.C.M'L., 27/10/87.

1887.

(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

TENDERS CALLED FOR BY THE DEPARTMENT OF
PUBLIC WORKS.

(PARTICULARS FOR YEARS 1885-6-7.)

Ordered by the Legislative Assembly to be printed, 21 September, 1887.

RETURN to an *Order* made by the Honorable the Legislative Assembly of New South Wales, dated 27th April, 1887, That there be laid upon the Table of this House, a Return showing,—

- (1.) The various Contracts for which Tenders have been called by the Works Department during 1885, 1886, and 1887, for which no Tender was accepted.
- (2.) The estimated cost of each such Tender.
- (3.) The amounts of the lowest Tenders.
- (4.) The names of the lowest Tenderers.
- (5.) Reasons for not accepting each Contract.

(*Mr. Matheson.*)

TENDERS CALLED FOR BY THE DEPARTMENT OF PUBLIC WORKS.

No. 1.

DEPARTMENT OF RAILWAYS.

RETURN showing the various Contracts for which Tenders were called during the years 1885, 1886, and 1887, and for which no Tenders were accepted; also the estimated cost of such Contracts, the amount of lowest Tenders, the names of the lowest Tenderers, and the reasons for not accepting each Contract.

Description.	Estimated Cost.	Amount of lowest Tender.	Name of lowest Tenderer.	Reasons for not accepting Contracts.
1885. Signal-box, Wallerawang.	£ s. d. 360 0 0	£ s. d. .....	.....	No tenders received. Work done by Department. Cost of work, £482 14s. 3d.
Timber bridge over railway, Nanima, near Wellington.	526 0 0	.....	.....	No tenders received. Work done by Department. Cost of work, £526 7s. 2d.
Shafting and fittings for Goulburn workshops.	120 0 0	86 0 0	R. L. Scrutton & Co.	The firm proposed to import the whole of the material, but as the shafting, &c., was urgently required it was decided to have the same made in the Sydney Railway Workshops. Cost, when completed, £87 2s. 2d.
Erection of barb wire fencing, Glenfield to Picton.	2,100 0 0	1,717 10 0	Potts & Metcalfe ...	Minister directed that specification be so altered as to provide for the materials being manufactured locally. Fresh tenders invited.
House for porter-in-charge at Trangie.	476 7 2	594 5 10	Wm. H. Lewis ...	Only one tender received, and as this was far in excess of the estimate it was decided to have the work done by day labour. Cost of work, £477 0s. 7d.
Porter's residence at Blackheath.	720 0 0	748 3 9	George Donald ...	Commissioner directed that a less expensive building be erected.
Roofs, girders, and columns for shops Nos. 16 to 25 at Eveleigh.	38,495 10 0	35,384 15 0	J. F. Carson...	After tenders had been opened, Messrs. D. and W. Robertson, one of the firms tendering, offered to manufacture the work in the Colony at their tender price. Their letter was considered in the light of an amended tender, and it was decided that "fresh tenders" be invited; tenderers to state whether they proposed to manufacture in the Colony or import.
Overbridge, Milthorpe	600 0 0	1,231 10 1	Peter Catterall ...	Only one tender received, and this being far in excess of estimate fresh tenders were invited.
1886. Overbridge, &c., Guinea-street, Albury.	3,054 19 6	3,243 11 0	J. F. Carson ..	Fresh and less expensive plans were ordered by the Minister to be prepared.
Station-master's residence, Ravensworth	560 0 0	{ 728 9 6 700 19 5 }	{ Fredk. Arthur King	Tenders were invited twice: but the lowest tender being too high in each case, it was decided that work be carried out by the Department. Cost of work, £450 0s. 5d.
Overbridge, Milthorpe	600 0 0	744 12 0	Wm. Paisley ...	The lowest tender being far in excess of the estimate, and the work not being urgently required, it was decided to postpone for a time.
Locomotive offices, Eveleigh.	7,100 0 0	6,698 18 5	Frank Tucker ...	Mr. Tucker having become insolvent, fresh tenders were invited.
Locomotive offices, Eveleigh.	7,100 0 0	7,273 7 5	Wm. Robinson	It was decided to erect a less costly building of plainer design.
Gas Works, Werris Creek.	3,740 0 0	3,769 7 0	Fredk. Arthur King..	Still in abeyance. Question whether Werris Creek will be the best site; depends upon time-table of trains to be adopted when connection with Queensland railway is made.
Construction of Tramway—Waverley to Randwick.	6,066 16 6	5,277 3 9	Cowie & Duncan.....	After tenders had been received it was decided to alter the route of the Tramway in order to avoid the necessity of resuming land, and thus lessen the cost of line; cost of work, £7,900.
Custom House, Albury	1,550 0 0	1,912 11 4	W. Hy. Byrne.....	Only one tender received; and this, being considerably in excess of estimate, was declined.
Duplication of Line—Goulburn to Joppa Junction.	13,286 11 9	12,714 16 0	McSweeney & Kirwan	Several important items, not included in this contract, would have materially increased the cost of duplication, and the estimated saving in "junction" expenses would not have justified the work being carried out at the increased cost.
The supply of Coal for North Shore Tramway (at per ton).	.....	0 17 6	Coal Cliff Company...	Tenders were invited for the supply of large coal; but trials in the meantime had proved that Wallsend slack coal was more suitable, and fresh tenders were therefore invited.
Colonial iron (at per ton)—Great Southern and Western Lines.	.....	9 7 3	Brown & Brown	Imported iron of better quality could be procured at a much cheaper rate.
Great Northern Line..	.....	9 14 3	N.S.W. Shale and Oil Company.	Tenders equal; but as this price was the same as that then paid for the shale ordered out of contract, nothing could be gained by the acceptance of a fixed contract for 12 months.
Kerosene shale for Gas Works (at per ton).	.....	2 15 0	A. Kerosene Oil and Mineral Company.	Only one tender received; and this being the same as the schedule prices, fresh tenders were invited with the same result. Second tender was accepted.
Building materials for the Great Northern Railway.	.....	.....	Carey Brothers.....	Butler & Co. were the highest tenderers; but the amount, £156 per annum, was considered too low.
The right of advertising in the cars of the North Shore Cable Tramway.	.....	.....	.....

DEPARTMENT OF RAILWAYS—continued.

Description.	Estimated Cost.	Amount of lowest Tender.	Name of lowest Tenderer.	Reasons for not accepting Contracts.																
1887. Residences for Officers in charge at Store Creek and Mumbil.	£ s. d. 1,025 0 0	£ s. d. 1,130 15 1½	Arthur & Olliver.....	The lowest tender being above the estimate, fresh tenders were invited.																
Extension of foot-bridge at Homebush	469 0 0	416 5 0	McSweeney & Kirwan	Decided to postpone the work.																
Swan electric lamps and shades.	.....	100 6 3	Harrison & Whiffon...	Only one tender received; but, as the firm would have had to import materials for which the Department could not wait, an offer from the Electric Light Power and Storage Company, made prior to the calling for tenders, was accepted. Under this offer the cost of the lamps, &c., was £101 5s. for immediate delivery.															
The supply of timber—Great Southern and Western Railways.	.....	.....	Hudson Brothers.....	This firm's tender was 12½ per cent. below schedule prices, but being lodged after advertised time, was not accepted.														
The supply of salad oil (per doz. bottles, quarts)—Southern and Western Lines.	.....	0 17 9	L. Icard.. ..	Tenders declined, it having been decided to use Fell's Lubricating Oil, which was much cheaper.															
Northern Line	.....	0 18 9	„																
Amount of lowest Tender.				Name of lowest Tenderer.																
Supply of Cedar, Great Northern Railway.				Reasons for not accepting the Contract.																
1" undressed,		41/8 per 100ft. sup.		Hudson Bros. (Limited). Tender not accepted as it was lodged after the advertised time.																
1" single dressed,		45/10																		
1" „ „ T. & G.,		50/-																		
1" double dressed,		50/-																		
1" „ „ T. & G.,		52/1																		
¾"	½"	⅝"	¾"	⅞"	1" and over, per 100ft. sup. undressed.															
31/3	33/4	35/5	37/6	39/7	41/8															
To and from Circular Quay.		To and from Cowper Wharf.		To and from any Back Wharf.		Eveleigh. Any point within City boundary.	Thos. Hanley Tender not accepted as it was decided to lighter all imported goods instead of carting the same.													
Redfern.	Eveleigh.	Randwick.	Tram Yards, Pitt-street.	Darling Harbour.	Any Back Wharf.	Any place within City boundary not otherwise specified.														
Redfern.	Eveleigh.	Randwick.	Tram Yards, Pitt-street.	Darling Harbour.	Any place within City boundary not otherwise specified.	Redfern.														
Eveleigh.	Randwick.	Tram Yards, Pitt-street.	Darling Harbour.	Any place within City boundary not otherwise specified.	Redfern.	Eveleigh.														
Randwick.	Tram Yards, Pitt-street.	Darling Harbour.	Any place within City boundary not otherwise specified.	Redfern.	Eveleigh.	Randwick.														
2/-	4/-	2/11	1/0	1/6	2/-	2/-	2/-	3/-	2/11	1/4	2/-	2/-	2/11	5/-	3/6	1/11	2/-	2/-	4/-	2/-

No. 2.

ENGINEER-IN-CHIEF FOR RAILWAYS.

RETURN of the various Contracts for which Tenders have been called, and for which none have been accepted, during the years 1885-6-7, in this branch of the Public Works Department.

Work Tendered for.	Estimated Cost.	Lowest Tenders.	Lowest Tenderers.	Reasons for non-acceptance.
1885. Construction of Railway—North Shore to Pearce's Corner, with branch to Ball's Head. Total length, 14m. 52ch.	259,630 17 0	207,647 15 0	Morton & Hardy ..	Railway not proceeded with.
1886. Supply of 176,000 sleepers for Forbes-Wilcannia railway	2 6			
	3 0	0 4 6	T. H. Brown ..	do do
Railway—Nyngan to Cobar—including stations, &c. Length, 80m. 40ch.	126,579 0 0	121,799 8 4	Hardy & Morton..	Not yet decided.
Residence and office at Flat Rock Point for Engineer on Hawkesbury River Bridge.	2,027 0 0	1,454 0 0	Martin & Winter	Other arrangements made.

No. 3.

HARBOURS AND RIVERS.

RETURN showing the various Contracts for which Tenders have been called for by the Works Department during 1885, 1886, and 1887, for which no Tender was accepted.

Contract.	Estimated cost.	Amount of lowest Tender.	Name of lowest Tenderers.	Remarks.
1885. Wharf at King's Creek, C. Rr.....	£ s. d. 275 0 0	£ s. d. 281 4 0	C. and F. Avery.....	Amount voted for work insufficient.

No. 4.

DEPARTMENT OF ROADS AND BRIDGES.

Work.	Estimated cost.	Amount of lowest Tender.	Name of lowest Tenderer.	Reasons for not accepting Tender.
Bridge over Snowy River, at Buckley's Crossing.	£ s. d. 8,688 5 3	£ s. d. 6,500 0 0	J. McKee.....	Tenders were invited for timber bridge, but it was decided by Minister that provision should be made for an iron structure (now in progress). Contracts for iron bridge: No. 1, supply of ironwork, £3,655 19s. 7d.; No. 2, erection of ironwork and construction of timber approaches, £6,749; total, £10,404 19s. 7d.
Bridge over Wangoola Creek Road, Sheet of Bark to Mount McDonald.	280 0 0	305 0 0	R. Grant.....	Postponed until after completion of railway line, when work can be performed more cheaply, and local requirements better ascertained.
Bridge, in approach to Mehi River Bridge, Moree.	392 0 0	390 0 0	J. McEvoy	Tenders invited in 1885, but as there were no funds available—vote having been written off by Treasury—matter had to stand over. Fresh tenders were called in 1886, and that of J. Gray (£385 17s. 4d.) accepted on 17/12/86, but owing to representations made by the Member for the district, and by local residents, that bridge was not urgently required, contract was cancelled—the contractor consenting—and work arranged for in lieu thereof.
Lennox Bridge, Parramatta (widening).	742 0 0	866 18 2	T. Mills.....	Work reported as not urgent, and as the traffic has been materially decreased by the erection of the Gasworks Bridge it was considered that this matter could stand over, and the money be saved.
Bridge, Bredbo River.	2,190 0 0	2,109 15 6	E. Taylor.....	It was represented that existing old bridge could be repaired, and the Minister directed that the matter should await opening of railway line.
Bridge, Martin's Gully Main North Road.	490 18 5	797 0 0	J. Fox & Co.....	Amount of tender being so greatly in excess of estimate the outlay could not be recommended. Tenders invited on three occasions.

No. 5.

COLONIAL ARCHITECT.

RETURN of various Contracts for which Tenders have been called by the Colonial Architect's Branch of the Works Department during 1885, 1886, and 1887—for which no Tender was accepted. (Mr. Matheson's motion of 27th April, 1887.)

(1.) Building and nature of Work.	(2.) Estimated cost.	(3.) Amount of lowest Tender.	(4.) Name of lowest Tenderers.	(5.) Reasons for not accepting each Contract.
1885.	£	£ s. d.		
Wollar Court and Watch house—erection ...	300	750 0 0	F. R. Atkinson	Funds not available.
Narrabri Police Barracks—additions	350	415 0 0	T. Avey	do
General Post Office—tower clock and bells...	4,500	3,750 0 0	A. Tornaghi.....	Delayed for further consideration.
Kempsey Police Buildings—erection	2,960	2,475 0 0	Gabriel & M'Morrine	Funds not available.
Fernmount Police Quarters—erection	600	435 0 0	W. A. Sutton	Revised plan prepared.
Garden Palace Grounds—entrance gates.....	845	943 0 0	J. R. Bubb	Work not being urgently required.
1886.				
Grafton Police Barracks—additions	600	805 0 0	G. Wunderlich	Further additions being required.
Cootamundra Police Buildings and Lock-up— —reroofing, &c.	440	469 0 0	Falconer Bros.....	Funds not available.
Moruya Police-station—erection	700	750 0 0	W. Isley	Papers at Works Office.
Cudal Police Quarters—additions	657	620 0 0	W. Gadd	Funds not available.
Cootamundra Court-house—repairs, &c.	300	340 0 0	T. M'Beath	do
Victoria Barracks—armoury	2,400	2,515 0 0	Taylor and Mirrell...	do
Goulburn Police Barracks—additions	730	503 13 7	T. Wilkie	do
Narrandera Lock-up—tank, &c.	245	185 7 6	T. Kibble.....	do
Emmaville Court-house—fencing, &c.....	480	472 0 0	W. Morris	do
Kempsey Gaol—additions	900	1,040 0 0	— Lawson	do
Hay Court-house—erection	15,500	12,390 0 0	Hardy & Downey ...	Revised plans to be prepared.
1887.				
Botanic Gardens—band stand	400	385 0 0	M'Master.....	Tender still under consideration.
Narrabri Post and Telegraph Office—addi- —tions.	1,000	608 19 0	H. J. Fitzsimmons...	Alterations required to plans.
Free Public Library—re-erecting old portion	12,000	10,455 0 0	C. Mayes	Tender still under consideration

1887.

(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

RAILWAYS.

(FREE PASSES TO SCHOOL CHILDREN.)

Ordered by the Legislative Assembly to be printed, 16 December, 1887.

RETURN to an *Order* of the Honorable the Legislative Assembly of New South Wales, dated 4th October, 1887, That there be laid upon the Table of this House,—

“Copies of all minutes, papers, and other documents written or sent by either the Colonial Secretary, the Minister for Public Instruction, or the Secretary for Public Works, or any officer in their respective Departments, or by the Commissioner for Railways, in reference to the Resolution of the 29th April last, authorizing the free carriage on the Railways of children who were attending schools.”

(Mr. Abbott.)

SCHEDULE.

NO.	PAGE.
1. Minutes by Commissioner for Railways, with approval of Executive Council, to issue of Free Passes. 30 April, 1887	2
2. Letter from Rev. H. M. Finnegan to T. Jones, M.P., with reply from Department; also letters from Rev. H. M. Finnegan and J. H. Want, M.P., to Commissioner, with minutes, &c. 3 June, 1887	2
3. Letter from Assistant Secretary of Railways to the Acting Under Secretary for Public Instruction, <i>re</i> schools registered, and reply thereto. 28 June, 1887	4
4. Letter from Rev. J. Mahoney to D. O'Connor, M.P., with minute by Commissioner for Railways. 5 July, 1887	4
5. Letter from Rev. T. Rogers to Station-master, Aberdeen. 8 July, 1887	5
6. Letter from W. L. Davis, M.P., to Minister of Public Instruction, and reply thereto. 12 July, 1887	5
7. Minute by Secretary for Public Works, that full effect is to be given to intention of Resolution, with instructions to Officers concerned. 10 August, 1887	5
8. Minute by Inspector Crawford. 10 August, 1887	6
9. Letter from Head Teacher, St. Joseph's Convent, to Commissioner. 21 August, 1887	6
10. Letter from Station-master, Aberdeen, to Rev. Mr. Rogers, with minutes thereon. 23 August, 1887	7
11. Letter from Acting Under Secretary of Public Instruction, giving list of private schools registered. 24 August, 1887	7
12. Minute by Minister of Public Instruction. 10 September, 1887	7
13. Letter from Acting Under Secretary for Public Instruction, giving further list of schools registered. 14 September, 1887	7
14. Minute by Acting Under Secretary for Public Instruction. 26 September, 1887	8
15. Minute by Colonial Secretary, <i>re</i> interpretation of Resolution, with instructions to Staff. 26 September, 1887...	8

RAILWAYS.

No. 1.

Minute by The Commissioner for Railways.

RESOLUTION of Parliament *re* carrying, free, children to school.—Let me have resolution, with a view to its being acted upon without delay. C.H.A.G., 30/4/87.

Resolution of Legislative Assembly.

Legislative Assembly, Friday, 29 April, 1887.

Resolution :—That, in the opinion of this House, provision should be made for the issue of a free pass to any child to travel in a suitable railway carriage or van to and from any primary school, private or otherwise, provided that such school shall be the one nearest to the residence of the parents or guardians of such child.

Submit for Executive approval to-morrow.—J.S., 4/5/87.

Minute by The Commissioner for Railways to The Under Secretary for Public Works.

WITH reference to the resolution of the Legislative Assembly, of the 29th April last, that provision should be made for the issue of a free pass to any child to travel in a suitable railway carriage or van to and from any primary school, private or otherwise, provided that such school shall be the one nearest to the residence of the parents or guardians of such child.

Please procure Executive approval.

CHAS. A. GOODCHAP.

5/5/87.

Minute by The Secretary for Public Works for The Executive Council.

Railway Free Passes to Children attending Primary Schools.

FOR the reasons set forth in the accompanying papers, I have the honor to request the authority of His Excellency the Governor and the Executive Council for the issue of a free pass to any child to travel, in a suitable carriage or van on the Government Railways of this Colony, to and from any primary school, private or otherwise, provided that such school shall be the one nearest to the residence of the parents or guardians of such child.

5/5/87.

JOHN SUTHERLAND.

The Executive Council advises, as herein recommended, that railway free passes be issued to children attending primary schools.—ALEX. C. BUDGE, 3/6/87. Approved.—CARRINGTON, 3/6/87.

No. 2.

The Rev. H. M. Finnegan to Travers Jones, Esq., M.P.

Dear Mr. Travers Jones,

Gundagai, 3 June, 1887.

There are Catholic people at Coolac who desire to send their children to the nuns' school here. Kindly inform me can the free railway passes be available for these children from Coolac to Gundagai. There is no public or any other school between this town and Coolac. Public School is on the Muttama side of the railway station.

The wording of the Act favours, I think, railway free passes in this instance. Kindly obtain some authoritative information for me on the case.

Yours, &c.,

H. M. FINNEGAN, C.C.

The Assistant Secretary, Railway Department, to Travers Jones, Esq., M.P.

Sir,

6 June, 1887.

Referring to the letter of the Reverend H. M. Finnegan, of Gundagai, forwarded by you to this office, in which he asks whether children of Catholic parents residing at Coolac may travel free by rail to Gundagai for the purpose of attending the nuns' school there, I am directed by the Commissioner of Railways to inform you that, provided the nuns' school is the nearest school to the residence of the children's parents, the free railway passes will be available.

I have, &c.,

A. RICHARDSON.

* * * * *

I saw Mr. Budge, who told me that the Governor-in-Council had approved of the altered regulation in respect of the issue of free passes to school children, and that this Department would be correct in acting on the decision forthwith.

J.P., 6/6/87.

Assistant Secretary.

The Rev. H. M. Finnegan to Travers Jones, Esq., M.P.

Dear Mr. Jones,

Gundagai, 9 June, 1887.

I am in receipt of your letter, as well as Commissioner's letter, but the answer is not satisfactory. Kindly, therefore, send him the enclosed letter for a reply.

The railway station-master at Coolac told me that I could not get free passes.

With many thanks for your trouble,—

Yours, &c.,

H. M. FINNEGAN, C.C.

The

The Rev. H. Finnegan to The Commissioner for Railways.

Sir,

Gundagai, 10 June, 1887.

I am in receipt of your letter dated the 6th instant, addressed to Travers Jones, Esq., M.P., stating that the children of Catholic parents residing at Coolac may travel free by rail to Gundagai for the purpose of attending the convent school, provided that the nuns' school is the nearest school to the residence of the children's parents.

In reply, I beg to inform you that by the way and according to the time the train travels in the morning (about 9 o'clock) from Coolac to Gundagai the nuns' school is the nearest to the residence of the children's parents, there being no school whatever on or near the line of railway between the two townships.

I may mention that there is a Public School located about a half mile beyond the Coolac Railway Station, in the direction of Cootamundra, but trains do not travel that way until about 6 o'clock in the evening, which trains would not of course be suitable for school purposes.

In consideration of the above facts and circumstances, I respectfully ask, if Catholic children wish to travel by rail to school from Coolac Station, are free passes available for them to and from Gundagai.

I have, &c.,

HENRY FINNEGAN,
R.C. Clergyman.

J. H. Want, Esq., M.P., to The Commissioner for Railways.

12 June, 1887.

Dear Goodchap,

I hear that notwithstanding your instructions with regard to issue of free passes for school children it has been disregarded for some reason or another.

Travers Jones has sent a letter in to-day from Father Finnegan respecting it which will explain the hair-splitting nature of the objection.

I shall be glad if you can decide as soon as possible.

Yours, &c.,

J. H. WANT.

We have given what we consider a fair interpretation of the intention of the resolution passed by Parliament, but it may be that we are in error, and that the contention in this letter that the nuns' school at Gundagai is the nearest primary school, private or otherwise, to Coolac is correct. Perhaps the Under Secretary for Education will favour us with his views.—CHAS. A. G., 16/6/87.

It has been decided that on and from Monday next "provision is to be made for the issue of a free pass to any child to travel in a suitable railway carriage or van to and from any primary school, private or otherwise, provided that such school shall be the one nearest to the residence of the parents or guardians of such child." Please arrange accordingly.—A. RICHARDSON, Assistant Secretary, B.C., 17/6/87. Traffic Manager, Newcastle. Urgent. Instructions issued. Copy of general order attached.—J. HIGGS, 22/6/87. Assistant Secretary.

General Order 87/65.—Free passes to school children.—School children are to be allowed to travel free—second class of course—to and from any primary school, public or private, the condition of issue of free pass being that such school shall be the one nearest to the residence of the parents or guardians of the child. Certificates of attendance will be required every month to obtain passes. (This takes the place of general order 87/54, cancelled).—JOHN HIGGS, Traffic Manager.

To Manager, Redfern.—It has been decided that on and from Monday next provision is to be made for the issue of a free pass to any child to travel in a suitable railway carriage or van to and from any primary school, private or otherwise, provided that such school shall be the one nearest to the residence of the parents or guardians of such child. Please arrange accordingly.—A. RICHARDSON, Assistant Secretary, 17/6/87.

Seen, and all concerned will be instructed. I shall be glad to receive as soon as possible a list of the private schools to which this will apply. See attached extract from papers. Also, I shall be glad if the Educational Department could be asked to supply forms of application as enclosed to private schools, where necessary, the same as is now done in the case of Public Schools.—W. V. READ, 24/6/87.

Advertisements.

No. 1.

NOTICE TO TEACHERS OF SCHOOLS, OTHER THAN PUBLIC SCHOOLS, ON RAILWAY LINES.

Free Passes to Pupils.

1. In pursuance of a resolution of the Legislative Assembly, "That provision should be made for the issue of a free pass to any child to travel in a suitable railway carriage or van to and from any primary school, private or otherwise, provided that such school shall be the one nearest to the residence of the parents or guardians of such child," it is hereby notified that free passes may now be obtained from the railway station-masters at all stations.

2. It will be necessary, when application is made for a free pass that each child produce a certificate from the teacher that he or she is in regular attendance at the school, that such school is the nearest "primary school" to the child's residence, and has been duly registered in the office of the Department of Public Instruction.

3. Free passes will be issued half-yearly.

Department of Public Instruction, Sydney, June 17, 1887.

JAMES INGLIS.

No. 2.

NOTICE TO TEACHERS OF SCHOOLS, OTHER THAN PUBLIC SCHOOLS, ON RAILWAY LINES.

WITH reference to the advertisement respecting the granting of free passes, to pupils of schools, other than Public Schools, on railway lines, it is further notified that teachers of private "primary schools" containing pupils who desire to avail themselves of the privilege of travelling free on railway lines must duly register their schools in the office of the Department of Public Instruction. The name of the school, and the exact locality in which it is situated, must be clearly stated.

Department of Public Instruction, Sydney, June 17, 1887.

JAMES INGLIS.

Submitted

Submitted that the Commissioner for Railways be informed that the interpretation of this Department of the intention of the resolution passed by the Legislative Assembly respecting free passes to pupils is embodied in the foregoing advertisement (No. 1—see paragraph 2), which has been published throughout the Colony for the information of teachers of schools other than Public Schools.

As there is a Public Primary School at Coolac, the nuns' school at Gundagai cannot be regarded as the nearest primary school to the residences of the parents of the children at Coolac.

The question is not to be determined by the way the train goes, or the time it travels, but by the fact that there is a primary school nearer to the children's residence than Gundagai.

G.M., 1/7/87.

Approved.—J.I., 1/7/87. The Commissioner for Railways.—G.M., 4/7/87.

This decision seems to contradict the conclusion previously arrived at. It was concluded, I think, that the nearest primary school was the school nearest to the residence of the parents to the attendance at which of their children they had no conscientious objections. I wrote a paper* suggesting, I think, this definition, and submitted it.—CHAS. A.G., 7/7/87.

* This paper was not registered, and cannot be found.

No. 3.

The Assistant Secretary of Railways to The Acting Under Secretary, Public Instruction.

Sir,

Department of Railways, Sydney, 28 June, 1887.

It having been decided that provision is now to be made for the issue of a free pass to any child to travel in a suitable railway carriage or van to and from any primary school, private or otherwise, provided that such school shall be the one nearest to the residence of the parents or guardians of such child, I have the honor, by direction of the Commissioner for Railways, to ask that you will have the kindness to furnish a list of the private educational establishments to which this rule will apply.

I have, &c.,

A. RICHARDSON,

(For the Secretary of Railways).

The Acting Under Secretary, Public Instruction, to The Secretary of Railways.

Sir,

Department of Public Instruction, Sydney, 18 July, 1887.

I am directed to acknowledge the receipt of your letter, dated 28th ultimo, 87-2,420A, requesting to be furnished with a list of the private educational establishments to which the rule relating to the issue of free railway passes to pupils, in accordance with the recent resolution of the Legislative Assembly, will apply.

2. In reply, I am to state that the conditions on which free railway passes would be granted to pupils attending private schools were published in the Sydney daily papers on the 22nd ultimo, and similar advertisements were inserted in the more important papers circulating along railway lines. In response to such advertisements the principals of the undermentioned schools have registered their establishments in this Department with a view to free passes being issued to such pupils as may be entitled to them in terms of the resolution and conditions:—

1. Grammar and Commercial School, Pedrotta-terrace, Russell-street, Bathurst. Head-master, Mr. George Prosser.

2. St. Charles' Roman Catholic School, East Maitland. Taught by nuns.

3. St. Joseph's Roman Catholic School, East Maitland. Taught by nuns.

No other schools have yet been registered in this office.

I have, &c.,

G. MILLER,

Acting Under Secretary.

No. 4.

The Rev. J. Mahoney to D. O'Connor, Esq., M.P.

My dear Dan,

Penrith, 5 July.

I have just got the enclosed of to-day's date.

By it you will see the officials are yet reluctant to put a generous interpretation on your resolution.

As the writer truly remarks, the Public School at Emu is very nearly as far from Emu Station as is ours. There can't be 100 yards difference.

You see the poor people are anxious, and appeal to their pastor in true Catholic spirit. Will you please see to this at once.

Ever, &c.,

J. MAHONEY.

I wrote to Mr. Read, Traffic Manager, a week ago on this subject, but he has not replied.—J.M.

Dear and Rev. Father,

Glenbrook, 5 July, 1887.

Mrs. Wood wishes to let you know that she has applied for a free pass for May Wood, and it has been refused, owing to there being a Public School at Emu Plains, that school being the nearest.

Mrs. Wood has been advised to ask your Reverence to apply for one, stating Emu School is not the nearest by rail. Leaving Glenbrook, 3 minutes ride to Lucasville—get out of train and walking (say) about 2 miles to the school, if May go on the Emu Station, then she must walk about the same distance back to school, about 2 miles. Then there is another thing to be considered: taking May Wood away from the convent school and sending her to a lower school—that would be doing the child and school an injustice.

Trusting

Trusting you will do something in the matter, I cannot send May to school until I see what is to be done. I am writing Mr. Taylor, Member for Parramatta, on the subject, and will anxiously wait his answer. If I cannot get the pass I can but pay in the end, as I have been doing, but will try what is to be done first.

I am sorry to be troubling you so much, but if some one does not move in the matter passing the Bill in the House is of little use to our schools.

Yours, &c.,
J. M. WOOD.

Minute by The Commissioner for Railways.

Mr. O'Connor, M.P., and Roman Catholic School Children.

MR. O'CONNOR has brought the within letters under my attention. It would seem that the decision of the Government is not receiving attention, and this perhaps arises from deficient instruction.

The papers have been sent to Traffic Manager, I presume.

Let me know how the matter stands exactly, and what general orders to the railway station-masters have been issued.

CHAS. A. G., 7/7/87.

No. 5.

The Rev. T. Rogers to The Railway Station-master, Aberdeen.

Musclebrook, 8 July, 1887.

THE undersigned certifies that the under-named children are pupils of the convent primary school at Musclebrook, and requests railway passes for them:—Michael, Margaret, Bridget, and Edward Donovan, and John and Agnes Hayes.

THOMAS ROGERS.

The case is this:—There is a primary Public School in Aberdeen, but the children want to go to the denominational (R.C.) school in Musclebrook, also primary. Can pass be granted?—J. HIGGS, 12/7/87. Secretary.

Please see copy of decision of the Education Department on this matter. This must be followed until countermanded.—A.R., 21/7/87. Mr. Higgs. Noted.—J. HIGGS.

No. 6.

W. L. Davis, Esq., M.P., to The Minister of Public Instruction.

Sir,

12 July, 1887.

I have the honor of drawing your attention to a case *re* children attending a school by railway which is somewhat complicated, viz., I have a man in my employ, at Lucasville, on the Great Western Line, who has three children attending school; the nearest public school is at Emu Plains, but, being Catholics, they wish to go to the convent school at Penrith.

The Railway Department have declined to allow them to travel to Penrith, and, I think, rightly so, too; but I respectfully request that you will be good enough to allow them to travel free to and from Emu Plains (that being the nearest school of any kind). They can then walk from there to Penrith.

Trusting you will see fit to grant this privilege, which I consider they are justly entitled to,—

I have, &c.,

W. LOVEL DAVIS.

The name of the father is C. Gimbert.

Submitted that Mr. Davis's request be declined. Free passes are granted for the purpose of enabling pupils to reach the nearest primary school to the residences of their parents. This request is for a free pass to enable certain children to reach a railway station at which there is a Public School, and then to walk on to a school which is not the nearest to their residence.—G.M., 14/7/87.

Approved.—J.I., 14/7/87.

The Acting Under Secretary of Public Instruction to W. L. Davis, Esq., M.P.

Sir,

Department of Public Instruction, Sydney, 15 July, 1887.

I am directed to acquaint you that the Minister of Public Instruction has had under notice your letter of the 12th instant, requesting, on behalf of a man named C. Gimbert, in your service, that free railway passes to Emu Plains may be granted to his children to enable them to attend the convent school at Penrith.

2. In reply, I am to point out that free passes are granted only for the purpose of enabling pupils to reach the nearest primary school to the residences of their parents. The request made by you, however, is for free passes to enable certain children to reach a railway station at which there is a primary school, and then to walk on to a school which is not the nearest to their residence.

3. Under these circumstances the Minister cannot comply with your request.

I have, &c.,

G. MILLER,

Acting Under Secretary.

No. 7.

Minute by The Secretary for Public Works.

I SHALL be glad if full effect is given to the intention of this motion, viz., to arrange for free passes to be issued to children to enable them to attend the nearest private school to their residence, no matter what Public School may intervene.

JOHN SUTHERLAND, 10/8/87.

Minutes

Minutes by Mr. Assistant Secretary Richardson.

Free Railway Passes to School Children.

REFERRING to the resolution passed in the Assembly on the 29th April last, and quoted below, respecting free passes to school children, I have to inform you that the Minister has minuted that he wishes full effect to be given to the resolution, and that arrangements should accordingly be made by which free passes shall be issued to children to enable them to attend the nearest private school to their residence, no matter what Public Schools may intervene.

A. RICHARDSON,

Assistant Secretary, 10/8/87.

To the Traffic Manager, Newcastle.

"That in the opinion of this House provision should be made for the issue of a free pass to any child to travel in a suitable railway carriage or van to and from any primary school, private or otherwise, provided that such school shall be the one nearest to the residence of the parents or guardians of such child."

Noted, and staff informed.—JOHN HIGGS, 16/8/87. A. T. Auditor.

Free Railway Passes to School Children.

REFERRING to the resolution passed in the Assembly on the 29th April last, and copy of which is attached hereto, respecting free passes to school children, I have to inform you that the Minister has minuted that he wishes full effect to be given to the resolution, and that arrangements should accordingly be made by which free passes shall be issued to children to enable them to attend the nearest private school to their residence, no matter what Public School may intervene.

A. RICHARDSON,

Assistant Secretary, 10/8/87.

Traffic Manager, Redfern.

Mr. Inglis moved, that the question be amended by the omission of all the words after the word "House," with a view to the insertion in their place of the words "provision should be made for the issue of a free pass to any child to travel in a suitable railway carriage or van to and from any primary school, private for otherwise, provided that such school shall be the one nearest to the residence of the parents or guardians of such child."

Seen; all concerned informed.—W. V. READ, 23/8/87.

No. 8.

Minute by Mr. Inspector Crawford to The Traffic Manager.

Mr. Clout's Application for School Passes.

Traffic Inspector's Office, Goulburn, 10 August, 1887.

THE teacher of the convent school, Moss Vale, has written to Moss Vale, informing him that printed forms are not issued from Public Instruction Department, but from Railway. Please forward a supply.

A. CRAWFORD.

Will the Secretary be kind enough to refer this matter to the Department of Education. On Commissioner's 87-2,420A, I asked that the forms should only be supplied to private schools by that Department, after the heads of such schools had registered their schools in the Education Office. I have not yet received advice that the convent school at Moss Vale has been registered.—W. V. READ, 25/8/87.

You have since been supplied with the information, I think.—A.R., 30/8/87. Traffic Manager.

I have not yet received advice that the Moss Vale convent school has been registered in the Education Department, and should be glad if arrangements could be made for the forms of application for free passes to be supplied to private schools by that Department after the heads of such schools had had them registered in the Office for Education, the same as is now done in the case of Public Schools. I presume that only schools that have been registered in the Education Department are to be taken into account, and that only such registered schools are to be taken to the nearest private schools for the purpose of this regulation. There will no doubt be a large number of private schools which will not be registered.—W. V. READ, 2/9/87.

No. 9.

The Head Teacher, St. Joseph's Convent, to The Commissioner for Railways.

Sir,

+ J.M.J. St. Joseph's Convent, 21/8/87.

I beg to draw your attention to General Order No. 62, issued on 19th instant by W. V. Read, Esq., Traffic Manager, Railway Department, *re* free passes to children attending the nearest private school to their residence, no matter what Public School may intervene.

Furthermore, I wish to avail myself of this concession to register the private school of St. Joseph's Convent at Penrith in your office. Will you please forward the printed forms of application for free passes required for two children from Glenbrook, three from Lucasville, and five from Emu Plains.

I have, &c.,

SISTER BONAVENTURE,

Head Teacher.

Informed that school has been registered in Department. Secretary of Railways informed.—J.H.P., 24/8/87.

No. 10.

The Station-master, Aberdeen, to The Rev. Mr. Rogers.

Rev. Sir,

Aberdeen, 23 August, 1887.

In answer to your letter of 19th instant, asking me to apply for passes for children at Aberdeen to attend convent school at Muswellbrook, I beg most respectfully to inform you that the regulations will not permit of compliance with request, as there is a Public School at Aberdeen. The convent school at Muswellbrook cannot be regarded as the nearest primary school to the residence of the parents, therefore school passes cannot be issued in this case.

I have, &c.,

JOHN M'LEAN.

Has the last minute of the Minister in regard to this matter been made known to all the staff? if so, I cannot understand Mr. M'Lean's letter; he either does not understand the decision, or he is opposing its application. In either case it seems to be he is not fitted for his position. Let me know how the matter stands.—CH. A. G., B. C., 25/8/87. Traffic Manager, North.

Instructions were duly issued. Though Mr. M'Lean does not mention it, the difficulty he conceived was non-receipt of registration advice. Knowing the facts myself, I ordered the issue of the passes on 24th (the day after Mr. M'Lean wrote the letter), and waived the question of registration of school, of which I have not yet been notified. I had written to the Rev. Mr. Rogers before I got this paper, telling him that the passes had been issued.—JOHN HIGGS, 29/8/87. Commissioner.

No. 11.

The Acting Under Secretary of Public Instruction to The Secretary of Railways.

Sir,

Department of Public Instruction, Sydney, 24 August, 1887.

With reference to my letter of the 18th ultimo, I am directed to acquaint you that the principals of the undermentioned private educational establishments have registered their schools in this Department, with a view to free railway passes being issued to such pupils as may be entitled to them, in terms of the resolution of the Legislative Assembly and the published conditions.

1. Bethlehem High School, Bland-street, Ashfield. Mrs. M. V. O'Brien.
2. Roman Catholic School, Binalong. Mr. M. M. Donohue.
3. St. Joseph's Convent, Penrith. Mrs. Bonaventure.

I have, &c.,

G. MILLER,

Acting Under Secretary.

The Traffic Manager.—A. R., B. C., 29/8/87. Noted.—W. V. R., 1/9/87. Secretary.

No. 12.

Minute by The Minister for Public Instruction.

Railway Free Passes to School Children.

It has been brought to my notice that a general order has lately been issued by the Railway Department in which the recent resolution of the Legislative Assembly anent railway free passes to children other than those attending Public Schools has been so interpreted as to give permission to children to travel past Public Schools to attend private schools, although such private schools may be at great distances from the children's residences, and one or more Public Schools may intervene. I must, if this be the case, draw the attention of the Commissioner for Railways to the fact that this action may materially affect the attendance at our Public Schools, and may give rise to very grave complications and embarrassments. For instance, there is no reason, on such an interpretation, why a parent in Bourke or Tenterfield or Albury should not send his children to a school in Sydney. The interpretation also seems to me inconsistent with the wording and design of the resolution, and with the minute arrived at by the Cabinet; and I will be pleased if the Commissioner will be so good as to inform me what is really being done in the matter.

Commissioner for Railways.

JAS. INGLIS, 10/9/87.

The general order of the Traffic Manager is based upon the decision of the Honorable Secretary for Public Works, of August 10th last, which has not yet been officially communicated to the Department of Public Instruction.—A. R., 12/9/87.

Will the Minister be good enough to say what reply is to be made to the minute of the Minister for Education. The interpretation placed upon the resolution of the Assembly is one that has given much satisfaction to those concerned, and does not seem to break the spirit of the resolution.—CH. A. G., 15/9/87.

No. 13.

The Acting Under Secretary for Public Instruction to The Assistant Secretary for Railways.

Sir,

Department of Public Instruction, Sydney, 14 September, 1887.

I am directed to acquaint you that the undermentioned educational establishments have been registered in this Department, with a view to free railway passes being issued to such pupils as may be entitled to them, in terms of the resolution of the Legislative Assembly and the published conditions:—

1. St. Michael's Roman Catholic Boys' School, Church-street, Wagga Wagga. Very Rev. P. Dunn.
2. St. Joseph's Roman Catholic School, Johnston-street, Wagga Wagga. Very Rev. P. Dunn.
3. The Roman Catholic Convent Schools, Mt. Erin, Edward-street, Wagga Wagga. Very Rev. P. Dunn.
4. Roman Catholic Convent School, Muswellbrook. Rev. T. Rogers.

I have, &c.,

G. MILLER.

No. 14.

No. 14.

Memo. by The Acting Under Secretary for Public Instruction.

Free Passes to Pupils attending schools, other than Public Schools, on Railway Lines.

Department of Public Instruction, 26 September, 1887.

THE resolution of the Legislative Assembly—"That provision should be made for the issue of a free pass to any child to travel in a suitable railway carriage or van to and from any primary school, private or otherwise, provided that such school shall be the one nearest to the residence of the parents or guardians of such child"—was advertised in the Sydney and the principal country papers in June last. It was also notified that it would be necessary, when application was made for a free pass, that each child should produce a certificate from the teacher that the school he or she attends is the nearest "primary" school to his or her residence.

Towards the end of June the Commissioner for Railways forwarded to this office a letter from the Rev. Father Finnegan, a Roman Catholic clergyman, requesting that the children of Catholic parents residing at Coolac and Muttama might be allowed to travel free by rail to Gundagai, for the purpose of attending the convent school at that place. In reply, the Commissioner was informed that the interpretation of this Department of the intention of the resolution passed by the Legislative Assembly respecting free passes to pupils was embodied in the advertisement which was published in the newspapers, and that, as there is a public primary school at Coolac, the nuns' school at Gundagai could not be regarded as the nearest primary school to the residences of the parents of the children at Coolac; also, that the question was not to be determined by the way the train goes, or the time it travels, but by the fact that there is a primary school nearer to the children's residence than Gundagai.

On the 14th July last, Mr. W. L. Davis, M.P., requested, on behalf of Mr. C. Gimbert, that free railway passes to Emu Plains might be granted to his children to enable them to attend the convent school at Penrith. In reply, it was pointed out to Mr. Davis that free passes are granted only for the purpose of enabling pupils to reach the nearest primary school to the residences of their parents; whereas his request was for free passes to enable certain children to reach a railway station at which there is a primary school, and then to walk on to a school which is not the nearest to their residence (thus violating the terms of the resolution of Parliament). His application could not therefore be complied with.

On the 10th instant a memorandum was sent by the Minister of Public Instruction to the Commissioner for Railways, of which a copy is appended hereto.

G M.

No. 15.

Minute by The Colonial Secretary.

Colonial Secretary's Office, 26 September, 1887.

CABINET consider that the Department of Public Instruction, in the advertisements of June 17th last, correctly interpreted the resolution of the Legislative Assembly, and now learn with surprise that the Railway Department has disregarded the decision of the Minister of Public Instruction. It is now decided that the decision of Mr. Inglis, as embodied in advertisements of June 17th, including the registration of schools, be carried out in all cases.

HENRY PARKES.

For Cabinet.

The Commissioner for Railways to attend to.—J.S., 27/9/87.

Let me see copy of advertisement. Issue immediately to the Traffic Managers, who will instruct their respective staffs that passes are to be issued only in terms of that advertisement. Send copies of the advertisements.—C.P.A.G., 27/9/87.

Memo. to Traffic Managers, north, south, and west.

Minute by the Assistant Secretary of Railways.

Free Passes, School Children.

It has been decided that the following shall be the regulations governing the issue of free passes, in accordance with the terms of resolution of the Legislative Assembly, dated 29th April last, to school children:—

Free passes are to be issued to school children to enable them to attend the nearest primary school to the residences of their parents or guardians.

The terms of the accompanying advertisement (copy of which is appended), published by the Education Department, are to be strictly observed.

Please arrange accordingly.

A. RICHARDSON,

Assistant Secretary, B.C., 27/9/87.

Traffic Manager, Newcastle.

Noted, and staff instructed.—J. HIGGS, 30/9/87. A.T. Auditor. Noted.—S.D.H., 3/10/87. T. Auditor. Mr. Forsyth to see.—R.J.S., 6/10/87. Seen.—W. FORSYTHE, 5/10/87. Traffic Auditor. The Secretary.—R.J.S., 6/10/87.

Minute by the Assistant Secretary of Railways.

Free Passes to School Children.

It has been decided that the following shall be the regulation governing the issue of free passes, in accordance with the terms of resolution of the Legislative Assembly, passed 29th April last, to school children.

Free

Free passes are to be issued to school children to enable them to attend the nearest primary school to the residence of their parents or guardians.

The terms of the accompanying advertisement, published by the Education Department, are to be strictly observed.

Please arrange accordingly.
Traffic Manager, Redfern.

A. RICHARDSON,
Assistant Secretary.

Seen ; general order issued ; copy attached.—W. V. READ, 6/10/87.

[Enclosure.]

Advertisement referred to.

In pursuance of a resolution of the Legislative Assembly—"That provision should be made for the issue of a free pass to any child to travel in a suitable railway carriage or van to and from any primary school, private or otherwise, provided that such school shall be the one nearest to the residence of the parents or guardians of such child"—it is hereby notified that free passes may now be obtained from the railway station-masters.

It will be necessary, when application is made for a free pass, that each child produce a certificate from the teacher that he or she is in regular attendance at the school ; that such school is the nearest primary school to the child's residence, and has been duly registered in the office of Public Instruction.
Department of Public Instruction, Sydney, 17 June, 1887.

JAS. INGLIS.

General Order.

Great Southern, Western, and Richmond Railways.—General Order No. 75, M.P. 87-5,673D.

Free Passes to School Pupils.

ALL concerned are informed that General Order No. 62, of 19th August, 1887, notifying that free passes would be issued to children to enable them, if it were so desired, to attend the nearest private school to their residence, is hereby cancelled, and that General Order No. 42, of 30th June last, is to be acted upon.

W. V. READ,
Traffic Manager.

Traffic Manager's Office, Sydney, 5 October, 1887.

Sydney : Charles Potter, Government Printer.—1887.

[9d.]

1887-8.

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

RAILWAYS.

(RETURN SHOWING PERSONS HOLDING FREE PASSES ON.)

Ordered by the Legislative Assembly to be printed, 15 June, 1888.

[Laid upon the Table of the House in accordance with promise made by the Honorable the Secretary for Public Works in answer to Question No. 2 on Votes and Proceedings No. 91 of the 16th May, 1888.]

A LIST of the names of all persons, except public Officials and Members of Parliament, who are now holding free passes or tickets for the Railways in this Colony :—

Name.	Remarks.
Consul for United States ...	Granted to Consuls engaged in diplomatic service exclusively.
Consul for France	do do
Vice-Consul do.	do do
Consul for Japan	do do
Messrs. Clarke and J. Bennett and Rowley.	Issued between Granville and Sydney in consideration of their business relations with the Department in connection with the Rose Hill Railway, &c., and in consideration of their carrying Members of Parliament free over their line.
Hon. J. J. Casey	Executive Councillor, Victoria.
F. Want	Sydney to Loftus; Trustee National Park.
Officers H.M.S. "Dart" ...	Passes granted to Officers on Station.
S. Murray	Between Sydney and Peat's Ferry; Contractor for ferry service across the Hawkesbury.
Manager, Hunter River Steam Co.	Concession usually extended to Manager, to assist in connection with recovery of lost goods, parcels, &c., sent by steamer and rail.
Officers H.M.S. "Rapid" ...	Passes granted to Officers on Station.
Mayor of Sydney	
Mr. and Mrs. Seymour ...	Inspector of Police, Queensland, and wife.
Representative of Accident Guarantee Society.	Arrangements with Department <i>re</i> issue of accident tickets.
Officers H.M.S. "Opal" ...	Passes granted to Officers on Station.
Mr. Mestayer	Hydraulic engineer, Adelaide; recommended by Secretary Works Department, Adelaide.
Capt. Whitney	The establishment of powder factory; recommended by Chief Secretary, Victoria.
Col. Barker	Engaged in philanthropic work; recommended by Minister for Justice.
Officers H.M.S. "Lizard" ...	Officers H.M. ship on Station.
A. F. Spawn	Lecturer on agriculture, fruit growing, &c.; recommended by Mines Department.
E. M. Burrows	Superintendent Casual Labor Board, travelling <i>re</i> unemployed.
W. F. Vanx	Secretary to Executive Commissioner, New Zealand, to Melbourne Exhibition.
T. M. Stephen	President Marine Board, South Australia.
Mrs. L. L. Smith	Wife of Dr. L. L. Smith, M.P., Victoria, visiting Sydney.
N. Ralteo	Postmaster-General, Straits Settlements; recommended by Secretary, General Post Office.
Members of Sanitary Commission, Victoria.	Recommended by Premier, Victoria; Commission visiting New South Wales.
Professor Royce, Harvard College, U. States.	Recommended by Chief Secretary, Victoria.
Hon. Col. B. Van Rhideroad ...	Recommended by Consul for Netherlands; approved by Chief Secretary.
E. Booker, J.P.	Mayor, Maryborough; visitor.
J. McMahon, Esq.	Tramway Trust, Melbourne.
R. Speight, Esq.	Visitor from Victoria.

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(RETURN OF FREE PASSES ISSUED BY THE MILITARY STAFF OFFICE TO VOLUNTEERS, &c., FOR QUARTER ENDED 30TH JUNE, 1888.)

Ordered by the Legislative Assembly to be printed, 19 June, 1888.

[Laid upon the Table of this House in accordance with promise made in answer to Question No. 4, of 19th June, 1888.]

Date of issue.	Class.	No.	To whom issued.	Stations.		How long current.	Why granted.
				From.	To.		
Apl. 4	2nd..	6,707	2 members P.A.	Sydney	Parramatta	1 trip...	Escort duty.
" 4	"	6,708	1 member "	Parramatta	Sydney	"	From prison.
" 1	"	6,709	9 members "	Sydney	N. Park	"	Fatigue duty.
" 2	"	6,710	20 Cadets, Newington College Cadet Corps	Stanmore	Sydney	"	Rifle practice.
" 16	"	6,711	20 "	"	"	"	"
" 20	"	6,712	20 "	"	"	"	"
" 30	"	6,713	20 "	"	"	"	"
" 8	"	6,714	Armour Sergt. Cayzer	Sydney	N. Park	"	On duty.
" 1	"	6,715	Gr. Riley, P.A.	"	"	"	"
" 2	"	6,716	1 Sergeant, Permanent Staff	"	"	"	"
" 3	"	6,717	Mr. W. O. Tideswell	"	"	"	"
" 2	"	6,718	"	"	"	"	"
" 4	"	6,719	Br. Young, P.A.	"	"	"	"
" 4	"	6,720	Mrs. Young and servant	"	"	"	"
" 7	"	6,721	Br. Hilder, P.A.	"	"	"	"
" 5	"	6,722	Gr. Hamilton, P.A.	"	"	"	"
"	"	6,723	Cancelled	"	"	"	"
Apl. 4	2nd..	6,724	1 Gunner, P.A.	Sydney	N. Park	1 trip...	"
" 4	"	6,725	Cook for Sergeant's Mess	"	"	"	"
" 5	"	6,726	Mr. W. O. Tideswell	"	"	"	"
" 5	"	6,727	Gr. Masterson, P.A.	"	"	"	"
" 5	Box	6,728	Charger of Major-General	"	"	"	"
" 5	2nd..	6,729	Mr. M'Intyre, D.A.G., M.-G.'s Dept.	"	"	"	"
" 5	"	6,730	Mr. Blakeley,	"	"	"	"
" 5	"	6,731	Staff-Sergeant Holmes, A.A.G.'s Dept.	"	"	"	"
" 5	Box	6,732	Charger of above	"	"	"	"
" 5	2nd..	6,733	Staff Sergeant Burns	"	"	"	"
" 5	Box	6,734	4 horses, Staff	"	"	"	"
" 5	2nd..	6,735	Mr. W. O. Holmes	"	"	"	"
" 5	"	6,736	Mr. Kavanagh, M.S.O.	"	"	"	"
" 5	"	6,737	Mr. Smith, M.S.O.	"	"	"	"
" 5	"	6,738	Gr. Brien, P.A.	"	"	"	"
" 5	"	6,739	Br. Hertslett, P.A.	"	"	"	"
" 6	"	6,740	Gr. Ryrie, P.A.	"	"	"	"
" 6	Box	6,741	Charger of D.A.Q.-M.G.	"	"	"	"
" 5	2nd..	6,742	Gr. Hamilton, P.A.	N. Park	Sydney	"	"
" 7	Box	6,743	2 chargers of A.A.G.	Sydney	N. Park	"	"
" 6	2nd..	6,744	Staff Sergeant Holmes	N. Park	Sydney	"	"
"	"	6,745	{	"	"	"	"
"	"	6,746	Cancelled	"	"	"	"
May 7	2nd..	6,747	6 laborers	N. Park	Sydney	1 trip...	Returning from camp.
Apl. 16	"	6,748	3 hospital orderlies	"	"	"	"
May 4	"	6,749	4 laborers	"	"	"	"
" 4	"	6,750	Mr. Little	"	"	"	"
" 6	"	6,751	Mr. W. O. Masters	"	"	"	"
" 6	"	6,752	Staff Sergeant M'Donald	"	"	"	"
" 8	"	6,753	— Crouch, laborer	"	"	"	"
" 8	"	6,754	— Kohne	"	"	"	"
" 8	"	6,755	— M'Gill	"	"	"	"
" 9	"	6,756	Staff Sergeant M'Cann	"	"	"	On duty.
" 10	"	6,757	4 men, 1st Regiment	"	"	"	Escort duty.
May 10	2nd..	6,758	3 "	Sydney	"	"	Returning on duty.
" 10	"	6,759	Constable Taafe	N. Park	Sydney	"	On duty.
" 11	"	6,760	4 men, 1st Regiment	"	"	"	Escort duty.
" 11	"	6,761	3 "	Sydney	N. Park	"	Returning on duty.
" 11	"	6,762	1 constable, P. Force	N. Park	Sydney	"	On duty.
" 11	"	6,763	2 members, P.A.	"	"	"	"
" 12	"	6,764	Sergeant Mulvey, 4th Regiment	"	"	"	"
" 13	"	6,765	Private Roberts, 2nd Regiment	"	"	"	On leave.
" 16	"	6,766	3 armoury employes	"	"	"	Returning.
" 15	"	6,767	Bandmaster Hutchinson	"	"	"	On duty.

Date of issue.	Class.	No.	To whom issued.	Stations		How long current.	Why granted.
				From.	To.		
Apl. 16	2nd..	6,768	Mr. W. O. Holmes	N. Park	Sydney	1 trip	Returning from camp.
" 16	"	6,769	Mr. W. O. Tideswell	"	"	"	"
" 16	"	6,770	Mr. Smith, A.A.G.'s Department	"	"	"	"
" 16	"	6,771	Mr. Kavanagh, "	"	"	"	"
" 16	"	6,772	S. Sergeant Holmes, A.A.G.'s Department	"	"	"	"
" 16	"	6,773	Mr. Blakeley, D.A.Q.M.G.'s	"	"	"	"
" 16	"	6,774	Mr. McIntyre, "	"	"	"	"
" 16	"	6,775	Gr. Masterson, P.A.	"	"	"	"
" 16	"	6,776	F. Lyle, hospital orderly	"	"	"	"
" 16	"	6,777	2 laborers, D.A.Q.M.G.'s Department	"	"	"	"
"	"	6,778	Cancelled				
"	"	6,779					
Apl. 16	2nd..	6,780	2 waiters, Staff Mess	N. Park	Sydney	1 trip	"
" 16	"	6,781	7 persons employed in Staff Mess	"	"	"	"
" 16	"	6,782	Mr. Ellis, cook	"	"	"	"
" 16	"	6,783	Staff Sergeant Burns	"	"	"	"
" 16	"	6,784	Gr. Ryrrie, P.A.	"	"	"	"
" 16	"	6,785	Staff Sergeant Shannon	Sydney	Wellington	"	On duty.
May 7	"	6,786	"	Wellington	Molong	"	"
" 20	"	6,787	"	Molong	Orange	"	"
June 4	"	6,788	"	Orange	Blayney	"	"
" 19	"	6,789	"	Blayney	Bathurst	"	"
" 13	"	6,790	"	Bathurst	Sydney	"	"
"	"	6,791	Cancelled				
May 6	2nd..	6,792	S. Sergeant Ingall	Wagga	Goulburn	1 trip	"
" 27	"	6,793	"	Goulburn	Mudgee	"	"
June 4	"	6,794	"	Mudgee	Lithgow	"	"
" 14	"	6,795	"	Lithgow	Sydney	"	"
Apl. 24	"	6,796	Bombr. Ranchie, P.A.	N. Park	"	"	"
" 25	"	6,797	S. Sergeant Ingall	Sydney	Wagga	"	"
" 30	"	6,798	20 Cadets, King's School	Parramatta	Sydney	"	Rifle practice.
May 7	"	6,799	"	"	"	"	"
" 14	"	6,800	"	"	"	"	"
" 21	"	9,801	"	"	"	"	"
" 28	"	9,802	"	"	"	"	"
" 6	"	9,803	Newington College	Stanmore	"	"	"
" 7	"	9,804	"	"	"	"	"
" 14	"	9,805	"	"	"	"	"
" 21	"	9,806	"	"	"	"	"
" 27	"	9,807	"	"	"	"	"
" 28	"	9,808	"	"	"	"	"
" 28	"	9,809	"	"	Picton	"	Rifle match.
June 7	"	9,810	9 Cadets, St. Ignatius College	Sydney	Bathurst	"	"
May 26	"	9,811	87 N.-C.O's. and men, P.A.	"	Rookwood	"	Funeral of Hospital Sergeant Percy.
June 3	"	9,812	9 Cadets, Newington College	Stanmore	Bathurst	"	Rifle match.
" 6	"	9,813	7 " " "	Bathurst	Stanmore	"	Returning from Bathurst
" 11	"	9,814	2 " " "	"	"	"	"
" 4	"	9,815	21 " King's School	Parramatta	Sydney	"	Rifle practice.
" 11	"	9,816	"	"	"	"	"
" 6	"	9,817	Mr. W. O. Tideswell	Sydney	Bathurst	"	On duty.
" 13	"	9,818	Groom of A.A.G.	"	Camden	"	"
" 13	Box.	9,819	Charger of "	"	"	"	"
" 13	2nd..	9,820	Groom of Major-General	"	"	"	"
" 13	Box.	9,821	Charger of "	"	"	"	"
" 27	2nd..	9,822	Sergeant-Major King	"	Wollongong	"	"
Apl. 9	1st..	1,914	Rev. G. F. Macarthur	Ashfield	N. Park	1 trip	On duty.
" 9	"	1,915	Rev. Father Fitzgerald	Sydney	"	"	"
" 9	"	1,916	Rev. A. Osborne	Burwood	"	"	"
" 9	"	1,917	Rev. S. Wilkinson	Petersham	"	"	"
" 7	"	1,918	Colonel French	Tenterfield	Newcastle	"	To attend camp.
" 9	"	1,919	"	Sydney	N. Park	"	"
" 7	"	1,920	Major Lyster	Tenterfield	Newcastle	"	"
" 9	"	1,921	"	Sydney	N. Park	"	"
May 28	"	1,922	2 officers, Newington College	Stanmore	Sydney	"	Rifle match.
June 7	"	1,923	1 officer, St. Ignatius College	Sydney	Bathurst	"	"
May 26	"	1,924	" P.A.	"	Rookwood	"	Funeral.
" 15	"	1,925	Mr. Finlay, Pay Office	"	N. Park	"	On duty.
" 15	"	1,926	Mr. Solomon, "	"	"	"	"
"	"	1,927	Cancelled				
Apl. 10	1st..	1,928	Rev. S. Wilkinson	Sydney	N. Park	1 trip	"
" 15	"	1,929	Lieut.-Colonel Baynes	"	"	"	"
June 3	"	1,930	2 officers, Newington College	Stanmore	Bathurst	"	Rifle match.
Apl. 5	"	1,931	Captain Bouverie	N. Park	Sydney	"	On duty.
" 5	"	1,932	Lieutenant Sparrow	"	"	"	"
"	"	1,933	Cancelled				
"	"	1,934					
Apl. 10	1st..	1,935	Rev. Father Fitzgerald	N. Park	Sydney	1 trip	"
" 11	"	1,936	Mr. Solomon, Pay Office	"	"	"	"
" 15	"	1,937	Gr. Hamilton, P.A.	"	"	"	"
" 30	"	1,938	1 officer, King's School Cadets	Parramatta	"	"	Rifle practice.
May 7	"	1,939	"	"	"	"	"
" 14	"	1,940	"	"	"	"	"
" 21	"	1,941	"	"	"	"	"
" 28	"	1,942	"	"	"	"	"

Military Staff Office, Sydney, 1 July, 1887.

H. D. MACKENZIE, Major,
A.A.G.

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(INFORMATION RESPECTING FIRST-CLASS THROUGH TICKETS, SYDNEY TO BRISBANE.)

Ordered by the Legislative Assembly to be printed, 28 February, 1888.

[Laid upon the Table of the House, in accordance with promise made by the Honorable the Secretary for Public Works, in answer to Question No. 21, in Votes and Proceedings No. 57, of the 23rd February, 1888.]

QUESTIONS AND ANSWERS.

1. What is the cost of a first-class through ticket by rail from Sydney to Brisbane? The first-class return fare is £7 10s.
2. For how long is such ticket available, and can the holder of such ticket break his journey at any of the intermediate stations? The tickets are available for two months, and the holders can break their journey at any station for seven days.
3. What is the distance by rail from Sydney to Brisbane? 722 miles.
4. Can first-class through tickets be obtained at the Newcastle Railway Station from Newcastle to Brisbane, or at any of the other stations along the line; if not, for what reason? The through tickets to Melbourne were procurable only at Sydney until within the last few days, and the same course was followed in regard to the through tickets to Brisbane. When tickets are required at intermediate stations, or stations on the Northern line, they are telegraphed for to Sydney; but to avoid delay in obtaining through tickets at Newcastle, instructions were given some days ago to provide that station with an independent supply. On the Queensland lines the through tickets are only issued at Brisbane.
6. What is the cost of a first-class through ticket from Newcastle to Wallangarra, and from Wallangarra to Brisbane? The ordinary first-class return fare from Newcastle to Wallangarra is £5 4s. 6d. Between Wallangarra and Brisbane single tickets only are issued at £2 2s. 6d. each first-class, in all £9 9s. 6d., but a person going from Newcastle to Brisbane would purchase a through return ticket for £7 10s., or a single ticket for £5. It may be added that the same apparent anomaly exists in regard to the tickets between Goulburn and intermedial stations and Melbourne, and also to other lines, such, for instance, as Hay, or wherever there is competition with other routes or other modes of carriage.
7. How long are these tickets available for, and can passengers break their journey *en route* from Newcastle to Wallangarra? They are available for two months, and passengers can break journey.
8. What is the distance from Newcastle *via* Wallangarra to Brisbane? 620 miles.
9. What is the difference in the distance by rail from Sydney to Brisbane, and from Newcastle to Brisbane *via* Wallangarra? 102 miles.

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(LIMITED EXPRESS—COMPARTMENTS ENGAGED FROM 1 NOVEMBER, 1887, TO 1 APRIL, 1888.)

Ordered by the Legislative Assembly to be printed, 17 April, 1888.

[Laid upon the Table of the Honorable the Legislative Assembly, in accordance with promise made by the Honorable the Secretary for Public Works, in answer to Question No. 3, Votes No. 77, of the 12th April, 1888.]

QUESTIONS.

1. How many first-class compartments have been engaged by the limited express leaving Sydney since 1st November, 1887, to 1st April, 1888?
2. What are the conditions under which these carriages can be engaged?
3. Have these conditions been fulfilled by the persons securing carriages?
4. The names of the Members of the Legislative Assembly or other persons who have taken the compartment referred to?

ANSWERS.

ENQUIRY has been made in this matter and a statement, giving all particulars obtainable, is attached. It is however, probable that compartments have been reserved which are not included, as it may sometimes happen that on the fulfilment of the usual conditions, viz., obtaining six ordinary tickets, compartments have been reserved at the last moment; or it has been found that there have not been sleeping berths in the cars to meet all applications, and the compartments being available they have been reserved and berths made up in them for persons taking and paying for sleeping berths in addition to the ordinary fare. This is an economical way of meeting the case, otherwise a second sleeping carriage would have to be put on, necessitating the use of another engine for the accommodation of two or three persons only. Further, a compartment is always reserved in the Friday night's express when Parliament is in session for the convenience of Members of Parliament returning home.

The following is a list of persons for whom compartments have been reserved:—

Date.	Name.	Remarks.
1887.		
November 7 ...	Mr. J. B. Donkin	In lieu of sleeping berth.
" 10 ...	Mr. Robertson	Compartment filled.
December 2 ...	Mr. J. Clarke	In lieu of sleeping berth.
" 9 ...	Mr. Wise, M.P.	" "
" 15 ...	Mr. Selway and party.....	Compartment filled.
" 20 ...	Mr. Morrice	Four passengers. One an invalid.
" 22 ...	Mr. Richardson	Compartment filled.
" 27 ...	4 Commissioners	Exhibition Commission.
" 30 ...	Mr. and Mrs. Lee	In lieu of sleeping berths.
1888.		
January 3 ...	Lady Innes	In lieu of sleeping berth.
" 3 ...	Mr. and Mrs. Biggs	In lieu of sleeping berths.
" 6 ...	Mrs. and Miss Prendergast.....	" "
" 9 ...	Premier of Queensland	Complimentary. "
" 10 ...	Hon. Mr. Dixon and two daughters.....	" "
" 11 ...	Lord Buckingham	" "
" 11 ...	Mr. Cliff	*Circumstances not remembered, but it is thought compartment was filled. To Bowral only.
" 17 ...	Mr. Jones	In lieu of sleeping berth.

Compartments reserved—*continued.*

Date.	Name.	Remarks
1888.		
January 19 ..	Reverend Mr. Watson	Compartment filled.
" 27 ...	Mr. and Mrs. Simmons	In lieu of sleeping berths.
" 30 ..	Dr. Cockburn and Mr. Bonnythorn ..	" "
" 30 ..	Hon. Mr. Bray and Mayor of Adelaide.	Returning from Centennial Celebrations.
" 30 ...	Mr. and Mrs. H. Bryant	In lieu of sleeping berths.
" 31 ...	Mr. Hamlin and party	" "
" 31 ..	Mr. C. Young and daughter	" "
" 31 ..	Mr. Orkney	In lieu of sleeping berth.
" 31 ..	Mr. McNorton and Dr. Hood	In lieu of sleeping berths.
" 31 ..	Hon. E. Barton, M.L.C.	For Burradoo. A compartment was reserved for Mr. Barton as Speaker, and the concession was not discontinued when he ceased to be Speaker; but Mr. Barton usually filled the compartment on the occasions when one was allowed him.
February 1 ...	Messrs. Burn and Gill	In lieu of sleeping berths.
" 1 ...	Messrs. Clarke and Henry	" "
" 1 ...	Bishop of Melbourne	" "
" 2 ...	Mr. Fitzgerald	In lieu of sleeping berth.
" 2 ..	M. C. H. James, M.L.A.	" "
" 2 ..	Mr. Want, M.P.	Compartment filled.
" 5 ..	Chief Justice Way	Complimentary.
" 6 ..	Mr. Thompson	Compartment filled.
" 7 ..	Mr. H. W. Venn, M.L.C.	In lieu of sleeping berth.
" 9 ..	P. L. Shepherd, M.L.C.	" "
" 9 ..	Mrs. Douglas and Son	In lieu of sleeping berths.
" 9 ...	Hon. E. Ward and Friends	Complimentary. Returning from Centennial Celebrations.
" 10 ..	Duke of Manchester	" "
" 10 ..	Sir H. Wrenfordsleigh	In lieu of sleeping berth.
" 14 ..	Mr. Dawson, M.P., and Mrs. Dawson	In lieu of sleeping berths.
" 16 ..	Mr. and Mrs. Maguire Heed ..	Compartment filled.
" 17 ...	Mr. Alderman Taylor	In lieu of sleeping berth.
" 21 ...	Messrs. Lee and Canter	In lieu of sleeping berths.
" 22 ..	Mr. and Mrs. Howe	" "
March 1 ..	Hon. S. A. Joseph, M.L.C.	Compartment filled.
" 2 ..	Mr. Wise	(Bowling)
" 2 ..	Messrs. Stephen	In lieu of sleeping berths.
" 2 ...	Hon. W. Clarke	" "
" 5 ..	Mrs. and Miss Thow	" "
" 6 ..	Mr. and Mrs. F. F. Hann	" "
" 9 ..	Party of Vocalists	Compartment filled.
" 30 ..	Mr. Griffiths	" "
" 21 ..	Mr. and Mrs. McDonald	In lieu of sleeping berths.
" 23 ...	Hon. J. F. Burns	" "
" 23 ..	Mr. Hart	Compartment filled.
" 29 ...	Mr. Wise and Party	" "
" 29 ..	Mr. Laidley and Party	" "
" 30 ..	Mr. W. W. Stephen and Mr. and Mrs Severn.	In lieu of sleeping berths.

1887.
(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(PASSENGER TRAFFIC BETWEEN SYDNEY AND HURSTVILLE FOR SIX MONTHS ENDED 30TH SEPTEMBER, 1887.)

Ordered by the Legislative Assembly to be printed, 18 November, 1887.

[Laid upon the Table of the House in accordance with promise made in answer to Question No. 15 on Votes and Proceedings of 2 November, 1887.]

RETURN showing the Passenger Traffic at each Station (to and from) between Sydney and Hurstville during the past six months.

(Mr. Hutchison.)

SUMMARY showing the total number and value of all Tickets issued to and from all Stations between Eveleigh and Hurstville, inclusive, for the six months ended 30th September, 1887.

Description of Ticket.	From.		To.	
	Number.	Amount.	Number.	Amount.
Passenger tickets	321,210	£ 8,112 s. 19 d. 7	213,784	£ 4,604 s. 7 d. 8
Season tickets	1,620	1,647 0 10	209	139 1 5
Weekly tickets	18,750	1,776 0 8	5,589	535 9 4
Total	341,580	11,536 1 1	219,582	5,278 18 5

RETURN showing the number and value of Passenger Tickets issued from and to all Stations between Eveleigh and Hurstville, inclusive, for the six months ended 30th September, 1887.

Station.	From.		To.	
	Number.	Value.	Number.	Value.
Eveleigh	75,216	£ 1,521 s. 1 d. 10	23,153	£ 298 s. 7 d. 8
Erskineville	25,442	658 12 8	15,922	222 1 3
St. Peters	39,436	783 19 4	31,995	378 3 7
Marrickville	40,833	809 17 1	22,038	323 11 1
Tempe	21,582	456 9 3	19,620	392 13 0
Arncliffe	20,818	525 1 10	18,041	383 18 1
Rockdale	38,333	1,140 3 3	36,416	969 15 3
Kogarah	27,850	952 17 3	25,223	794 8 4
Carlton	6,578	233 18 0	3,847	132 16 9
Hurstville	25,122	1,030 19 1	17,529	708 12 8
Total	321,210	8,112 19 7	213,784	4,604 7 8

RETURN showing the number and value of Season Tickets issued from and to all Stations between Eveleigh and Hurstville, inclusive, for the six months ended 30th September, 1887.

From.				To.				
Station.	Number.	Value.			Number.	Value.		
		£	s.	d.		£	s.	d.
Eveleigh	11	4	1	6	54	35	1	7
Erskineville	27	13	14	9	35	12	0	7
St. Peters	188	65	18	2	58	24	8	6
Marrickville	270	190	4	9	1	0	1	8
Tempe	271	225	18	2	14	4	1	5
Arncliffe	164	192	2	8	30	10	3	2
Rockdale	320	409	0	8	5	3	1	0
Kogarah	210	277	13	4	5	2	1	9
Carlton	43	36	17	5	6	47	15	0
Hurstville	116	222	9	5	1	0	6	9
Total	1,620	1,647	0	10	209	139	1	5

RETURN showing the number and value of Weekly Tickets issued from and to all Stations between Eveleigh and Hurstville, inclusive, for the six months ended 30th September, 1887.

From.				To.				
Station.	Number.	Value.			Number.	Value.		
		£	s.	d.		£	s.	d.
Eveleigh	2,331	357	0	5	185	18	14	11
Erskineville	1,819	129	5	9	485	43	12	1
St. Peters	2,810	173	3	10	641	54	3	2
Marrickville	3,088	235	12	0	504	39	9	3
Tempe	1,472	126	5	3	510	43	11	9
Arncliffe	1,188	111	19	0	705	60	14	6
Rockdale	2,492	262	18	7	998	95	3	2
Kogarah	1,547	177	0	7	785	82	11	10
Carlton	506	63	11	9	160	15	13	2
Hurstville	997	139	3	6	616	81	15	6
Total	18,750	1,776	0	8	5,589	535	9	4

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(SUNDAY TRAFFIC ON, DURING NOVEMBER, 1887.)

Ordered by the Legislative Assembly to be printed, 20 March, 1888.

[Laid upon the Table of the House in accordance with promise made by the Honorable the Secretary for Public Works, in answer to Question No. 4, in Votes and Proceedings No. 41, of the 13th December, 1887.]

RETURN showing the Number of Passengers travelled by rail within the limits of the Suburban Railways and the number of men employed within that radius on each of the four Sundays during the month of November, 1887; also the number of Goods Trains despatched from terminal stations on those days, and the tonnage and earnings of each.

Date.	Answer to Question No. 4.		Answer to Question No. 5.			
	Number of Passengers.	No. of men employed.	Name of Terminal Station.	No. of Trains despatched	Weight of Goods carried.	Earnings.
1887.					T. c. q.	£ s. d.
6 November ...	18,007	305	Darling Harbour ...	2	138 0 0	26 10 3
13 ,, ...	13,359	304	do ...	2	234 0 0	75 9 9
20 ,, ...	19,136	305	{ do ...	4	156 0 0	10 19 4
			{ Young ...	1	41 8 1	89 17 3
27 ,, ...	16,152	312	Darling Harbour ...	6	192 0 0	55 10 0
Total ...	66,654	.....	.....	15	761 8 1	258 6 7

NOTE.—4,822 season-ticket-holders are not included in the above, a great many of whom travel on Sunday.

The number of men employed include the day and night staff.

475 empty trucks were despatched by the trains leaving Darling Harbour, which were urgently required for the wool traffic.

The trains commenced their running at the following times:—

From Darling Harbour on the 6th November, 3:30 a.m. and 10:5 p.m.

„ „ 13th „ 4:0 a.m. „ 10:5 p.m.

„ „ 20th „ 1:0 a.m., 3:30 a.m., 7:5 a.m., and 10:5 p.m.

„ „ 27th „ 2:5, 2:30, 4:15, and 5:45 a.m., and 7:5 and 10:5 p.m., and the Young special left at 8:20 a.m.

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(RETURN RESPECTING PASSENGER TRAFFIC ON GREAT NORTHERN AND NORTH-WESTERN LINES.)

Ordered by the Legislative Assembly to be printed, 18 April, 1888.

[Laid upon the Table of the House, in accordance with promise made by the Honorable the Secretary for Public Works, to Mr. Thompson, in answer to Question No. 10, on Votes and Proceedings No. 76, of the 11th April, 1888.]

QUESTIONS AND ANSWERS.

1. What has been the number of first and second class passengers by rail from Sydney to all Stations on the Great Northern and North-western Lines (including Queensland passengers), for the months of January, February, and March, 1888, respectively?

	1st Single.	2nd Single.	1st Return.	2nd Return.
January	484	798	796	1,859
February	545	997	631	1,017
March	646	1,242	1,027	1,790

Representing 18,952 journeys.

2. What are the fares for the single journey, first and second classes respectively, between Sydney and Newcastle?

3. The same for return journey?

1st Single.	2nd Single.	1st Return.	2nd Return.
s. d.	s. d.	s. d.	s. d.
12/6	7/6	18/9	11/3

4. The same information as under questions 2 and 3 as to the fares for single and return journeys from Sydney to East and West Maitland respectively?

	1st Single.	2nd Single.	1st Return.	2nd Return.
	s. d.	s. d.	s. d.	s. d.
East Maitland	15/1	9/2	22/8	13/9
West Maitland	15/6	9/4	23/3	14/-

5. The same information as under questions 2 and 3 for single and return journeys from Newcastle, West Maitland, and East Maitland, respectively, to Sydney?

	1st Single.	2nd Single.	1st Return.	2nd Return.
	s. d.	s. d.	s. d.	s. d.
Newcastle to Sydney	12/6	7/6	18/9	11/3
East Maitland to Sydney	15/1	9/2	22/8	13/9
West Maitland to Sydney	15/6	9/4	23/3	14/-

6. The same information as to fares for journeys from Sydney to stations on Western and Southern lines, about the same distances as Newcastle, East and West Maitland, respectively?

	1st Single.	2nd Single.	1st Return.	2nd Return.
	s. d.	s. d.	s. d.	s. d.
Fares same distance as Newcastle on South and West Lines	18/3	11/9	27/3	17/9
Do East Maitland do	20/9	13/9	31/3	20/6
Do West Maitland do	21/3	14/-	32/-	21/-

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(TRAFFIC AT NARRABRI STATION DURING 1886-7.)

Ordered by the Legislative Assembly to be printed, 15 March, 1888.

[Laid upon the Table of the House in accordance with promise made in answer to Question No. 6 on Votes and Proceedings No. 55 of the 21st February, 1888.]

RETURN of traffic to and from Narrabri for the years 1886 and 1887, showing an increase for 1887.

GREAT NORTHERN RAILWAY.

1886.											1887.											Increase for 1887.		
Coaching amount.			Goods tonnage.			Goods amount.			Bales of Wool.	Total amount, 1886.	Coaching amount.			Goods tonnage.			Goods amount.			Bales of Wool.	Total amount, 1887.	Bales of Wool.	Goods tonnage.	Amount.
Inwards.	Outwards.	Total.	Inwards.	Outwards.	Total.	Inwards.	Outwards.	Total.			Inwards.	Outwards.	Total.	Inwards.	Outwards.	Total.	Inwards.	Outwards.	Total.					
£	£	£	Tons	Tons	Tons	£	£	£	No.	£	£	£	£	Tons	Tons	Tons	£	£	£	No.	£	No.	Tons	£
5,762	5,168	10,930	7,408	*5,132	12,540	19,451	21,863	41,314	23,983	52,244	6,161	5,054	11,215	7,667	18,126	15,793	22,709	30,446	53,155	45,454	64,370	21,471	3,253	112,126

* This tonnage is composed of 4,342 tons of wool and 790 tons of other goods, included in which is 405 tons of railway material forwarded to Glen Innes.

† This tonnage is composed of 7,736 tons of wool and 390 tons of other goods.

‡ This is made up of traffic to and from Narrabri with other stations, principally Newcastle and Morpeth, so that a large portion of same (about two-thirds probably) is the earnings of other than the North-western Line.

1887.

(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

RAILWAYS.

(TRAFFIC TO AND FROM NARRABRI STATION, FROM 1 JANUARY TO 31 OCTOBER, 1887.)

*Ordered by the Legislative Assembly to be printed, 16 December, 1887.**[Laid upon the Table of the House in accordance with promise made in answer to Question No. 2 on Votes and Proceedings No. 29 of the 18th November, 1887.]*

RETURN of Railway Traffic to and from Narrabri Station, from 1st January to 31st October, 1887 :—

- (1.) The tonnage carried by rail to Narrabri from 1st January, 1887, to 31st October last?
6,384 tons.
- (2.) The number of bales of wool carried from Narrabri to Morpeth and Newcastle during the same period?
To Newcastle, 17,452 bales.
To Morpeth, 12,062 bales.
- (3.) A like return of quantity of live stock and other produce forwarded from Narrabri during these dates?
The numbers of live stock forwarded from Narrabri were as under :—
Horses, 61; cattle, 1,455; sheep, 80,184; pigs, 2; calves, 22.
Tonnage of produce forwarded from Narrabri Station, 5,435 tons, including weight of wool, which amounted to 5,017 tons 6 cwt.

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(TRAFFIC AT MURRUMBURRAH PLATFORM DURING 1887.)

Ordered by the Legislative Assembly to be printed, 15 March, 1888.

RETURN to an *Order* of the Honorable the Legislative Assembly of New South Wales, dated 23rd February, 1888, That there be laid upon the Table of this House,—

- “(1.) The total tonnage of goods, inwards and outwards, received at and transmitted from the Murrumburrah platform and siding during the year 1887 (exclusive of on service and locomotive traffic) ?
- “(2.) The actual revenue derived from the Murrumburrah platform and siding from all sources during the year 1887 ?
- “(3.) The total number of passengers booked to and from Murrumburrah during the year 1887 ?
- “(4.) The number of men employed and the amount paid them respectively at Murrumburrah for the working of the said traffic ?”

(*Mr. Gordon.*)

REPLIES.

- (1.) 4,182 tons inwards, 4,817 tons outwards.
 (2.) £5,768 from all sources.
 (3.) 3,740 passengers, inwards; 5,665 passengers outwards.
 (4.) 2 men employed; £266 14s. expenditure.
 The staff at Murrumburrah has recently been increased by one junior porter.

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(TRAFFIC AT HARDEN STATION, DURING 1887.)

Ordered by the Legislative Assembly to be printed, 15 March, 1888.

RETURN to an *Order* of the Honorable the Legislative Assembly of New South Wales, dated 23rd February, 1888, That there be laid upon the Table of this House,—

- “(1.) The total tonnage of goods, inwards and outwards, received at and transmitted from the Railway Station, at Harden, during the year 1887 (exclusive of on service and locomotive traffic) ?
- “(2.) The actual revenue derived from the Harden Railway Station, from all sources, during the year 1887 ?
- “(3.) The total number of passengers booked, to and from Harden, during the year 1887 ?
- “(4.) The number of men employed, and the amount paid them respectively, at Harden Station, for the working of the said traffic ?”

(*Mr. Gordon.*)

REPLIES.

- (1.) 909 tons, inwards ; 1,060 tons, outwards.
(2.) £5,600, from all sources.
(3.) 6,088 passengers, inwards ; 6,931 passengers, outwards.
(4.) 11 men employed ; £1,468 13s. 4d. expenditure.

There is one gate-keeper employed at Harden Station, receiving 5s. per week, not included in the above Question No. 4.

The expenditure at Harden is greater than at Murrumburrah, for the reason that it is the changing Station for passengers for and from the Murrumburrah and Blayney Line. It is also a locomotive depôt where goods trains are marshalled, and a Telegraph Repeating Station.

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(RETURN SHOWING FARES AND FREIGHTS ON THE HOMEBUSH-WARATAH LINE.)

Ordered by the Legislative Assembly to be printed, 13 June, 1888.

[Laid upon the Table of the House, in accordance with promise made by the Honorable the Secretary for Public Works, in answer to Question No. 5 in Votes and Proceedings, No. 81, of the 24th April, 1888.]

QUESTIONS AND ANSWERS.

2. What goods have been brought by the Homebush-Waratah Line to Sydney, specifying quantities and descriptions?

FROM Northern Stations to Stations on Southern and Western Lines, from February 17th to April 16th, 1888.

Station.	Description.	Weight.	Station.	Description.	Weight.
		t. c. q.			t. c. q.
Tamworth	56 bags wheat	6 8 3	Tamworth	123 bags wheat	14 6 2
Do	60 do	6 3 1	Currabubula	50 do	5 8 2
Do	60 do	6 3 2	Tamworth	111 do	12 3 2
Do	67 bags flour	6 0 0	Do	110 do	11 14 2
West Tamworth..	37 bags wheat	5 8 3	West Tamworth..	52 do	6 0 0
Do	51 do	4 3 2	Tamworth	109 do	12 6 0
Armidale	132 bundles straw	5 8 1	Armidale	6 cases samples	0 5 0
Tamworth	134 bags wheat	15 1 1	Do	55 bags wheat	6 0 0
Armidale	132 bundles straw	4 17 1	Do	47 cases fruit	1 5 0
Terrible Vale	448 bags chaff	18 0 0	Tamworth	2 packages tables	0 0 3
Tamworth	54 bags wheat	12 1 2	Do	1 package t. work	0 0 1
Do	54 do	12 1 2	Do	1 case specimens.. ..	0 1 0
West Tamworth..	97 do	10 16 1	Wallongarra	1 bundle kangaroo skins..	0 1 1
Tamworth	52 do	6 3 3	Terrible Vale.....	296 bags chaff	12 0 0
Do	120 do	12 12 3	Tentenhill	121 bags wheat	11 1 2
Do	67 bags flour	6 0 0	East Maitland	278 hides (wet)	6 0 0
Do	104 bags wheat	11 14 0	Duri	79 bags wheat	7 18 0
East Maitland ..	1 box clothing.....	0 1 1	Uralla	1 box specimens	0 1 3
Currabubula	55 bags wheat	5 18 3	Armidale	264 bales straw	9 3 3
Terrible Vale	444 bags chaff	18 0 0	Glen Innes	1 case drapery	0 1 2
Do	148 do	6 0 0	Tamworth	60 bags wheat	6 7 0
West Tamworth..	58 bags wheat	6 0 0	Do	67 bags flour	6 0 0
Armidale	132 bundles straw	4 17 0	Do	1 bundle rabbit skins.....	0 0 2
Do	1 bundle kangaroo skins..	0 1 0	Do	316 bags wheat	35 17 3
Quirindi	1 bundle sheep skins	0 0 2	Armidale	54 do	6 0 0
Do	55 bags wheat	5 12 0	Tamworth	356 do	42 0 0
Tamworth	1 case boots	0 1 2	Currabubula	50 do	6 0 0
Do	1 bundle kangaroo skins..	0 1 0	Singleton	1 case eggs	0 0 3
Armidale	132 bales straw	6 0 0	Do	Quantity furniture	1 0 0
Tenterfield	2 empty return cases	0 0 3	Do	1 piano	1 0 0
Walcha Road	1 box clothing.....	0 1 1	Armidale	105 bags wheat	12 0 0
Do	1 package luggage	0 0 2	Tamworth	54 do	5 11 0
Tamworth	69 bags potatoes	6 0 3	Armidale	1 bag straw	0 5 0
Currabubula	105 bags wheat	11 11 2	Do	1 case w. work	0 5 0
Armidale	54 do	6 8 0	Gunnedah	1 package belting	0 1 0
Tamworth	115 do	12 9 3	Tamworth	201 bags wheat	36 7 0
Wyong	25 bags wattlebark	1 8 0	Do	165 do	6 5 3
West Tamworth..	57 bags wheat	6 0 0	Currabubula	55 do	6 3 1
Terrible Vale.....	444 bags chaff	18 0 0	Armidale	55 do	6 3 1
Armidale	60 bags wheat	6 10 0	Wingen	3 bags potatoes	0 5 0
West Maitland ..	2 casks colonial wine.....	0 4 0	Quipolly	150 bags wheat	14 19 0
Armidale	132 bales straw	4 5 3	Quirindi	60 do	6 10 3

Station.	Description	Weight.	Station.	Description	Weight
		t. c. q.			t. c. q.
Terrible Vale	444 bags chaff	12 0 0	Dundee	1 bundle skins	0 0 3
Armidale	73 bags wheat	8 8 3	Tamworth	52 bags wheat	6 0 0
Do	1 case stone	0 1 0	Do	53 do	6 0 0
Do	2 cases fruit	0 1 0	Do	112 do	12 2 0
Tamworth	4 bundles sheep skins	0 8 2	Do	6 bales wool, and 1 pocket wool	0 18 0
Do	120 bags wheat	12 7 2	Do	1 bundle kangaroo skins.	0 1 1
Do	56 green hides	1 8 0	Do	1 bale wool	0 0 3
Quirindi	56 bags wheat	6 0 0	Narrabri	30 bales straw	2 3 1
West Tamworth	55 do	6 0 0	Armidale	132 do	4 17 3
Walongarra	2 bundles rabbit skins	0 1 0	Singleton	13 bags potatoes	1 10 3
West Maitland	2 cases boots	0 4 0	West Tamworth	120 bags wheat	12 16 0
Tamworth	112 bags wheat	12 0 0	Tamworth	54 do	6 2 2
Terrible Vale	148 bags chaff	4 0 0	Scone	22 bags barley	2 5 0
Quipolly	267 bags wheat	29 19 0	Wyong	5 36-gallon ale casks	0 2 0
Wyong	8 baskets fish	0 10 0	Do	Quantity stores	0 10 0
Glen Innes	1 box specimens	0 0 3	Armidale	53 bags wheat	6 1 0
Armidale	264 bales straw	9 9 0	Do	264 bales straw	8 15 1
West Maitland	151 hides (wet)	3 16 1	Tamworth	199 bags wheat	24 0 0
Moonbi	1 box fruit	0 1 0	Do	6 casks tallow	2 11 2
Tamworth	71 bags wheat	6 10 0	Do	56 bags wheat	6 5 0
Singleton	2 cases eggs	0 0 1	Armidale	140 bags chaff	5 12 2
Wyong	25 bags bark	1 5 0	Breeza	55 do	5 19 3
Armidale	54 bags wheat	6 2 0	Currabubula	101 do	12 0 0
Do	132 bales straw	4 17 1	Ourimbah	19 bags wattle bark, 1 bag	1 2 3
Do	50 bags quartz	2 0 0	Uralla	55 bags wheat	5 2 2
Branxton	1 empty return case	0 2 3	Armidale	54 do	6 4 0
Uralla	150 bags chaff	4 5 0	West Maitland	98 hides	2 13 2
Tamworth	164 bags wheat	16 18 2	Singleton	14 bales hay	3 15 0
Do	242 do	30 0 0	West Maitland	43 hides	1 3 3
Farley	1 bag tents	0 2 0	Singleton	3 boxes eggs	0 14 1
West Tamworth	48 bags wheat	5 12 1	Do	4 coops poultry	0 14 1
Narrabri	11 bundles sheep skins	1 2 0	Do	3 boxes pigeons	0 14 1
Gunnedah	4 boxes clothing	0 5 0	Do	1 box eggs	0 0 3
Breeza	108 bags wheat	11 18 3	Do	1 box beeswax	0 0 3
West Tamworth	1 bag bacon	0 1 2	Currabubula	55 bags wheat	6 0 0
Tamworth	220 bags wheat	24 12 1	West Tamworth	90 do	10 0 0
Do	1 bundle kangaroo skins.	0 0 1	Tamworth	55 do	6 4 3
Do	120 bags old wheat	12 2 3	Armidale	132 bales straw	4 3 3
Ourimbah	4 empty return cases	0 0 3	Tamworth	64 bags wheat	6 0 0
Woy Woy	15 bags rags	1 0 0	West Tamworth	100 do	11 18 0
Do	8 packages tin lining	0 4 0	Armidale	132 bales straw	4 5 2
Do	3 bags bones	0 5 0	Wyong	1 empty return keg	0 1 0
Terrible Vale	130 bags wheat	10 5 0	Gunnedah	1 case	0 0 2
West Tamworth	56 do	6 0 0	Breeza	35 bags wheat	3 15 2
Quirindi	40 do	4 9 0	Currabubula	101 do	11 12 1
Currabubula	52 do	6 5 0	Narrabri	1 case glass	0 1 0
Tamworth	236 do	17 12 0	West Maitland	1 case hardware	1 1 2
Black Mountain	2 10-gallon kegs	0 0 2	Ourimbah	1 do	0 10 0
Glencoe	3 bags vegetables	0 3 0	Do	2 boxes	0 5 0
Werris Creek	31 bags wheat	3 2 2	Do	1 bundle tents	0 1 2
Branxton	40 bags potatoes	3 8 0	Tamworth	53 bags wheat	6 0 0
Tamworth	52 bags wheat	6 0 0	Armidale	132 bales straw	4 8 0
Do	51 green hides	1 5 0	Tenterfield	1 case harness	0 1 1
Armidale	107 bags wheat	11 19 2	Armidale	140 bags chaff	5 17 0
Tamworth	2 bags horns	0 4 0	Do	132 bales straw	4 10 0
Do	3 bags shank bones	0 5 0	Singleton	1 bag pumpkins	0 0 3
Do	6 bales skins	0 10 0	West Tamworth	50 bags wheat	5 9 0
Singleton	2 cases eggs	0 1 2	Walongarra	1 bundle kangaroo skins.	0 1 0
Armidale	132 bales straw	4 13 0	Narrabri	75 green hides	1 16 1
Walongarra	1 bag wool	0 0 1	Uralla	1 box specimens	0 0 3
Do	2 bundles dry hides	0 0 3	Armidale	132 bales straw	4 8 1
Do	2 bundles kangaroo skins	0 3 0	Black Mountain	60 bags wheat	6 17 0
Ourimbah	4 empty return butter kegs	0 0 2	Tamworth	54 sacks wheat	6 0 0
Uralla	1 box species	0 0 2	Do	3 bales greasy wool	0 8 2
Wyong	13 bags wattlebark	0 13 0	Walongarra	1 bale kangaroo skins	0 1 0
Armidale	132 bales straw	4 10 0	Do	2 bales wool	0 7 2
Do	140 bags chaff	5 10 1	Wyong	Quantity fellos	2 0 0
Do	54 bags wheat	6 2 0	Walongarra	1 bale skins	0 1 0
Tamworth	2 packages D traps	0 1 1	Currabubula	55 bags wheat	5 19 0
West Maitland	106 hides	2 12 2	Werris Creek	1 bale kangaroo skins	0 1 0
Singleton	71 bags potatoes	6 11 3	West Maitland	1 bag potatoes	0 1 2
Tenterfield	1 bundle pit-saws	0 0 2	Musclebrook	8 e.c. boxes	0 0 2
Do	1 case clocks	0 0 3	Glen Innes	1 case hardware	0 2 0
Do	1 bag wheat	0 1 0	West Maitland	240 hides	5 16 2
Do	1 bundle kangaroo skins.	0 1 2	Duri	150 bags wheat	18 0 0
West Tamworth	56 bags wheat	6 0 0	Ourimbah	35 hides	0 19 2
Narrabri	63 green hides	1 11 0	Do	1 bundle sheep skins	0 19 2
Do	8 cases tallow	2 12 0	Do	1 bag horns	0 19 2
Do	4 bags horns	0 1 1	Do	1 bag bones	0 19 2
Werris Creek	1 case hose	0 1 1	Gosford	Quantity lamp utensils	0 12 0
Breeza	54 bags wheat	5 13 1	Breeza	1 cask tallow	0 3 0
Tenterfield	1 case clothing	0 2 2	Currabubula	50 bags wheat	6 1 0
Do	1 cabinet	0 2 2	Branxton	2 tin boxes clothing	0 1 3
Armidale	132 bales straw	4 13 1	Do	2 wood boxes clothing	0 1 3
West Maitland	37 hides	1 0 0	Armidale	132 bales straw	4 14 3
Singleton	54 bags maize	6 3 3	Black Mountain	2 kegs butter	0 1 3
Newcastle	1 telephone	0 1 2	Tamworth	52 bags wheat	6 0 0
Tamworth	3 bags horns	1 16 0	Do	1 bundle kangaroo skins.	0 1 2
Do	2 bales horns	0 0 2	Do	2 bundle opossum skins.	0 0 2
Do	21 bags bones	0 0 3	Do	1 circular saw	0 0 3
Do	192 bags wheat	24 0 0			

Station.	Description.	Weight.	Station	Description.	Weight.
		t. c. q.			t. c. q.
Tenterfield	1 case crude ore	0 0 3	Rex's Creek	Quantity coke, in bags	45 0 0
Narrabri	25 bales sheep skins	1 18 1	Murrurundi	7 bags hardware	
Armidale	132 bales straw	4 18 0	Do	1 tin trunk clothing	
Do	18 bales sheep skins	1 10 2	Do	2 boot trunks clothing	1 7 0
Walcha Road	150 bags chaff	6 0 0	Do	3 packages bedsteads	
Singleton	1 parcel drapery	0 0 2	Do	1 package bedding	
Duri	60 bags wheat	6 0 0	Do	4 packages furniture	
Farley	1 tin tea	0 0 3	Quirindi	56 packages wheat	6 0 0
Do	1½ chest tea	0 0 3	Singleton	5 cases New South Wales wines.	0 5 0
Currabubula	14 bales lucerne hay	3 2 0	Narrabri	14 bundles sheep and wallaby skins.	1 2 1
Gunnedah	1 bundle kangaroo and wallaby skins	0 1 1	Do	3 bags horns	
Do	1 bundle kangaroo skins		Do	82 green hides	1 13 0
Quirindi	61 bags wheat	6 0 0	Do	2 cases clothing	
Uralla	55 do	6 3 2	Tenterfield	1 box clothing	
Walongarra	1 trunk clothing	0 12 0	Do	1 hat box	
Do	6 wood boxes clothing		Do	1 bundle bedding	0 5 0
Murrurundi	1 sewing machine	0 1 0	Do	1 machine stand	
East Maitland	2 boxes clothing	0 5 0	Do	1 broom	
Currabubula	104 bags wheat	12 0 1	Do	1 galvanized tub and packet	0 6 0
East Maitland	9 cases clothing		Gosford	7 cases clothing	
Do	2 boxes		Do	68 hides	1 14 0
Do	1 box hardware		West Maitland	4 cases graphide	0 3 2
Do	1 package bedding	1 0 0	Walongarra	130 hides	3 6 0
Do	1 case oil painting		West Maitland	5 bags hair	0 3 0
Do	1 package washstand		Do	1 bag opossum skins	0 0 1
Do	1 chair		Do	1 bundle kangaroo skins	0 0 1
Do	1 case organ		Do	2 bundles opossum skins	0 1 1
M'Donald River.	38 bales wool	5 5 1	Do	23 bundles sheep skins	1 16 2
Werris Creek	5 cases hardware	0 15 0	Do	120 bags bran	5 14 0
Do	1 box bedding		Do	1 bundle opossum skins	0 0 2
Musclebrook	3 trunks clothing		Black Mountain	6 cases fruit	0 2 3
Do	3 boxes clothing	0 8 0	Armidale	10 bags barley	1 0 1
Do	1 case clothing		Musclebrook	7 circular saws	0 3 0
Do	1 package saddlery		Uralla	1 bundle kangaroo skins	0 2 3
West Maitland	253 hides	6 0 0	Walongarra	1 do	0 1 0
Willow-tree	50 bags wheat	5 18 2	Gunnedah	1 bundle wallaby skins	0 1 0
Currabubula	50 do	5 18 3	Do	2 bags lucerne seed, 1 package.	0 1 1
Quirindi	57 do	6 0 0	Whittingham	1 package wax, 1 cake	0 1 1
Walongarra	1 bundle kangaroo skins	0 1 0	Do	54 bags wheat	6 1 2
Musclebrook	1 case glassware		Do	1 bag opossum skins	0 0 2
Do	1 case wearing apparel		Do	1 bundle dry hides	0 2 3
Do	3 yellow travelling trks.	0 7 0	Do	bundle kangaroo skins	
Do	1 black leather port-manteau		Do	523 bags wheat	53 0 0
Duri	1 bundle opossum skins	0 0 2	Do	132 do	12 0 0
Tamworth	1 bundle kangaroo skins	0 1 3	Armidale	16 cases, 1 piano	1 0 0
Do	3 bundles wallaby skins	0 4 3	Singleton	14 bales hay	4 1 2
Do	1 box castings	0 0 3	Do	1 bag pumpkins	0 1 1
M'Donald River	1 bundle kangaroo skins	0 1 2	Walongarra	2 bales kangaroo skins	0 4 0
Uralla	1 bag specimens	0 1 0	Quirindi	107 bags wheat	10 12 0
Black Mountain	1 bundle calf skins	0 1 0	Rex Creek	750 bags coke	30 0 0
Do	1 bundle sheep and opossum skins.	0 1 0	Qurimbah	12 empty casks	0 3 0
Armidale	2 sewing machines	0 1 2	Quirindi	50 bags wheat	6 0 0
Do	1 paper parcel		Do	25 do	2 11 0
Glenceoe	53 bags wheat	6 0 0	Singleton	3 coops poultry	0 3 0
East Maitland	1 case clothing		West Maitland	66 bags flour	6 0 0
Do	3 boxes clothing	0 10 0	Tamworth	54 do	6 0 0
Do	1 box hardware		Wyong	3 bags coke	0 6 0
Glen Innes	1 bundle kangaroo skins	0 0 2	Scone	2 bundles greasy wool	0 7 3
Tamworth	2 bundles opossum skins	0 0 3	Do	1 bag do	
Do	1 bag lamb skins	0 0 2	Do	3 bundles skins	0 5 3
Do	50 bags wheat	5 9 3	Do	2 dry hides	
West Maitland	8 bags bones	0 12 2	Tamworth	88 bags pollard	5 15 2
Do	8 bags rags		Glen Innes	1 case tools	0 1 0
Do	4 boxes broken glass	0 6 2	Do	4 empty return jars	0 2 3
Do	5 scrap zinc		Walongarra	6 bundles kangaroo skins, and 1 bag	0 10 1
Do	2 packages lead	0 11 0	Do	4 bags horns	
Do	4 boxes zinc		Tamworth	132 bags bran	6 0 0
Do	2 bags bones		Armidale	36 bags potatoes	3 0 0
Fassefern	6 bundles shovels	0 3 3	Terrible Vale	298 bags chaff	8 0 0
Guyra	1 basket tools	0 0 1	Singleton	14 bales hay	3 10 0
Tamworth	55 bags wheat	6 0 0	Glen Innes	6 bags hair	0 3 0
Do	1 bale kangaroo skins	0 2 0	Scone	274 bags gold quartz	16 17 2
Do	53 green hides	1 5 2			
Armidale	5 cases bottles				
Do	5 whisky jars	0 4 0			
Do	1 drum				
					1,629 13 1

3. What has it cost to convey these goods from Mullet Creek to the Hawkesbury? £199 7s.
4. What load of goods can an engine ordinarily employed on goods traffic bring from Hawkesbury to Beroura without danger? From 135 to 148 tons, according to class of engine engaged.
5. Has any person contracted to carry goods between Mullet Creek and Hawkesbury Stations; if so, for how long, and at what rate? Yes. £5 per day, from the 17th April last. No contract has been made as regards currency of contract.

1887.

(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

RAILWAYS.

(FREIGHT PAID BY CONTRACTORS FOR CARRIAGE OF PLANT AND MATERIALS, 1883 TO 1886.)

*Ordered by the Legislative Assembly to be printed, 28 September, 1887.**[Laid upon the Table of the House in accordance with promise made in answer to Question No. 12 on Votes and Proceedings No. 52, of the 28th June, 1887.]*

RETURN showing the amount of money paid to the Railway Department for the carriage of plant and material by the various Railway Contractors for extensions for the years 1883, 1884, 1885, and 1886 respectively.

	1883.	1884.	1885.	1886.	Total.
	Amount.	Amount.	Amount.	Amount.	
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
G.S.W. & R. Railways	2,066 0 10	15,047 3 6	32,791 5 8	31,178 6 6	81,082 16 6
G.N. Railway... ..	7,410 5 11	5,909 16 5	5,087 9 3	3,160 14 9	21,568 6 4
Grand total ...	9,476 6 9	20,956 19 11	37,878 14 11	34,339 1 3	102,651 2 10

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(RETURN SHOWING QUANTITY OF SILVER ORE CARRIED ON NORTHERN LINE OF)

Ordered by the Legislative Assembly to be printed, 23 July, 1888

[Laid upon the Table of the House in accordance with promise made by the Honorable the Secretary for Public Works in answer to Question No. 1 on Votes and Proceedings No. 114 of 11th July, 1888.]

QUESTION.

WHAT quantity of Silver Ore has been carried by Rail during each Month, for the Year ending 30th June, from the Queensland Border and the several intermediate Stations respectively, to Newcastle, Morpeth, and Sydney respectively?

ANSWER.

GREAT NORTHERN RAILWAY.

STATEMENT of Silver Ore carried by Rail during each Month, for the Year ending 30th June, 1888, from Northern Stations to Newcastle, Morpeth, and Sydney.

Months.	Quantity received at Newcastle from undermentioned Stations					Quantity received at Morpeth from undermentioned Stations					Quantity received at Sydney from undermentioned Stations.				
	Deepwater	Tenterfield	Bolivia	Wallangarra	Total	Deepwater	Tenterfield	Glen Innes.	Wallangarra	Total	Uialla	Deepwater.	Tenterfield.	Wallangarra.	Total.
1887.	tons cwt qrs	tons cwt qrs.	tons cwt qrs	tons cwt qrs	tons cwt qrs	tons cwt qrs	tons cwt qrs	tons cwt qrs	tons cwt qrs	tons cwt qrs	tons cwt qrs	tons cwt. qrs	tons cwt. qrs	tons cwt qrs	tons cwt q .
July . . . . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
August .. . . .	..	10 2 1	..	..	18 2 1	..	..	..	..	..	..	..	..	..	..
September .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
October .. . . .	..	..	..	..	..	..	20 5 0	..	..	20 5 0	..	..	..	..	..
November .. . . .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
December .. . . .	..	0 12 2	..	..	0 12 2	..	..	..	..	..	..	..	..	..	..
1888.	tons cwt qrs	tons cwt qrs.	tons cwt qrs	tons cwt qrs	tons cwt qrs	tons cwt qrs	tons cwt qrs	tons cwt qrs	tons cwt qrs	tons cwt qrs	tons cwt qrs	tons cwt. qrs	tons cwt. qrs	tons cwt qrs	tons cwt q .
January... .. .	..	..	..	..	..	1 18 2	10 6 0	..	..	12 4 2	..	0 0 3	..	..	0 0 3
February .. . . .	..	15 3 3	..	..	15 3 3	..	..	..	..	..	..	0 0 1	..	..	0 0 1
March	0 1 0	23 15 2	..	..	23 16 2	0 11 3	..	..	..	0 11 3	..	0 0 2	..	..	0 0 2
April	10 11 3	20 3 0	..	..	30 14 3	..	..	..	..	..	..	0 2 3	..	..	0 2 3
May	29 13 1	48 19 2	..	..	78 12 3	0 16 2	..	..	..	0 16 2	0 7 0	0 9 2	0 3 2	..	1 0 0
June	0 0 3	29 11 3	0 1 3	..	29 14 1	..	..	..	..	..	0 15 2	2 2 2	..	..	2 18 0
	40 6 3	148 8 1	0 1 3	..	188 16 3	3 6 3	30 11 0	..	..	33 17 3	1 2 2	2 16 1	0 3 2	..	4 2 1

Sydney, 4 tons 2 cwt. 1 qr. ; Newcastle, 188 tons 16 cwt. 3 qrs ; Morpeth, 33 tons 17 cwt 3 qrs Total, 226 tons 16 cwt. 3 qrs.

1887.

(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

RAILWAYS.

(REBATES ON CARRIAGE OF STOCK, WHEAT, &c., DURING 1883, 1884, 1885, AND 1886.)

*Ordered by the Legislative Assembly to be printed, 27 September, 1887.**[Laid upon the Table of the House, in accordance with promise made by the Honorable the Secretary for Public Works, in answer to Question No. 7 on Votes and Proceedings of the 29th July, 1886.]*

RETURN relative to Rebates allowed by the Railway Department during the years 1883, 1884, 1885, and 1886.

SUMMARY.

REBATES granted during 1883, 1884, 1885, and 1886.

Nature of Rebate.	1883.	1884.	1885.	1886.	Total.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Starving stock	165 15 10	1,206 3 0	3,092 19 7	693 19 4	5,158 17 9
Wheat and flour ...	939 1 3	1,151 7 11	1,232 19 3	.....	3,323 8 5
Wool ...	141 6 0	27 15 11	8 8 9	25 8 6	202 19 2
Total ...	1,246 3 1	2,385 6 10	4,334 7 7	719 7 10	8,685 5 4

LIST of Rebates granted in connection with the Carriage of Starving Stock.

Year.	To whom granted.	Amount of Rebate.	By what authority granted.	Year.	To whom granted.	Amount of Rebate.	By what authority granted.	
		£ s. d.				£ s. d.		
1883	Lyne	25 18 3	Stock Inspectors' certificates.	1884	Moses	23 17 1*	Stock Inspectors' certificates.	
"	Aarons	1 1 6		"	Cook	1 5 4*		
"	Do	2 3 0		"	Bacon & Co....	5 12 4*		
"	Stooke	3 18 7		"	Fitzgerald	1 8 1*		
"	Renihard	1 9 10		"	Eckford	1 13 8*		
"	MacCulloch	15 15 7		"	Jones	1 7 2*		
"	Do	37 8 4		"	Towns	4 1 6*		
"	Do	10 2 9		"	Knight	3 2 0*		
"	Day	7 3 5		"	McGee	0 13 8*		
"	Do	12 15 0		"	Mackay	1 13 0*		
"	Johnson	5 7 6		"	Johnson	3 12 6*		
"	Brown	10 18 9		"	Towns	9 15 9*		
"	Cook	31 13 4*		"	York	1 11 1*		
					"	Brunker & Wolfe		19 2 8*
1884	Learmonth	2 6 10			"	Hall		0 18 2*
"	Armstrong	57 1 4			"	Donkin & Du Faur		8 3 8*
"	Kite	36 13 0			"	Enright		3 7 0*
"	Leeds... ..	2 3 0			"	Wild		1 7 4*
"	Toohy	9 13 6			"	Knight		3 2 0*
"	Lyons	1 4 0		"	Buchanan	3 7 0*		
"	Brown & Heanes	42 1 6		"	Turner	5 0 6*		
"	Leeds... ..	15 1 0		"	Bassett	16 11 3*		
"	Lane	0 18 9		"	Garnham	2 7 2*		
"	Bourke & Co.	6 9 0		1885	Rutledge	84 11 0		
"	Hill, Clark, & Co.	7 8 6		"	Smith & Co.	35 12 4		
"	Kite	2 9 2		"	Langton	1 1 0		
"	Osborne	10 14 2		"	McCaughy	1 13 6		
"	Gibson	64 11 10		"	Do	44 1 6		
"	Leeds... ..	2 16 4		"	Do	148 8 0		
"	Gibson	36 13 9		"	Douglas	63 16 3		
"	Wilds	0 15 6		"	Whittingham	118 16 0		
"	Hill, Clark, & Co.	3 4 6		"	Finlay & Co.	154 15 10		
"	Delhunty	0 14 4		"	McCaughy	95 14 4		
"	Learmonth & Gillespie	1 4 5		"	Do	98 18 3		
"	Kater... ..	0 17 1		"	Do	13 18 9		
"	Smith... ..	9 14 6		"	Do	15 7 11		
"	Cook	3 2 0		"	Do	133 1 2		
"	Hay & Bean	5 2 7		"	Do	104 13 10		
"	McCulloch	15 14 6		"	Do	5 2 10		
"	Hall	3 4 6		"	Stewart	14 19 0		
"	McCulloch	18 10 0		"	Evans... ..	27 15 4		
"	Toohy	6 9 0		"	Wilkinson, Graves, & Lavender.	64 9 11		
"	Kater... ..	2 4 10		"	Robertson	135 1 5		
"	Learmonth & Co.	1 4 5		"	Do	25 4 6		
"	Smith & Co.	10 9 5		"	Palmer	22 1 6		
"	Antill... ..	0 10 0		"	Wilkinson & Co.	87 15 0		
"	Hill, Clark, & Co.	20 3 4		"	Do	83 14 0		
"	Smith... ..	26 10 10		"	Do	100 7 5		
"	Do	44 0 8		"	Do	90 0 7		
"	Lane	1 4 10		"	Do	117 10 6		
"	Smith... ..	0 14 11		"	Do	118 17 0		
"	Do	0 14 11		"	Bolton	20 0 6		
"	McCulloch	4 6 0		"	Raymond	103 9 11		
"	Allen... ..	4 3 9		"	Ross Bros.	13 7 2		
"	Wilkinson	18 4 6		"	Broughton	82 10 1		
"	Burke & Co.... ..	9 6 4		"	Stewart	59 0 0		
"	Taylor	3 11 0		"	Allison	39 0 6		
"	McCulloch & Co.	80 17 8		"	Broughton	69 2 8		
"	Davey	18 11 3		"	Drysdale	32 16 9		
"	Allworth	21 16 6		"	Killen, E.	59 4 7		
"	Wilkinson, Graves, & Co.	65 1 1		"	Mulholland	133 9 7		
"	Do	26 11 3		"	Carse... ..	143 17 2		
"	Do	28 17 6		"	Wilkinson, Graves, & Co.	32 4 0		
"	Do	62 11 9		"	Do	54 4 9		
"	Mulholland	108 5 10		"	Woodward	17 6 9		
"	H. Jones & Co.	52 1 6		"	Hill & Co.	225 16 6		
"	Raymond	58 3 7		1886	Hill	66 1 1		
"	Loder	9 6 6*		"	Finn	12 0 0		
"	Finlayson	0 15 0*		"	Do	5 2 10		
"	Brunker & Wolfe	35 15 4*						

Stock
Inspectors'
certificates.On
certificateStock
Inspectors'
certificates.

LIST of Rebates, &c.—*continued.*

Year.	To whom granted.	Amount of Rebate.	By what authority granted.	Year.	To whom granted.	Amount of Rebate.	By what authority granted.
1886	Lyne	£ s. d. 41 15 7	Stock Inspectors' certificates.	1886	Richards	£ s. d. 19 0 11*	Stock Inspectors' certificates.
"	Do	30 12 4		"	Duff... ..	2 8 6*	
"	Hill, Clark, & Co. ...	77 7 11		"	Mitchell	7 2 3*	
"	M'Carthy & Co. ...	3 0 5		"	Long	0 16 4*	
"	Goldsborough & Co... ..	76 5 7		"	Higgins	3 5 4*	
"	Henderson Bros. ...	28 13 9		"	Duff... ..	5 8 5*	
"	Anderson & Co. ...	110 10 9		"	Pearce	36 18 0*	
"	Broughton & Co. ...	46 14 2		"	Loder	1 3 8*	
"	Higgins	17 14 8*		"	Sparke & Clift] ...	9 15 6*	
"	Brunker & Wolfe ...	61 13 4*					
"	Lamb & Roberts ...	23 8 0*					
"	Willsallen	7 0 0*					
					£ 5,158 17 9		

NOTE.—The amounts enumerated in the above Return of Rebates were allowed under the concession (approved by the Governor-in-Council) by which a reduction of 25 per cent. (on the schedule rates) was made on the carriage of starving stock on production of a certificate from the Stock Inspector of the district whence the stock were being removed that pasturage therein had failed, and also a certificate from the Inspector of the district into which the stock were intended to be taken that feed was procurable therein. A similar reduction was granted when the stock were being returned to the pasture lands from which they were originally removed.

LIST of Rebates granted in connection with the Carriage of Wheat and Flour.

Year.	To whom granted.	Amount.	By what authority granted.	Year.	To whom granted.	Amount.	By what authority granted.
1883	Hayes	£ s. d. 64 12 9		1884	Cox & Worrall	£ s. d. 57 4 3	
"	Do	147 4 9		1885	Connolly	205 2 9	
"	Blunt... ..	727 3 9		"	Cox	57 1 0	
1884	Hayes	671 6 11		"	Hayes	970 15 6	
"	Connolly	134 10 7					
"	Do	288 6 2				£ 3,323 8 5	

NOTE.—The above rebates were granted to country millers on wheat received from country stations turned into flour and forwarded in that shape to Sydney, the rebate being the difference between the two rates which under ordinary circumstances would be paid and one through rate from the original station to Darling Harbour, plus 1s. 9d. per ton terminal charge.

LIST of Rebates granted in connection with the Carriage of Wool.

Year.	To whom granted.	Amount.	By what authority granted.
1883	Wentworth	£ s. d. 45 8 4	On the 1/8/82, the Commissioner recommended that as Mr. Wentworth's station (Burrabogie) is peculiarly situated as regards facility for getting wool to our line, a special arrangement be made to take his wool at 9/- a bale, and the Minister (Mr. Lackey) approved on even date. The schedule rate was 9/5 a bale, and the rebate is therefore -/5 per bale on 2,180 bales.
"	Halliday	55 0 0	In 1883, with a view to secure traffic which would otherwise have gone to Melbourne, it was decided to convey dump wool from Hanging Rock to Sydney at 8/6 per bale (the tariff rate being 9/3 less 15% if dumped), subject if dumped to a further reduction of 15%, and it was in this connection a refund of £55 was allowed to Mr. Halliday.
"	A. Wilson & Co. ...	40 17 8	This amount represents a rebate of 10% on a consignment of wool which had been diverted to our lines, previous clips of which had gone to Melbourne.
1884	Cooper & Co. ...	27 15 11	This was a rebate granted in respect of a consignment of unscoured wool from Nevertire to Dubbo, and subsequently, after scouring, reconsigned to Sydney. The reduced rate to washing establishments was charged.
1885	Chisholm	8 8 9	These were rebates of 15% in respect of consignments of dumped wool from Bourke. Although the bales were not hooped as required by the rate-book, they were so well dumped that quite as many of them were put into a truck as if they had been hooped, and it was on this ground that the rebates were sanctioned.
1886	Lee & M'Alister ...	25 8 6	
		£ 202 19 2	

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(REVENUE AND EXPENDITURE—ORANGE TO MOLONG, BATHURST TO BOURKE, AND THE MUDGEES LINES.)

Ordered by the Legislative Assembly to be printed, 17 July, 1888.

RETURN to an *Order* of the Honorable the Legislative Assembly of New South Wales, dated 8th February, 1888, That there be laid upon the Table of this House,—

- “ (1.) The amount of revenue and expenditure at the respective stations
“ on the Orange and Molong Railway from 1st June, 1886 (the date of
“ last Return), to the end of the year 1887, together with a list of the
“ number of passengers that have travelled to and from the various stations,
“ and the amount received at each.
- “ (2.) The number of men or officials employed at each station, and the
“ amount or tonnage of goods received and despatched therefrom respec-
“ tively.
- “ (3.) The same information with regard to the various stations on the
“ Western Railway, from Bathurst to Bourke inclusive, and also on the
“ Mudgee Line, including live-stock returns.”

(*Dr. Ross.*)

RETURN of PASSENGER and GOODS TRAFFIC for all Stations between Bathurst and Bourke, also same information for Molong and Mudgee Lines, for the years 1886 and 1887.

Table with columns: Station, No. of persons employed, Expenditure (Jan 1886, Jan 1887), Revenue (Jan 1886, Jan 1887), Passengers carried (Jan 1886, Jan 1887), Tonnage of goods (Jan 1886, Jan 1887). Rows include Bathurst, Orton Park, Perth, George's Plains, Wimbledon, Newbridge, Blaney, Lime's Siding, Millthorpe, Springhill, Huntley, Orange Meat Co, Orange, Lawrence, Mullion, Keir's Creek, Warne, Store Creek, Ironbark, Mumbil, Springs, Apsley, Wellington, Mary Vale, Ponto, Murrumbidgee, Dubbo, Narramine, Trangie, Nevettre, Kelly's, Mullengudgerie, Nyngan, Girilambone, Wilga, Glengariffe, Coolabah, Byrock, Mooculta, Bourke, Maroa, Brummagem, Cargo Road, O K, Borenore, Amaroo, Molong, Ionadale, Piper's Flat, Cullen Siding, Ben Bullen, Carlos Gap, Capertee, Excelsior, Illford, Cox's Siding, Ryistone, Lue, Bumberra, Mudgee, and Total.

Sydney: Charles Fother, Government Printer - 1888.

1887.

(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

RAILWAYS.

(TENDERS FOR ENGINES AND TESTS FOR SUITABLE TYPE OF ENGINE.)

Ordered by the Legislative Assembly to be printed, 13 October, 1887.

The Locomotive Engineer to The Commissioner for Railways.

Additional Engines required for new extensions, &c.

IN view of the number of additional miles that will be opened for traffic within the next two years, I beg to recommend tenders be invited at once for the number of engines required to work them.

On the Northern Line there are not sufficient goods engines now in stock to meet the traffic in the busy season, and when the line is opened to Tenterfield we shall have very great difficulty in meeting the increased requirements, so that it is absolutely necessary that more locomotives be supplied at the earliest possible moment for that line.

While we have sufficient engine power to meet the traffic on the Southern and Western Lines at the present time, yet when the new extensions are opened (over 300 miles) an increase to our locomotive stock will be indispensable.

In view of the many advantages accruing from as few types of engines as possible being used, I strongly recommend that the terms of the specification for the two classes now required be strictly adhered to.

The class most suitable for our passenger traffic is that provided for in the specification upon which tenders were last invited, and for which the Vulcan Foundry Company, of England, obtained the contract. The advantages gained by having even the same class made by the same makers are so considerable, and in view of the very low price at which the Vulcan Foundry Company are supplying, induces me to strongly recommend that an order for those now required be given to the same firm.

For the goods traffic I do not think that a more suitable engine than the Mogul class, specification No. 191, can be obtained. We have now had some years experience of them, and, as regards loads hauled, economy in "Running Stores," and small cost of repairs and renewals, they have given general satisfaction. I therefore strongly urge that this type of engine be adhered to.

The following are the number of engines required, and the estimated cost:—

Great Northern Railway—

4 Passenger Engines, @ £2,450 each	...	...	...	...	=	£ 9,800
8 Goods " @ £2,780 each	...	...	...	...	=	22,240

Great Southern and Western Lines—

12 Passenger Engines, @ £2,450 each	=	29,400
20 Goods " @ £2,780 each	=	55,600

Total...	=	£117,040
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I intend to submit a separate paper upon the quantity and description of tank engines which will be required to meet increased requirements on our suburban lines.

W. SCOTT, 25/5/86.

I cannot concur in Mr. Scott's recommendation that for the reasons given the order for the sixteen passenger engines required be given to the Vulcan Company without competition.

We have not, I think, received the engines which the Vulcan Company obtained recently the contract for, and therefore cannot know much of the quality of the work; but even if it be all that can be desired, I do not think it right that we should depart from the approved system of inviting tenders.—CH.A.G., 28/5/86.

The system of inviting tenders should not be departed from. It is represented that it is absolutely necessary these engines should be obtained. I therefore approve of tenders being called.—W.J.L., 29/5/86.

Memo. by The Locomotive Engineer to The Commissioner for Railways.

Tenders for Locomotive Engines.

I FORWARD herewith a draft advertisement, calling for tenders for the supply of the locomotive engines, approved on your 86/8,560 herewith, which will, I trust, be inserted as early as practicable.

I also forward herewith twelve copies of each specification for Colonial-built engines and ten copies of each specification for engines to be manufactured in England or elsewhere.

W. SCOTT, 31/8/86.

Send copy of draft specification and conditions for locomotives to D. & W. Robertson, Mort's Dock, Atlas Company, Vale, Wearne, Hudson Bros., and Chapman & Company, and ask them to peruse them and let me know whether there are any alterations which, in their opinion, should be made therein to meet the reasonable requirements of Colonial manufacturers. Suggest that they have a meeting and act in concert in any suggestions which they may have to make.—CH.A.G., 2/9/86.

The Commissioner for Railways to Messrs. D. & W. Robertson and others.

Gentlemen,

Department of Public Works, Railway Branch, 2 September, 1886.

I have the honor to enclose herein for your perusal copy of our specifications for the supply of engines, for which tenders are to be shortly invited. I shall be glad if you will let me know whether there are any alterations in the conditions which you consider should be made to meet the reasonable requirements of local manufactures. I may add that a similar communication has been addressed to the firms mentioned in the margin. It would perhaps be desirable for a meeting of representatives of these firms to be held in order that any suggestion may meet with their entire concurrence.

Mort's Dock Co.,
Mr. Wearne, Mr.
Vale, Chapman
& Co., Hudson
Bros Atlas Co

I have, &c.,

CH. A. GOODCHAP,
(per D. C. M'L.)

Commissioner for Railways.

Please reply on or before the 15th instant.

The Secretary Iron Trades Employees Association to The Commissioner for Railways.

Iron Trades Employees Association, Box 256, General Post Office,

Sir,

Sydney, 14 September, 1886.

Your favour of 2nd inst., together with copies of specifications for supply of locomotives, were duly received, and the several firms having had a conference on the subject, acting under their instructions, I have the honor to request that the following alterations be made in the conditions, viz. :—

GOODS ENGINES.

1.—General arrangement, page 2.

In lieu of the contractor preparing the working drawings, the employers consider it to be the duty of the Government to supply plans and specification from which the contractor should work.

See Minister's
decision; con-
tractors to pre-
pare their own
drawings.—
CH.A.G., 25/10/86.

2.—Wheels and tires, page 4.

The Colonial manufacturers consider that as there are several English firms with quite as good a reputation for this class of work as that of Vickers, Sons, & Co. (such as John Brown & Co., Cammell & Co., Brown Bayley & Dixon), it is not fair or to the interest of the Government they should be limited to one particular firm, especially as the principal railway companies in England and elsewhere obtain their material from those and other equally good firms.

See Minister's
decision.—
CH.A.G., 25/10/86.

3.—Boiler, page 4.

The "Farnley" brand of iron to be included with Lowmoor, Bowling, or Taylor Brothers, as the makers of that iron stand on equal terms in England.

See Mr. Scott's
minute con-
ceding this.—
CH.A.G., 25/10/86.

4.—General conditions, page 11.

Alterations.—The minor alteration to be executed by contractor should be limited to £5; anything beyond that value should be paid for.

Cost of Arbitration.—The employers consider it would be more equitable for the contractor to bear expense of arbitration if he be not awarded an amount equal to one-half his claim, instead of three-fourths, as now specified.

Hoping this will meet with your approval,

I have, &c.,

JAS. CHAS. PRATT,

Secretary.

See Mr. Scott's minute conceding this.—
CH.A.G., 25/10/86.
See Minister's decision.—
CH.A.G., 25/10/86.

Mr. Scott for report. I do not see how the Colonial manufacturers can be prejudicially affected by our mentioning Vickers' steel for tires. The same condition will apply as regards the description of steel if English manufacturers compete. I strongly doubt whether the firms named by the Contractors' Association do make as good tires and axles as Vickers; our experience is the other way.—CH.A.G., 23/9/86.

The Locomotive Engineer to The Commissioner for Railways.

CONTRACTORS suggestions *re* alterations in specifications for engines proposed to be built in the Colony :—

(1.) The object of stipulating that contractors should provide their own working drawings is to obviate the necessity of employing a staff of locomotive draftsmen for which there is at present no accommodation, in addition to which we could not find permanent employment for them.

(2.) I cannot admit the contention that the other firms mentioned have as good a reputation as Messrs. Vickers have as makers of axles and tires, and in view of the importance of having the very best quality of material, I do not think the alteration suggested should be granted. I assume that provided tenderers are supplied at the prices now charged to the Government by Messrs. Vickers, they are not prejudicially affected.

(3.) I have no objection to the Farnley brand of iron being included. In fact the proviso that tenderers were to name the brand of iron they intended to use was specially inserted to meet such views.

(4.) I have no objections to the value of the minor alterations in detail being limited to £5.

W. SCOTT, 28/9/86.

In what way can it be stipulated that the contractors shall have the axles and tires at the price paid by the Government? The only way that I can see to accomplish this is to provide in the specification that the axles and tires shall be provided by the Government.—CH.A.G., B.C., 30/9/86.

Mr. Scott,—Urgent.

I had a conversation with Mr. J. N. Vickers, of Bond-street, who represents the firm in the Colonies on this subject, and he gave me to understand that they could supply contractors building engines for the Government at the same price as they are supplied to the Government, and he informed me that he intended to see you on the subject. I would suggest that he be written to so as to obtain a written offer to that effect.—W. SCOTT, 2/10/86. Commissioner.

I HAVE no doubt if the undertaking were made that the firm would carry it out, but I do not think it desirable that the Department should contract for third parties, as complications might arise.

Before, however, the question is finally decided, the contention of the manufacturers that we should take other tires and axles must be submitted to the Minister. Manufacturers will push their wares, and no doubt the Department lays itself open to ungenerous suspicion in advocating a special article made only by *one* manufacturer, but if an accident were to occur through defective axles and tires—and on our mountain lines the consequences would be perhaps exceptionally severe—those who advocate cheap axles and tires would not be held responsible, but the officers of the Department would be for weakness in not resisting the use of inferior material in such vital parts of our rolling stock.

Of course the manufacturers named would urge that their tires and axles are as good as Vickers', but the report of Sir John Fowler and our own experience are to the contrary. CH.A.G., 7/10/86.

I SEE no objection to the contractors providing their own working drawings; on the contrary I believe if it were done it would be a considerable saving to the Department.

With regard to the use of tires and axles, I deprecate any proposal to obtain these unless they are of the best quality, and obtained of makers of the highest standing. There can be no objection to the contractors arranging with Messrs. Vickers & Co. for the supply of the same class of tires, &c., as we are now using. It is undesirable that the Government should make the arrangements as they would thereby become third parties to the transaction, which might cause complications, but contractors should have direct communication with the makers, the Government reserving to itself the right to accept or reject any supplies. With reference to the use of axles and tires other than Vickers', unless experts in whom the Department and the public have confidence are prepared to recommend other makers I certainly cannot take the responsibility of authorizing any alteration.

W.J.L., 11/10/86.

WILL

WILL the Minister decide question as to cost of arbitration, as provided in specification? It reads that unless the contractor is awarded three-fourths of his claim he must pay costs; this is, of course, to prevent excessive claims being made. The contractors say "one-half," but that seems to me absurd. A contractor claims £100, and is awarded £50, which sum we may have been willing to pay, without going to arbitration, and yet we should have to pay costs.

It would be better to say that the cost of all references to arbitration shall be borne equally by both sides, or make it in proportion—that is, the same proportion as the award bears to claim and offer.

CH.A.G., 14/10/86.

If the contractor does not get an award of more than offered by the Department, he should pay all costs, and if he obtains one-half his claim (being *more* than we would pay), the Department should pay half costs.—W.J.L., 21/10/86.

COMMUNICATE to Colonial manufacturers the decision of the Minister on the points raised, and the other points which the Locomotive Engineer has conceded.

Then to Mr. Scott to have specification and conditions amended in accordance therewith. The payment of arbitration costs should be arranged as provided in the accompanying printed copy of conditions as to arbitration, clause 13.

CH.A.G., 25/10/86.

The Commissioner for Railways to The Secretary Iron Trades Employés Association.

Sir,

Department of Railways, Sydney, 3 November, 1886.

With reference to your letter of the 14th September last, suggesting certain alterations in the specifications for the manufacture of locomotives in the Colony, I have the honor to inform you that the matter has had very careful consideration, and I have to intimate that Mr. Secretary Lyne has decided as follows on the various points raised:—

First. As to drawings, that it is advisable the contractors should provide the working drawings.

Second. Wheels and Tires.—That in the interest of public safety it is essential they should be of the very best quality, and obtained from makers of the highest standing.

Relative to the use of axles and tires, other than Vickers', Mr. Secretary Lyne cannot accept any responsibility in authorizing the receipt of tires and axles, the manufacture of any other firm, but would be prepared to consider the matter if experts, in whom the Department and the public had confidence, were prepared to recommend other makers.

Third. Inclusion of the "Farnley" brand of iron; and

Fourth. Cost of alterations above £5 to be paid for. These points will be conceded.

Fifth. Cost of arbitration.—The clause relating to the costs of arbitration to be amended as follows:—

"If, upon an arbitration in respect of claims made by the contractor the sum awarded to the contractor shall be less than one-half of the amount of his said claim, all the costs, charges, and expenses of and incident to the said arbitration and award shall be borne and paid by the contractor, but if the amount awarded shall exceed one-half of the amount of the said claim, then each party shall pay his own costs and one-half of the arbitrators and umpire's fees."

I have, &c.,

CH. A. GOODCHAP,
Commissioner for Railways.

Memo. from The Locomotive Engineer to The Commissioner for Railways.

I SHALL be obliged if you will kindly inform me when tenders will be invited for the engines to specifications, Nos. 188A and 191, which were forwarded to you on 31/8/86.

As the engines cannot be delivered for a considerable time after tenders are invited, I would point out that unless tenders are soon called for serious inconvenience may be caused in working the traffic.

W. SCOTT, 29/10/86.

The Secretary, Iron Trades Employés Association, to The Commissioner for Railways.

Iron Trades Employés Association, Box 256, General Post Office,
Sydney, 12 November, 1886.

Sir,

I have the honor to acknowledge the receipt of your favour of 3rd instant in reference to the locomotive specifications, and am instructed to say the employers acquiesce in the specification being amended in accordance with your letter now under acknowledgment.

I am further instructed to ask if you would favour the employers with the prices paid by the Government for the Vickers' wheels and axles and tires.

I have, &c.,

JAS. CHAS. PRATT,
Secretary.

Locomotive

Locomotive Engineer.—D.C.M'L., 15/11/86. The information can be supplied by the Store Branch if the Commissioner approves.—W.S., 17/11/86. The Commissioner.

This paper was sent to Loco. Branch to amend the specification. The matter mentioned in the second paragraph of Mr. Pratt's letter is being dealt with separately.—D.C.M'L., 18/11/86. Locomotive Engineer, B.C., 18/11/86.—A.R. The specifications with the alterations approved by the Commissioner are in the printer's hands.—W.S., 19/11/86. The Commissioner. In a week to see if specifications are ready. 23/11/86.

Give the fullest information of the price we pay for locomotive wheel-tires and axles. I do not think we get the wheels from Vickers. Please inquire? Be careful there is no mistake, as the tenders will probably be based on the price we name.—CH.A.G., 16/11/86.

RETURN of prices paid for tires and axles during 1885-1886.

Date.	Maker.	Description.	Invoice cost per ton.			Cost in Colony per ton.		
			£	s.	d.	£	s.	d.
1885	Cammell & Co.	Engine tender and waggon tires.....	20	0	0	21	11	3
1885	Vickers, Sons, & Co.	Brake-van tires	22	0	0	23	13	3
1885	do	Engine and tender tires	24	0	0	25	13	0
1886	do	Carriage and waggon tires	18	0	0	19	10	10
1885	do	Carriage and waggon axles	26	16	9½	28	13	6
1886	do	do do	18	0	0	19	10	10

Memo. by The Locomotive Engineer to The Commissioner for Railways.

Tenders for Locomotive Engines.

I HEREWITH forward twelve copies of specification No. 188A and twelve copies of specification No. 191, which are complete, in accordance with your directions on 86/4423, re provision for Colonial manufactures. Draft advertisement also herewith.

W. SCOTT, 23/11/86.

The specification must embody in itself, and not in the form of addenda, the alterations made to Monk bridge boiler-plate, to be included with other brands. Is it not proposed to invite tenders in Europe and America at the same time?—CH.A.G., 25/11/86. Locomotive Engineer.

I will have the specifications altered, to include the amendments referred to in their proper places; but as this will involve the reprinting of them, some delay will necessarily occur. In regard to the Monk bridge-plates I regret to say that I have not sufficient confidence in their quality to justify my including them in the specification, more particularly as regards the boilers; but I see no objection to their being used in the frame-plates, and will provide accordingly. I would, however, suggest, for your consideration, the desirability of sending a cable to the Inspecting Engineer in England, to the following effect:—"Are Monk bridge-plates considered suitable for locomotive boilers?" I assumed it was your intention to invite tenders in Europe and America, and provided for it in a separate specification.—W. SCOTT, 30/11/86.

Prepare cablegram for Agent-General.—CH.A.G., 2/12/86. Cablegram forwarded to Public Works for transmission to Agent-General, 2/12/86.—D.C.M'L., 2/12/86. Locomotive Engineer.

Eight specifications for passenger engines herewith. The specification for goods have not been received from the printer yet.—W. SCOTT, 29/12/86. The Commissioner.

Memo. by The Commissioner for Railways.

Specifications for Locomotives.

It is time the advertisement was out for locomotives.

Tenders are to be invited in the Colony, and simultaneously in England and America.

Let me have completed specifications and notices.—CH.A.G., 30/12/86.

Specifications for the passenger engines herewith; those for the goods engines have not yet been turned out by the printer. Advertisements might however be put in the newspapers saying that specifications for the latter can be obtained after (say) the 7th proximo. Please say how much notice should be given of the date for reception of tenders.—D.C.M'L., 30/12/86.

The Commissioner wishes you to submit at once the draft advertisement. I would point out that the specifications sent only provide for the engines to be made in the Colony. Where are the specifications to be tendered from in England and America? The matter is urgent, and the Commissioner wishes it attended to with the utmost expedition.—D.C.M'L., 30/12/86. Locomotive Engineer.

Draft

Draft advertisement herewith. The specifications were only received from the printer's this morning. There are ten of each description for Colonial tenderers, and twenty of each for foreign tenderers. More can be forwarded if required.—W. SCOTT, 4/1/87. The Commissioner.
The specifications have been forwarded to your office.—W.S., 5/1/87. The Commissioner.

* Specifications included in papers laid on the Table of the House, and ordered to be printed, 27 April, 1887.

ENCLOSED are papers and specifications* containing all necessary information for the invitation of tenders for the following locomotive engines :—

16 of passenger type	...	...	...	...	...	12 at Sydney, 4 at Newcastle.
28 of goods type	...	...	...	...	...	20 at Sydney, 8 at Newcastle.

The mail leaves *via* Melbourne on Wednesday next, and it is proposed to call for tenders in America, England, and the Colony, returnable in each place on the same date (April 12th). The tenders received in Sydney will not be opened until the Agent-General reports (which he will be able to do by cablegram) the result of the tendering in England, America, and on the Continent.

CH.A.G., 10/1/87.

Approved.—W.J.L., 10/1/87. Write to Agent-General at once.—A.R., 10/1/87. Draft letter to Agent-General.—C.A.B., 11/1/87.

The Secretary for Public Works to The Agent-General.

Sir, Department of Public Works (Railway Branch), Sydney, 11 January, 1887.

I have the honor to inform you that, in view of the expected opening of new lines, it has become necessary to obtain a further supply of locomotives, both for passenger and goods work, and the Government have determined that tenders shall be invited for them in England, America, the Continent of Europe, and the Colonies.

The locomotives required are :—

Sixteen four-coupled outside cylinder passenger bogie engines with tenders to specification, 188A (twelve to be delivered in steam in Sydney, and four in steam in Newcastle).

Twenty-eight six-coupled outside cylinder bogie goods engines with tenders to specification, 191, of which twenty are to be delivered in steam in Sydney, and eight in steam in Newcastle.

For these engines you will please invite tenders in England, America, and on the Continent; tenders to be lodged by the 12th day of April next.

As time is now an important consideration, I will ask you to be good enough to communicate to me by cable the result of the tendering, and the recommendation of the Consulting Engineer, in order that it may be considered with the Colonial tenders. By this mail I send you forty copies of specification No. 188A, and a similar number of specification No. 191.

I have, &c.,

W. J. LYNE,

Secretary for Public Works.

The Manager, Phoenix Foundry Co., to The Locomotive Engineer.

Phoenix Foundry Company (Limited),

Ballarat, 11 January, 1887.

Dear Sir,

I notice by the papers that you will be calling for tenders shortly for the locomotive engines you mentioned some time since. When the specifications, conditions, &c., are ready, I would be obliged if you would kindly forward me a copy of same. I will remit the charge for same per return. With best wishes to yourself and Mrs. Scott for the new year,—

I am, &c.,

W. H. SHAW,

Manager.

Copies forwarded.

The Manager, Phoenix Foundry Co., to The Locomotive Superintendent.

The Phoenix Foundry Company (Limited),

Ballarat, 19 January, 1887.

Dear Sir,

Referring to the specifications for 44 locomotive engines which you have kindly sent us, we notice that the specifications state the engines are "To be manufactured in the Colony of New South Wales," and in the conditions also, "the remainder must be manufactured in the Colony of New South Wales."

Will you kindly inform me if these conditions are imperative on all tenderers, or if they are intended to apply to New South Wales tenderers only. If they are imperative on all tenderers, they of course shut us out entirely, because although we do all the work ourselves, and only import the raw materials, yet none of our work would be done in New South Wales, and, consequently, we could not comply with this condition.

We trust you will see your way to make these conditions apply to all the Colonies. Awaiting your reply,—

I am, &c.,

W. H. SHAW,

Manager.

Minute

Minute by The Locomotive Engineer to The Commissioner.

COPIES of the specifications for Colonial tenderers were forwarded to the manager upon his application. I now submit his subsequent letter, which opens up the question as to whether they must be built in this Colony. I submit that the Phoenix Foundry be treated as a foreign firm, and be supplied with the specification relating to foreign builders.

W. SCOTT, 25/1/87.

For Minister's consideration.—I think Victoria, or indeed any of the Australian Colonies, should be admitted on the same terms as the manufacturers of New South Wales.—CH.A.G., 29/1/87. The present tender is for engines to be made in the Colony, in accordance with the resolution of Parliament.—J.S., 20/5/87.

Tenders for Forty-four Locomotives.

The Agent-General for New South Wales to The Secretary for Public Works.

Sir,

5, Westminster Chambers, 22 April, 1887.

In accordance with your instructions, as conveyed to me in your letter 86-140, of the 11th January last, and the Honorable the Colonial Secretary's telegrams of the 5th March last and the 4th instant respectively, I have invited tenders from the Continent, America, and the United Kingdom for the forty-four locomotives required by the Government. Tenders were received at this office on the 12th instant, and on the 14th idem I informed the Honorable the Colonial Secretary, by telegram, as follows:—

"*Re Locomotives.*—Four tenders received from United States of America; three from Continent; twenty-two from England. Eleven according to original, and twelve to new conditions. Six informal. English tenders lowest, and very close. Neilson's lowest according to new conditions, but without design—passenger £2,375, goods £2,245. After further examination of tenders I will telegraph again."

On the 19th instant I further telegraphed as follows:—

"Tenders locomotives. Large difference between old and new conditions to cover possible rejection risks and deferred payments. Six firms not tendered under new conditions. Consider Government best served goods (Dübs) £2,165, passenger (Beyer) £2,495—payment in England as hitherto. Believe Beyer would take £100 less."

I have now the honor to forward for your information the Inspecting Engineer's letter of the 21st instant, having reference to the analysis of the tenders received, together with schedules of the tenders for each kind of engine.

I have, &c.,

SAUL SAMUEL.

[Enclosure.]

Sir,

2 Queen Square Place, Westminster, S.W., 19 April, 1887.

I have gone very carefully through the details of the tenders, plans, and specifications of the locomotives.

Of the various plans which have been sent in, six firms do not tender on the altered or new conditions, and the difference between the original and new conditions is in some cases large—namely, as much as £460 per engine. This is excessive; about £150 would perhaps represent the money value of the different modes of payment and cost of shed room. There is the interest on the deferred payment, the commission to the Financial Agent in the Colony, and the exchange in sending home the money, &c. In the instance where the large increase is made, I think the manufacturers have put down the difference to compensate for risk of rejection in the Colony.

The lowest tender under the new conditions is, as previously stated, that of Messrs. Neilson & Co.; but no plan has been sent with the tender, and before any acceptance of this tender it would be absolutely necessary to have plans and details to be approved, so that we may know what they propose; as Messrs. Neilson have not hitherto made engines for the New South Wales Government.

If it be a question of excellence of manufacture, I should recommend that the goods engines be given to Messrs. Dübs and the passenger engines to Beyer & Peacock, who have made similar locomotives for the Colony, and have always given satisfaction in their work.

Also, that payment be made in England in the usual manner, the price being respectively *£2,265 for the goods engines at Sydney, and £2,495 for the passenger engines at Sydney. The Newcastle delivery is £25 each more.

I am, &c.,

JOHN FOWLER.

The Agent-General, New South Wales Government.

* Price since been reduced by £100.

SCHEDULE

SCHEDULE OF TENDER.

(F 1475.)

28 outside Cylinder Bogie Goods Engine, with Tenders.

Firm	Original conditions— Pay in England.		Altered conditions— Pay in Colony.		Informal conditions.	Place of delivery.	Designs accompanying tender.
	Price each for 20 Sydney engines.	Price each for 8 Newcastle engines.	Price each for 20 Sydney engines.	Price each for 8 Newcastle engines.	Price each for the 28 engines.		
Dübs & Co.	£ 2,265	£ 2,290	£ 2,725	£ 2,750	£	20 in steam, Sydney 8 " Newcastle.	Engine & tender.
Beyer, Peacock, & Co.	2,345	2,370	2,495	2,520	.....	20 " Sydney 8 " Newcastle.	" "
Stephenson & Co. ....	.....	.....	No tender...	No tender...	2,135	F.o.b., London or Liverpool.	" "
Kitson & Co. ....	.....	.....	2,990	2,990	.....	20 in steam, Sydney 8 " Newcastle.	" "
Sharp, Stewart, & Co. ....	.....	.....	2,368	2,368	.....	20 " Sydney 8 " Newcastle.	" "
Neilson & Co.	2,228	2,228	2,245	2,245	.....	20 " Sydney 8 " Newcastle.	No design of en- gine or tender.
Clyde Locomotive Company	2,375	2,400	2,425	2,450	.....	20 " Sydney 8 " Newcastle.	Engine ; no tender.
Vulcan Foundry Company	2,336	2,386	No tender...	No tender...	.....	20 " Sydney 8 " Newcastle.	Engine & tender.
Burnham, Parry, Williams, & Co. ....	.....	.....	" ...	" ...	2,950	Alongside vessel, New York.	" "
Canadian Locomotive Com- pany. ....	.....	.....	" ...	" ...	2,500	F.o.b., New York ...	No design of en- gine or tender.
Sächsische Company	About £2,518 (price given by weight).	About £2,590 (price given by weight).	" ...	" ...	.....	20 in steam, Sydney 8 " Newcastle.	" "
Société de Construction ...	.....	.....	No tender for these engines.		.....	.....	.....

SCHEDULE OF TENDER.

(F 1475.)

16 Outside Cylinder Bogie Passenger Engines, with Tenders.

Firm.	Original conditions— Pay in England.		Altered conditions— Pay in Sydney.		Informal conditions.	Place of delivery.	Designs accompanying tender.
	Price each for 12 Sydney engines.	Price each for 4 Newcastle engines.	Price each for 12 Sydney engines.	Price each for 4 Newcastle engines.	Price each for the 16 engines.		
Dübs & Co.....	£ 2,425	£ 2,450	£ 2,885	£ 2,910	£	12 in steam, Sydney 4 " Newcastle.	Engine & tender.
Beyer, Peacock, & Co.	2,495	2,520	2,645	2,670	.....	12 " Sydney 4 " Newcastle.	" "
Stephenson & Co. ....	.....	.....	No tender...	No tender...	2,350	F.o.b., London or Liverpool.	" "
Kitson & Co. ....	.....	.....	3,090	3,090	.....	12 in steam, Sydney 4 " Newcastle.	" "
Sharp, Stewart, & Co. ....	.....	.....	2,516	2,516	.....	12 " Sydney 4 " Newcastle.	" "
Neilson & Co.....	2,358	2,358	2,375	2,375	.....	12 " Sydney 4 " Newcastle.	No design of ten- der and engine.
Clyde Loco. Co.	2,475	2,500	2,525	2,550	.....	12 " Sydney 4 " Newcastle.	Engine, no tender
Vulcan Foundry Co.....	2,530	2,580	No tender...	No tender...	.....	12 " Sydney 4 " Newcastle.	Engine & tender.
Burnham, Parry, Williams, and Co. ....	.....	.....	" ...	" ...	2,900	Alongside vessel, New York.	" "
Canadian Loco. Co. ....	.....	.....	" ...	" ...	2,400	F.o.b., New York ...	No design of en- gine and tender.
Sächsische Co.	About £2,775 (price given by weight).	About £2,851 (price given by weight).	" ...	" ...	.....	12 in steam, Sydney 4 " Newcastle	" "
Société de Construction ...	3,150	3,250	" ...	" ...	.....	12 " Sydney 4 " Newcastle.	Engine & tender.

Telegram from London Station to The Colonial Secretary.

LOCOMOTIVES tenderers pressing for answer; please reply.

Refer to Works.—C.W., 10/5/87. Railways.—J.R., B.C., 12/5/87. Submitted for Minister's direction.—
D.V., 13/5/87. I think we should cablegram to say: "Cannot finally decide till all the tenders are in hands of the
Government."—CH.A.G., 25/5/87. Approved.—J.S., 26/5/87.

Minute by The Commissioner to The Locomotive Engineer.

I AM informed that the engines for which tenders have recently been invited are of a different type to any that we now have in use. Our object should be to reduce and not to increase the types of engines. We have now some thirty different types. My wish is to reduce the number of types to five: An express engine, an ordinary passenger, an engine for mixed trains, a heavy goods, a tank engine, and perhaps, though this is not certain, a light mixed engine for the level lines in the interior.

Loco. Engineer. CH.A.G., B.C., 12/2/87.

Will Mr. Scott be good enough to explain why he has increased the types of engines.—CH.A.G.

It has always been my object to lessen rather than increase the number of types of our engines. I entirely agree that five types should be sufficient, and it will be found that my recommendations have been in accord with this.

The goods engines, for which tenders are now invited, are of our ordinary heavy goods class, "Mogul type," with very slight alterations to cylinders, which are increased 1 inch in diameter; the tender enlarged to hold 500 gallons more water, and an extended smoke-box provided with the view of assisting to prevent emission of sparks from the chimney.

The passenger engines are exactly the same as those now under order from the Vulcan Foundry, and will be of our ordinary heavy passenger type. The necessity for taking heavier loads required by traffic rendered it necessary to enlarge the cylinders and tender-tank. The extended smoke-boxes are also provided for in these engines.

The Commissioner.

W. SCOTT,

14/2/87.

Let me know the number of types of engines which have been introduced since Mr. Scott has been Locomotive Engineer.—CH.A.G., 18/2/87.

Memo. to The Locomotive Engineer.

I HAVE to inform you that the Commissioner wishes to be furnished with a statement, showing the number and description of types of engines which have been introduced by Mr. Scott since he succeeded to his present position.

Please forward this information early.

B.C., 22/2/87.

D.C.M'L.

41 express engines, of the Standard type.

60 goods engines, of the Mogul Standard type.

18 tank engines, for suburban traffic.

2 do for Camden Line.

12 passenger engines, of the 79 class, but with increased cylinder power and tender capacity.

The Commissioner.

W. SCOTT, 25/2/87.

Not new.
Not new.
New.

Did the enclosed paper go to Mr. Scott with this covering paper. I do not think his answer quite corresponds with the question I put.—CH.A.G., 28/2/87. No.—D.C.M'L., 1/3/87.

The Mogul goods have been altered, and also the passenger, in the recent indent for forty-four locomotives. Did not Mr. Scott propose a heavier engine for the suburban traffic?—CH.A.G., 1/3/87.

The question of providing a more powerful tank engine for suburban traffic has been under discussion, but so far the Locomotive Engineer has not submitted any design. The matter was awaiting the settlement of the question as to the maximum load a suburban engine is to haul. The decision arrived at was that the present engines have sufficient power, and that a new type of engine is not required.—D.C.M'L., 1/3/87.

Memo. by The Secretary for Public Works.

Locomotives.

TENDERS invited in England, America, and Europe for,—

Passenger engines	...	...	...	...	...	...	...	...	...	...	16
Goods engines	...	...	...	...	...	...	...	...	...	...	28
											44

Tenders are to be received up to the 12th April next. Agent-General written to, 20th January, 1887.

The conditions provide that:—

"Payment will be made for each engine as follows:—90 per cent. in cash in London on receipt by the Agent-General for New South Wales of the bills of lading, together with a certificate from the Inspecting Engineer, that the terms of this specification, as to completion, and packing, &c., &c., of the engines have been fulfilled."

I consider it desirable that this condition should be amended, both as regards inspection and payment.

The area of competition has been widened, and European and American firms, as well as English and Colonial firms, have been invited to compete. The engines if made in the Colony will be subject to the inspection of an Inspecting Officer here. If made in England the Inspecting Engineer there will be able to perform the duty, but if a Continental or an American firm should obtain the contract we shall have no Inspector in those Countries.

Under these circumstances it seems to me that the inspection should be in the Colony only, and that payment should be made in the Colony on the certificate of the local Inspector, in the following proportions:—

75 per cent. upon Inspector's certificate on the arrival of the engines, and the balance, 25 per cent., after they have run to his satisfaction, 1,000 miles.

A cablegram must be sent to the Agent-General to alter the conditions accordingly, before tenders are invited.

It is not likely that any action in this respect has been taken, as the indents have been in the hands of the Agent-General only a few days, if indeed they have yet reached him.

JOHN SUTHERLAND,
28/2/87.

Send telegram to Agent-General:—"The specifications for forty-four engines alter conditions as to payment; no inspection on your side necessary; 75 per cent. will be paid on certificate of Inspecting Engineer in Colony; balance on his certificate when they have run 1,000 miles; manufacturers must find their own workshops here for erecting engines."—CH. A. G., 28/2/87.

Locomotive Engineer to note and please return quickly.—D. C. M. L., 4/3/87. Noted.—W. Scott, 5/3/87. Commissioner. Does Commissioner wish any further action taken on this paper?—D. C. M. L., 9/3/87. Any persons representing foreign houses, either American or Continental, who have received in the Colony copies of the specification should be apprised of the change, and also firms in the neighbouring Colonies who may wish to compete.—CH. A. G., 10/3/87. Write letter to Agent-General confirming cablegram, and explaining the reason for the change more fully.—CH. A. G. The Agent-General, 15/3/87. The Locomotive Engineer.—A. R., B. C., 19/3/87. Letters written to Augustus Morris, Esq., Messrs. Carson Woods & Co., Messrs. Mason Bros., Messrs. Parke and Lacey, Mr. Shaw, Phoenix Foundry, Messrs. Gauz & Co., Messrs. Ostermeyer, Dewez, and Co.—W. S., 24/3/87. The Commissioner.

The Secretary for Public Works to The Agent-General.

Sir, Department of Public Works, Railway Branch, Sydney, 18 March, 1887.

I have the honor to confirm my cablegram of the 1st instant, relative to the conditions of payment for the supply of forty-four locomotives.

I may say that the area of competition has been widened for this supply, European and American, as well as English and Colonial firms, having been invited to tender. Should an American or Continental firm obtain the contract there would of course be no provision for inspection before arrival in the Colony, and to place all on an equality it has been determined that the engines shall be inspected locally, payments to be made as follows:—75 per cent. upon the inspector's certificate that the engines have arrived, and 25 per cent. after they have run 1,000 miles to the satisfaction of the responsible officers.

I have, &c.,
JOHN SUTHERLAND,
Secretary for Public Works.

I wish the tank engine papers separated from these, as they have not received final action. I shall exhaust every effort to make our present engines (suburban) answer before I consent to the introduction of another type. As I have before said, five types of engines should be sufficient, but owing to the total disregard of this necessity for economic locomotive working in the early years of our railway management, we have nearly thirty-three different types of engines. I feel certain I shall have the sympathy of Mr. Secretary Sutherland in this effort to reduce the number of types of engines, as he has long been aware of the mischievous effect on our working expenses this multiplication of types of engines has had.—CH. A. G., 4/3/87.

I entirely concur with Commissioner in this matter.—J. S., 9/3/87. Locomotive Engineer to see.—A. R., 9/3/87. Seen.—W. S., 14/3/87.

Mr. C. Wood to The Locomotive Engineer.

Sir, Sydney, N.S.W., 24 March, 1887.

I beg leave to point out to you that my sole reason for troubling about the specifications for forty-four locomotives was on behalf of the Charleroi Engineering Société. Your to-day's letter, which I now have the pleasure of acknowledging, modifies you say the terms of this contract. You will please see at this late date I have no means of notifying my principal that the terms of contract are changed. I must protest on behalf of European clients who are put to immense cost and great trouble, and at the eleventh hour I am here notified, 16,000 miles from my principals, that the conditions of tender are changed.

I will enclose your letter or a copy to my principals to-day.

CARSON WOOD.

For your information.—W. Scott, 28/3/87. The Commissioner.

Telegram from The Agent-General, London, to The Colonial Secretary, Sydney.

DEPUTATION from the locomotive builders urge specification should provide for inspection in this country as hitherto, and that Government find accommodation erection Engines; charging contractors' fixed price per engine. I advise reconsideration. Last condition causing much feeling here.

Telegram from The Agent-General, London, to The Colonial Secretary, Sydney.

25 March, 1887.

LOCOMOTIVES.—Answer urgently required to my cablegram of 18th March. Contractors inquire what import duties or other Government dues will be charged locomotives on arrival and landing. Require immediate reply.

The Under Secretary, Public Works, B. C., 28 March, 1887.—C. W. Railways, B. C., 29/3/87.—J. R.

Reply:—

"BETTER tender at certain price, wharf and Customs duties to be added."—CH. A. G., 5/4/87.

Cablegram sent to Public Works for transmission to Agent-General, 6/4/87.

The

The chief objection seems to be that we should require English and foreign manufacturers to find their own erecting shops in the Colony instead of giving them the free use of our erecting shops as heretofore. Colonial manufacturers will not be allowed any facility of the kind, and if tenders are to be obtained on a fair competitive basis I do not see why foreign and home manufacturers should have the advantage they ask for. The condition is not prohibitory, for there will be little difficulty in obtaining conveniences for erecting engines should a home or foreign manufacturer secure the order. There is, moreover, a precedent for this course; the contractors for the supply of dump-cars were required to find premises for their erection on arrival in the Colony.

CH. A. G., 28/3/87.

I should advise the following message being sent to Agent-General,—“Amended conditions as to payment and inspection and contractors finding their own premises for erection will be strictly adhered to.”—CH. A. G., 28/3/87.

Approved.—J.S., 30/3/87. Cablegram sent to Public Works for transmission to Agent-General.—D.C.M.L., 31/3/87.

LIST of TENDERS received for Locomotives proposed to be manufactured in the Colony.

Name.	20 Goods South.		8 Goods North.		12 Passenger South.		4 Passenger North.	
	Price.	Total.	Price.	Total.	Price.	Total.	Price.	Total.
	£	£	£	£	£	£	£	£
Thos. Wearne	*3,750	30,000	.....	.....	*3,750	30,000	.....	.....
Mort's Dock Company.....	3,995	79,900	4,185	33,480	4,375	52,500	4,555	18,220
Atlas Company.....	4,040	80,800	4,225	33,800	4,405	52,860	4,585	18,340
Henry Vale	3,785	75,700	.....	.....	.....	.....	.....	.....
Hudson Brothers	<u>3,680</u>	73,600	<u>3,760</u>	30,080	3,820	45,840	<u>3,970</u>	15,880
Australian and American Agency Company	Ineligible, as the offers are for engines to their own specifications and for delivery in America.							

* Only tenders to supply eight engines.

Those underlined thus are the lowest offers.

Memo. by The Secretary for Public Works.

Department of Public Works, Railway Branch, Sydney, 18 April, 1887.

THE Commissioner will please send the papers and specifications to Mr. Midelton for full report. I have many reasons for desiring that gentleman's report, although he is not in the Engineering Branch of the Railways. I shall be glad to have the papers and report on Wednesday, the 20th inst.

JOHN SUTHERLAND.

Mr. Midelton accordingly.—CH. A. G., 18/4/87. Report on Commissioner's 86/8,560 and specification No. 188a and 191 herewith.—T. MIDELTON, 19/4/87. Commissioner.

Minute by The Secretary for Public Works.

Re Railway Rolling Stock, &c.

WITH reference to the specification for twenty-eight goods and sixteen passenger engines, it seems to me, from a perusal of them, that they provide for a different type of engines to any we have now running, and their adoption would, in my opinion, be a serious mistake. There are many provisions that would make the engines unnecessarily complicated and costly, and debar Colonial makers from having any success in tendering. I think we might, for instance, substitute best steel for iron; it would be cheaper, and would give the locomotive a longer life.

Three-fourths of the trade we have over the mountains, on the steep gradients, could be best and cheapest carried by one class of engines, simple in construction and powerful in action; but we have a number of engines of various designs that it would pay the Department better in the long run to put on the scrap heap, if we could be sure of replacing them by a class of engines more suitable to our requirements.

I am not in favour of any increase in the rates for passengers and produce to augment our revenue, as, I believe, by improving our rolling stock we shall be able, with economical working, to improve our returns, so as not to require any increase. We have at present a large traffic in live stock which has proved unprofitable, both to the Railway Department and the owner, the latter asserting that the loss to him through delay in transit by rail, &c., is sometimes equal to 10% on the value of the consignment, and this must be taken in a degree as adding to the railway rates. We will always have a large traffic, either in live stock or dead-meat, and I do not think a permanent improvement will come until we have improved rolling stock for this traffic, both in engines and trucks. Stock trains should be run at almost the same speed as our mail and passenger trains, and should give precedence to nothing but them.

For the purpose of obtaining opinions as to the best class of engines for this purpose, I wish an early report from Mr. Midelton, now Superintendent of Tramway Rolling Stock, Mr. Midelton having had a large engineering experience both in England and the Colonies, and has already shown evidence of his ability with regard to his plans for the Goulburn running sheds, and in regard to his advice in connection with the Eveleigh workshops. He has already designed ten locomotives which, after two years' service, have proved to be the most economical in working that we have; and for these and other reasons, although he is not now in the Railway Locomotive Branch, I should like his opinions on this question.

JOHN SUTHERLAND, 18/4/87.

Mr. Midelton.—A.R., B.C., 19/4/87. Seen.

My report was forwarded, on the morning of the 20th, to the Commissioner.—THOS. MIDELTON, 22/4/87. Commissioner.

The

The Superintendent, Tramway Rolling Stock, to The Secretary for Public Works.

Report on Additional Locomotives.

Sir,

After a careful perusal of the papers which provide for the addition of forty-eight locomotives to our present stock, I have the honor, in obedience to your command, to report as follows:—

In the original recommendations of the Locomotive Engineer, dated 25/5/86, I notice he writes there are "many advantages accruing from as few types of engines as possible being used. I strongly recommend that the terms of the specification for the two classes now required be strictly adhered to. The class *most suitable* for our passenger traffic is that provided for in the specification upon which tenders were last invited, and for which the Vulcan Foundry Company of England obtained the contract. The advantages gained by having even the same class, made by the same makers, are so considerable, and in view of the very low price at which the Vulcan Foundry Company are supplying, induces me to strongly recommend that an order for those now required be given to the same firm." Although Mr. Scott has had a very long experience here, I venture to assert that he is in error upon this question. We have had no experience of the engine which the Vulcan Foundry are now supplying, and I am at a loss to understand how Mr. Scott arrives at the conclusion that they are the most suitable for our passenger traffic. I have gone very carefully into the merits of the designs of these engines, and must express my conviction that their unsuitability will be established on trial; they cannot be successful unless they are ruinously *overloaded* on their (four) coupled wheels.

Referring to the goods engines, Mr. Scott states: "I do not think that a more suitable engine than the 'Mogul Class'—Specification No. 191—can be obtained. We have now had some years' experience of them, and, as regards *loads* hauled, economy in running stores, and small cost of repair and renewals, they have given general satisfaction. I therefore strongly urge that this type of engine be **ADHERED** to." I will at once say that my views, based on a large experience of the running of these engines, are quite to the contrary, and the records will show that I tried to improve them when the second lot was being ordered in December, 1883 (*vide* Comr's. M.P., 83/19,720), but Mr. Scott opposed it; indeed, it is evident Mr. Scott now practically admits that the principal feature—the hauling power—is deficient, for he stipulates that the power of the new engines is to be *increased* 5 lb. by making the cylinders *1 inch larger in diameter*, and by *shortening the stroke 2 inches*. I would point out in this connexion that, while the improvement as regards increased power is immaterial, Mr. Scott contradicts, by introducing it, his professed anxiety to limit the types of engines—for undoubtedly he thus introduces another class.

In reporting on Specification No. 188A for twenty passenger engines, it will be well to consider what has already been done in the matter of equipping our railways with locomotive engines. We, unfortunately, have no less than forty-two different "classes" at the present time of nearly every possible shape and dimensions, twenty-two of which are for passenger traffic, and the rest for goods traffic. This is objectionable and costly, for almost any railway could be properly worked with, at the most, six different "classes" of engine, and many lines could be worked with three.

We began in 1855 with a "class" which exerted a power of	93·10 lb.
In 1856 we had	" " 79·85 "
" 1865	" " 71·10 "
" 1867	" " 112·70 "
" 1870	" " 105·00 "
" 1875	" " 168·00 "
" 1877	" " 117·80 "
" 1877	" " 123·40 "
" 1880	" " 102·40 "
" 1883	" " 104·00 "
" 1884	" " 117·00 "
" 1884	" " 140·40 "

I have here referred to twelve "classes," but do not think it necessary to name the other passenger engines which were introduced between 1855 and 1886, as they are all *less* powerful than the above.

As we have a large stock of the class which give off a power of 117·80 lb., this would lead some people to the conclusion that they were the best engines for our lines. But such is not the case, as it often—daily, I might say—happens to be necessary to put two of these engines on many of the passenger trains to work them to schedule time. The class of passenger engine introduced by me in 1884 (*vide* Com. M.P., 83/2,350, &c.), which exerts a power of 140·40 lb., has answered our requirements satisfactorily in every respect during the past two years on all lines, and the proof of it seems to reside in the fact that the author of the Specification 188A actually describes an engine *which will exert exactly the same power, but will be of totally different design and dimension*; and not only that, it will not be such a suitable engine for the New South Wales lines generally. It will have cylinders and wheels each larger in diameter than is necessary for the power required, and the insistent weight on the wheels will be *much more*—7½ tons per wheel—as against 6 tons. This, I need not remark, will be destructive to the permanent way and to the engine itself.

The comparison between the two engines stands thus:—

Present Passenger Engine and Tender.

Cylinders—18" diameter, 26" stroke, 60" driving wheels, 6 wheels coupled, and 2-wheeled bogie
Power = 140·40 lb. as aforesaid.

Tender on 8 wheels carries 3,600 gallons of water and 6½ tons coal.

Proposed Passenger Engine and Tender.

Cylinders—19" diameter, 26" stroke, 66½" driving wheels, 4 wheels coupled, and 4-wheeled bogie.
Power = 141·14 lb., or 742 lb. more.

Tender on 6 wheels carries 2,500 gallons of water and 3 tons of coal.

We here propose to introduce another "type of engine" of practically the same power, but which will in *practice* be certainly not so serviceable an engine as the present one, but *why* it is done it is difficult to

to see. I contend it would be best in every way to go on reproducing the type which has proved to be the best, instead of further complicating matters and increasing our difficulties and expenses for no good purpose. It is more than probable that the weight on the coupled wheels of the proposed engine will largely exceed the weight specified, viz., 30 tons; if it does not, the engines will slip, and will require the use of a lot of sand, which will increase wear and tear of rails and tires, and cause other trouble. It is best to so proportion an engine that the use of sand shall be avoided, and this has been done in the engines we have; and as it is specified that each box shall hold 4 cubic feet of sand, it is evident that much is to be expected from the free use of it, if the load on the coupled wheels does not exceed 30 tons. To be a good reliable engine in all weathers there should be not less than 9 tons on each of the (four) coupled wheels, but as that weight is *too much for our rails* it is proposed to put $7\frac{1}{2}$ tons on each wheel, and that is excessive. In short, the engine *should have six* coupled wheels instead of *four* coupled wheels, and I cannot see a valid reason for proposing to have such engines. Quite the contrary, we should now reproduce in our own shops the engines and tenders we have found to answer our requirements best; and as locomotive builders only *manufacture* very little of our engines and tenders, I consider the Government should import the necessary raw material—consisting of steel plates for boilers, copper plates, boiler tubes, Staffordshire iron plates, steel tires, axles, &c., &c. (articles which cannot for some time be made in the Colony), direct from the various manufacturers of such articles, in the same way exactly that the locomotive builders do at Home, and I dare say the Government could obtain such material at the same—perhaps lower—prices than they do. Then we could, with the splendid special machine tools and new workshops at Eveleigh, fully and profitably employ our skilled mechanics and others constantly in constructing new engines and repairing old ones, under the supervision of specially trained, expert officers, on the spot, and I feel confident that the total cost of engines built in this manner, under proper discipline and control, would not exceed the highest—perhaps the average—tender which will be received for supplying the engines now under consideration, as the profit now paid the manufacturers, cost of freight, inspection, trial, dismantling, and other items would about balance the extra price of labour here. Indeed, unless this is done, I do not see how the new Eveleigh Works, which have cost about £600,000, can be fully utilized. We have only recently been able to haul, with *one* engine, mail trains, consisting of thirteen carriages, or 104 tons, exclusive of weight of engine tender and passengers, up a grade of 1 in 30, and over the 8-chain curves of the Western road; we cannot do *more* with the proposed new engine; they will not do as much, if constructed to the specification, which specification I might say is certainly a curious one. The first few lines run thus:—“Specification for a four-coupled, outside cylinder, passenger (Bogie), *with* engine and tender.” Sixteen are to be delivered in Sydney, and four in Newcastle. Now, as it is almost certain that railway connection with the Southern and Northern lines will be established long before the delivery of the engines takes place, it would have been more convenient and economical for all of them to be delivered in Sydney.

The general arrangement of the engine, it is stipulated, is to be in accordance *with a plan to be prepared by the Contractors, in which certain leading particulars are to be faithfully embodied and adhered to*. For instance, the cylinders are to be 6 feet 3 inches apart, centre to centre, and the slide bars are to be 5 inches wide, the slide blocks $\frac{1}{2}$ inch thick, the tires are all to be $5\frac{1}{2}$ inches wide. Now, if these dimensions are faithfully adhered to, I think the bogie wheels will, in radiating, rub hard against the main frames, or the slide blocks or bars, or the sharp curves of the Western road, and serious results might occur, as the “clearance” is certainly not sufficient. The said specification is not only curious, but it is incongruous and amusing as can be seen by comparing the above with the last clause on page 13, which states that “Tenderers in England or America *may either Tender to the within Specification, or if they wish to depart from it*—in almost every particular—they will be *allowed* to submit *alternate Tenders*,” provided they adhere to the general dimensions of the engine.” This practically means that the author of the specification describes an engine such as he thinks he wants, but he is so undecided in the matter that if any contractor will design and specify a better engine, he will accept it and his tender. A specification embodying such conditions could have been printed on half a sheet of foolscap, and the trouble and expense of preparing the present one entirely avoided.

I consider the engine and tender unnecessarily complicated, and consequently expensive to manufacture. To give an instance, it is specified that one of three makes of Yorkshire iron is to be used in the boilers, whereas *steel*, of far greater strength, and about half the cost, should have been used instead. The connecting rods are composed of no less than sixteen separate parts, whereas only three are necessary. The same argument also applies with equal force to the side rods, and nearly all the other details. There are to be four slide bars where two only are required. The driving and trailing axle-boxes are to be of wrought iron, well case-hardened. This is wholly unnecessary, and very expensive. Brass boxes and keeps are to be used on the bogies. Cast iron is all that is necessary, and it is of course cheaper and better.

The steam “dome” in the boiler is very expensive to make; it is ugly; not only that, but it weakens the boiler, and it is utterly useless.

The regulator is of a class which is anything but good. The spark arresters are to be of the “best design” known; that is very vague; surely something definite could have been specified.

The Roscoe Lubricator is a very old device; there are many others less expensive and far more efficient lubricators to be had. A water-jet is to be applied to each tire of each wheel of the engine and tender for the purpose of “cooling,” and it might have been added, for the purpose of causing the engine to “slip” on the rails unnecessarily, which they will do oftener than is convenient, even with a dry rail, as they have not sufficient weight on them to use up the cylinder power.

It is also difficult to see why the tender and train brakes only are to be worked by the Westinghouse gear. The engine brake is to be worked by *hand*, I notice, whereas the whole lot should be worked by one handle operating the Westinghouse gear to be thoroughly efficient and up to modern requirements.

The tender, which is to have a “well,” is a costly and inefficient design; the water and coal capacity is small, and the coal will have to be piled up very high to enable the proper quantity to be carried. This is dangerous, as it often happens that large lumps drop off and sometimes strike the men engaged in repairing the road. There are only six wheels to the tender; this is a grave error, as each wheel will be excessively loaded. There should be eight wheels (two bogies), but it would seem that six wheels are preferred.

The side-lamp brackets should be put at the front end of tender, and *not* at the back, for many good reasons.

To sum this matter up, I consider that the author of the specification has ignored the main questions, of first cost, utility, simplicity, and efficiency; and I have no hesitation in saying that a simpler, a far more efficient, and less costly engine and tender could be made in our own workshops at Eveleigh than the one proposed. I should strongly recommend the construction in our own shops of twenty-five more of the 304 class of engine, which were designed for and intended to work five different kinds of traffic, viz., mail trains, fast cattle and goods, suburban passenger, and goods traffic, and shunting generally.

Specification No. 191 for Twenty-eight Goods Engines.

THIS specification describes what is known here as the 205 class of engine; indeed if it were not stipulated that the cylinders were to be 19" in diam. and 24" stroke, instead of 18" diam. and 26" stroke, it would exactly describe the 205 class of engine, a great many of which we have been supplied with by Messrs. Beyer, Peacock, & Co.; but the author of the specification is not content with introducing another class of passenger engine, but he wishes to have another class of goods engine also, without securing any benefit. The 205 class are well known to be the most sluggish engines we have, and there are grave defects in them, as at times enormous weights are thrown on the bogie and trailing wheels, on account of the absence of proper compensating levers in the required positions, and I notice that it is not intended to remedy this defect, therefore we are not only destroying the permanent way with the engines we have, but we propose to build a still *heavier* type to expedite the destruction. The 205 class are evidently poor copies of the American consolidated engines introduced in 1877, and intended to compete with them, but they have ignominiously failed, and if the proposed engines are built further failure will take place. I consider the consolidated type have proved themselves to be the best goods engines we have: they are lightly loaded per wheel, and are therefore easy on the road; they give off 200·00 lb. of power, and the proposed engine will give off 180·5 lb., only with *more* weight per wheel. I should strongly recommend that the new design be abandoned, and that twenty-five more of the consolidated engines be built in our Eveleigh Works. Nearly all the arguments I have advanced against the passenger engines can be made to apply to the proposed goods engines.

We now have eleven engines (of the 48 class) which are lighter, and give off 195·00 lb. of power—far more than is proposed; therefore we are taking a backward step by ordering LESS powerful goods engines than we now have.

As the recommendation indicates, the passenger engines are to be made by the Vulcan Foundry Co.; and it is evident that the goods engines are intended to be made by Messrs. Beyer, Peacock, & Co.

In my opinion it would be a serious mistake to have such engines constructed. I should advocate not only what I have hereinbefore stated, but I would construct a great many new engines of a more suitable type, in place of a lot of obsolete engines we seem to be unable to utilize. We have the best appliances for the purpose, and unless this is done it is difficult to see what use the appliances can be put to; indeed, it is a huge co-operative concern, in my view, in which every railway man is personally interested, and as the railways are State properties the whole question is a national one.

I have, &c.,

THOS. MIDELTON,

Superintendent of Tramway Rolling Stock.

19 April, 1887.

The Minister wishes to know if there are specifications for the two classes of engines which Mr. Midelton recommends; if not, could engines be built to the types of engines, one of each of which could be exhibited as a model, with perhaps some modifications in regard to material to be substituted for the material used in the engines exhibited?—CH. A. G., 25/4/87.

There is a specification and there should be drawings also for the passenger engines only. Engines could be built to a model engine as proposed, and I think it would be necessary to specify (say) "British steel" instead of "steel" only, and a few other matters of a like nature.—T.M., 25/4/87. Commr.

Resolution of Legislative Assembly.

Relative to Manufacture of Locomotive Engines.

(1.) That, in view of the widespread distress amongst the iron trades, this House is of opinion that the Government should take immediate steps to call for tenders in the Colony only for the manufacture of one hundred locomotive engines, and that the following be the conditions of such tenders:—That the construction of the said engines be carried out by labour already in the Colony, and that only such material be imported as cannot be produced here.

(2.) That the above Resolution be communicated by Address to His Excellency the Governor,—put and passed.

Invite tenders for twenty-five engines of each of the above types, in accordance with recent resolution of the Assembly.—J.S., 25/4/87.

Minute by The Secretary for Public Works.

Department of Public Works, 26 April, 1887.

Tenders for Locomotives.

WITH reference to the loco. engines, tenders for which were invited in the Colony and in England before I took office, I must express my disappointment that the Loco. Engineer while professing to do so did not display that regard for minimising the number of types of engines which is so essential for the economical working of his branch of the Department. He had already in his charge and in active use on our lines two types of locomotives, which answer more satisfactorily than any other the requirements of our traffic. I allude to the consolidated goods engines which were introduced through my instrumentality when I was in office previously, and the locomotives designed by Mr. Midelton for the express service over the mountains. Instead of ordering engines to correspond with these designs, Mr. Scott proposed to introduce two other types, thus multiplying the undue number we have already on hand, and necessarily increasing thereby the working expenses of the Loco. Department.

I consider that it would be detrimental to the best interests of the Railway Department to accept any tenders which have been received for the engines in question owing to their inadaptability to our traffic requirements, and I have directed tenders to be invited in terms of the recent resolution of Parliament for fifty engines, twenty-five each of the types I have referred to. As there is no time to obtain plans and detailed specifications for these types of engines, I propose to have patterns of each exhibited in the running sheds at Eveleigh. Other material might perhaps be substituted for some of that used in regard to tires, wheels, and boiler plate, but this can be specified.

I have directed Mr. Midelton to draw up such specifications as may be necessary, and he will dismantle two engines and have them placed in the shed so that manufacturers can see the design, and I shall have the locomotives constructed under Mr. Midelton's supervision.

JOHN SUTHERLAND.

Mr. Scott to see.—CH. A. G., B. C., 26/4/87. Inform Mr. Midelton by separate memo.—CH. A. G. Done.—D. C. M' L., 27/4/87. Recvd., 28/4/87. Please see my minute of to-day's date herewith.—W. SCOTT, 12/5/87. Commissioner.

Minute by The Locomotive Engineer to The Commissioner for Railways.

IN referring to the Honorable the Minister for Work's minute, and decision respecting additional locomotives required by the Department, and the strictures on my recommendations made by the Superintendent of Tramway Rolling Stock, which have been accepted and endorsed by the Honorable the Minister for Works, I would respectfully point out that the perusal of such has given me no small degree of pain, as the action taken practically implies a want of confidence in my ability to fulfil the important duties devolving upon me as Locomotive Engineer of the New South Wales Railways.

Without any desire to enter into a controversy with the gentleman's opinions, which appears to have guided the Honorable the Minister in his action on this occasion, or even to refer to any of the circumstances of the past which led to that gentleman's services being severed from the Railway Department of this Colony, I respectfully submit that in justice to myself, considering my past career in the Department for over thirty-one years, coupled with the fact that the honorable position I now hold has been attained by untiring energy and ability displayed while filling subordinate positions to my present one, it would only have been an act of justice if, before such documents had been made public, the Honorable the Minister had submitted such to me and requested that I would reply to them. Such reply could then have been considered in conjunction with the strictures on my recommendations, and such a course would, if the Honorable the Minister had seen fit to still maintain the action he has taken, at least have given him an opportunity of judging of the correctness or otherwise of my opinions and actions.

The first intimation I had concerning this matter was from the columns of the public press; and considering the Honorable the Minister's action, without reference in any form to me, forces the conclusion that any explanation I may have to offer will not in any way (with his present views of my capabilities) have the effect of altering his decision. Still, I trust I shall not be considered as exceeding my duty in explaining such action even now that the question has been decided.

A great deal is attempted to be made of the numerous types of engines on our lines as if such a thing was unknown anywhere else, which is not the case. Several of the "types" were introduced fully ten years before we had mountain lines with heavy grades and sharp curves, and some of them even before such lines were thought practicable. It is ridiculous for any one who is unacquainted with the history of our railways to criticise the action of those who had to provide for the lines opened and proposed over twenty-five years ago. It is a matter for congratulation that all the engines ordered within the last twenty years are still performing good and profitable work, and I question very much, considering the extensions opened, the varying grades and traffic to be provided for, whether such a satisfactory result has been obtained anywhere else under similar conditions. I have always been opposed to increasing the types of engine unnecessarily, and I can confidently refer to the records of the Department in support of this. The engines recommended by me are practically the same as the Standard design of passenger and goods engines of which we have eighty-one and eighty respectively. It is absurd to say that minor alterations in the details constitute a new type, and I venture to predict that there will be many such alterations from the pattern engines if built in the Colony as proposed. I have really only introduced one "new type" of engine on our lines during the six years I have had the control of the Locomotive Branch, and these are the tank engines for suburban traffic in which service they are giving entire satisfaction.

If this gentleman was sincere in his contention that even the difference of an inch in the cylinders constitutes a "new type" it is singular that he overlooked it when he classified the engines in stock during my absence in England. If reference is made to the table framed in the Commissioner's room, signed "Thos. Midelton, Acting Loco. Engineer," it will be seen that he places engines Nos. 36, 37, 38, 39, 75, 76, 77, and 78 in one class, whereas six of them have 16-inch and two of them 17-inch cylinders with a difference of power, viz., 93-11b. as against 105-11b. Again, in the same table of classification of engines, Nos. 23, 24, 25, 26, 27, and 28 in the same class with Nos. 32, 33, 34, and 35, although the former have four coupled wheels 5' 9" in diameter, whereas the latter are four coupled wheels 5' 6" in diameter the relative power being 112-7 lb. and 132-97 lb.

The Superintendent of Tramway Rolling Stock states I have no experience of the class of engine I recommended, and therefore he is at a loss to understand how I arrived at the conclusion that they are the most suitable.

From this he would have it inferred that I have taken a leap in the dark instead of being guided by my experience. He forgets that he might have been asked the same question when he recommended the "304 class," of which we had no experience at that time. I have not the slightest doubt that the engines of the same type I recommended, now being supplied by the Vulcan Foundry Company, will draw an equal load to the "304 class," and at a much higher rate of speed, and the price of them after running our trains 2,000 miles satisfactorily, is only £2,315 each, which is considerably cheaper than any passenger or goods engines ever tendered for before; hence my reason for recommending that the order be given to the same firm, in addition to which we would secure that the several parts be interchangeable, which, I may remark, is never the case when engines are built by different makers even to the same drawings and specifications.

The

The question of which is the most suitable engines should be considered from the standpoint of how far it is desirable to sacrifice "speed" for "power," and we cannot shut our eyes to the fact that when our lines are opened to Newcastle on the North, and Kiama on the South, we shall have to compete, particularly in the former case, with water carriage served with very fast steamers. Again, the public are constantly complaining through the press about the slow speed of our trains, and unfavourable comparisons are drawn with the trains of other countries. I therefore submit that if we want fast trains we must have a different class of engine to the "304 class," which has only 5 feet driving wheel. The recent trial of one of this class with the "Fireman's special" will fully prove this. (See Commissioner's 87/3,216, with the report from the Traffic and Locomotive Officers on the subject.)

I also understand that there is a desire for increased speed with the morning train from Penrith, which can only be attained by the use of engines adapted for fast running.

The specification for the "304 class" stated that they were intended to run at a speed of from 33 to 40 miles an hour. This is altogether beyond the working speed of such a class of engine, which is more of a "mixed train engine" than a "passenger engine."

My critic expresses his conviction that the unsuitability of the engines I recommended will be established on trial. I am quite content to abide by that test, and, as four of them are now being delivered, we shall very soon be in a position to decide the point. I have no fear of the result.

Reference is next made to my recommending the Mogul class of goods engines, in which I state that after some years' experience of them they have given general satisfaction, and this type should be adhered to.

My critic asserts that his experience of them is quite the contrary; so that it comes to a question of who has most experience, and who is best able to decide. As regards experience, this class of engine first commenced to run in 1882, and I have had control of this Branch all the time, so that I ought to know what work they can do, and have done, and also whether they are expensive to keep in proper running order. He forgets that we have ten engines of the "Mogul class" with precisely similar cylinders as those recommended running on our lines for the past two years; so that I have experience to guide me, and his assertion about my introducing another class is not correct.

In reference to his comments upon what has been done in the matter of equipping our lines with locomotive engines, he asserts that there are forty-two (42) different classes at the present time of nearly every possible shape and dimension on our lines. As a matter of fact there are only twenty (20) altogether, and of these seven are odd ones which have been purchased at different times from contractors and others at very low prices, and four engines, which constitute a class, were built as an experiment upon the recommendation of Mr. James Henry Thomas, who was appointed in 1869 to supervise the construction of new engines and rolling stock in the Colony, and these had afterwards to be altered from "Tank" to "Tender" engines. When the Superintendent of Tramway Rolling Stock classified our engines in 1882, he made only twenty-nine classes, and this number has since been reduced, so that at present time there are only twenty classes, exclusive of the old ones before referred to, and of these 75 per cent. are included in four classes and as a matter of fact our orders for new engines during the past ten years for our main lines have been confined to seven types, including the two classes he takes credit for; so that there is no reliance to be placed on his statement on this subject. It is perfectly absurd to assert that such lines as ours, with different descriptions of traffic to be provided for, could be advantageously, or profitably worked with only three types of engines. Perhaps he can show where such a thing exists. The following classes will be found on all well managed lines, where such traffic as we have has to be provided for, viz. :—

1. Express engines.
2. Fast mail and passenger.
3. Ordinary passenger.
4. Mixed train.
5. Goods engines for minerals, &c.
6. Goods engines for ordinary traffic.
7. Suburban tank for heavy trains.
8. Suburban tank for ordinary trains.
9. Shunting engines.

With reference to the greater power of the "304 class" over our ordinary passenger engines, saving the use of an assisting engine, on many occasions the "304 class" has to be assisted as the load for it is twelve vehicles, and not thirteen as asserted, and as the loads are always increasing the number of times the "304 class" will require the aid of an assisting engine will increase; so that what is a slight advantage now will then become a disadvantage, as the "304 class" uses more fuel per mile. My critic says why not go on reproducing the type that has proved to be the best, while he acted entirely different when he recommended the "304 class," so that he reflects upon me for the very thing he did himself during the short time he was in this Branch, but he evidently considers that he alone is capable of judging what is best; but it would be more to the point if he would state on what railways fast passenger trains are run with six coupled wheels 5 feet in diameter, which in this respect are similar to the goods engines on the London and Brighton line. (See Mr. Stroudley's remarks, page 76, vol. 81, of the Proceedings of the Institution of Civil Engineers.)

The proposal to build the fifty engines in our new workshops at Eveleigh upon the grounds that with the appliances there they could be built at "perhaps the average" of the tenders received, shows how little he knows of the subject he is dealing with.

I am positive he could not build engines of the "304 class" for 50 per cent. over the price paid to the Vulcan Foundry Co., and bearing on this I would ask where a sufficient number of specially trained experts are to be found in the Colony who are to secure such results? No fear need be entertained about the new workshops and appliances being fully and profitably utilized without our undertaking the building of new engines and rolling stock, and I have no doubt but that the saving to be effected in our repairs and renewals will, when we get them into full operation, more than cover the interest on the capital invested in them, and as our wants increase the advantage in respect to economy and efficiency will be still more marked. When recommending that the Eveleigh shops should be built I looked beyond our present requirements, and although they are much less extensive than many of the railway shops in other countries I am pleased to say compare very favourably with any that I have seen in my tour through England and America, both in design and equipment.

I will now refer to the criticism upon my specifications, and I have no doubt I shall be able to do so satisfactorily to every one acquainted with the stipulations and conditions usually embodied in such documents.

First.—As to the provision for having a number of the engines delivered at Newcastle, my critic asserts that we shall be connected with the Northern Line long before the engines will be delivered, therefore it would be more convenient and economical to have them delivered in Sydney. I know that some of the engines are required on the Northern Line now, whereas I am informed the Hawkesbury Bridge is not likely to be finished before two years at least.

Second.—Exception is taken to my stipulating that the general arrangement of the engine is to be in accordance with a plan to be prepared by the contractors, in which certain leading particulars are to be faithfully embodied and adhered to.

The reason for such a proviso is so obvious that it is difficult to imagine how any one having any knowledge of the subject should cavil at it. When contractors make their own drawings it places the responsibility of their correctness upon them, in addition to which all locomotive builders of repute have a properly trained staff of draftsmen for the special purpose. As to the prediction that if the dimensions and distances of the several parts mentioned are adhered to the bogie-wheels will in radiating rub hard against the main frame when running round the sharp curves on the Western Line, I am sure he will be surprised, if not gratified, to find that I have provided for all this, and that nothing of the sort can occur. The provision in my specification which he terms incongruous and amusing, viz., that tenderers could send in "alternate tenders," was inserted, not as he would have it supposed, that I was undecided as to what was best, but was the result of a discussion on this subject with the Commissioner, and it was deemed advisable in order that foreign builders should not be debarred from tendering to insert the proviso. It is scarcely necessary to say that we have no experience in the suitability of the material used by Belgian and other foreign locomotive builders, some of whom were desirous of competing, so that by admitting alternative tenders to be sent in they could, of course, receive consideration if the prices were appreciably lower than those sent in strict terms of my specification. If I were undecided about what was best, I would not have specially stipulated that certain material was to be used, and his reference to my specifying for three makers of Yorkshire iron in the boilers which he takes exception to, upon the grounds that steel of "half the cost" and of "greater strength" could be used instead. It would be more to the purpose if he were to follow my example and mention the particular brands of steel that will fulfil these conditions. This point is evidently introduced for effect, but the fact remains that up to the present time the extended experience of English and foreign builders, has not yet given them sufficient data to universally substitute steel for iron in locomotive boilers, and, in reality, can only yet be considered in an experimental stage. Steel has been used, but then those who did use it made their own steel, like Mr. Webb, the Locomotive Superintendent of the London and North-Western Railway, did at the "Crewe Works." When in England in 1883, I made special inquiries on the subject, which was then being discussed by the Institute of Engineers, and the opinions I obtained from the Chief Locomotive Superintendents were adverse to the use of steel in locomotive engine boilers. As the responsible head of this important Branch of the Railways, I conceive it to be my duty to specify for material that is almost universally used, and which my own experience proves to be suitable, rather than to stipulate for steel which, as before said, may yet be considered in its experimental stage, and of which there are no generally recognised "brands" specially adapted for boiler work, that I know of, and further, considering its being in such a stage, I did not, neither do I think any experienced Locomotive Engineer would at present recommend so large an order of this material, in view of the fact that what I stipulated for is the recognised practice of all English and Colonial Engineers,—I am content to differ with him.

The driving and trailing axle-boxes which I stipulate to be of wrought-iron, well case-hardened, he designates to be unnecessary and very expensive, &c., as cast-iron is all that is necessary, and it is cheaper. This is again a matter of opinion, in which I am pleased to disagree with him. If I only considered the first cost, I should be in favour of cast-iron, but my experience tells me that "first cost" in this case is more than counterbalanced by the cost of renewals. However, as my critic has nothing to do with this responsibility, he naturally disregards it as unworthy of notice.

The comments upon my specifying for a "steam dome" to the engines, clearly shows to what an extent my critic's vanity leads him in engineering matters. He states that it "is very expensive to make, it is ugly," in addition to which, it is utterly useless. From these objections it would be supposed that such an expensive and dangerous contrivance would, if used at all, be only in some isolated part of the globe where the advance of science was unknown; but what, I may ask, is the universal practice? They are used all over the world, with scarcely an exception, and the very substitute he suggests was tried over thirty years ago. The fact of its being practically abandoned, and also that no locomotive engineer of experience has deemed it worthy of consideration since, shows that it cannot contain the advantages claimed for it unless, indeed, locomotive engineers in all parts of the globe are, like myself, unable to comprehend its value. I scarcely think any person would like to take up the position that locomotive engineers in other parts, who have retained the "dome," are unqualified for their positions; and one of the very classes (the Consolidation) which my critic now recommends has a "dome," so that he proposes the very thing he so strongly condemns in my specification—perhaps from the fear that to dispense with it would involve another *type* of which he expresses his condemnation so strongly. So much for consistency.

The comment on the terms used in my specification about the "spark arrestors," viz., that they are to be of the "best design known," is very ingenious, as it leaves it to be inferred that I did not know what is "best;" but when I explain the object sought by the introduction of these so-called "vague" terms it will be seen what grounds there are for the insinuation that they were inserted because I had not the ability to deal with the subject. It is admitted by everyone who has seen the spark arrestors in our engines, which I take credit for, that they are the best they have seen; so that I can well afford to treat it with contempt.

The sole object for stipulating for the "best known design" was to protect the Commissioner from being mulcted in heavy damages for fires alleged to have been caused by sparks from our engines, as the law as laid down in our courts is that, provided the Commissioner for Railways has in use what is "best known to science" to prevent the emission of burning matter from the engine, he is not liable; and the production of the specification in Court that the engines have been built under such a proviso has on several occasions been accepted as satisfactory evidence upon this important matter.

The "Roscoe" lubricator is an old device, but it is nevertheless a very good one, and many of those so-called improvements upon it will, I have no doubt, be found much less effective.

The reference to the "water jet" causing the engine to slip is absurd, as it is not, of course, intended to apply it to the wheels when the engine is pulling; therefore the slipping cannot occur from that cause.

The reason why I made no provision for working the engine by the Westinghouse brakes, and confine its operations to the tender and train, is because I consider it entails unnecessary expense in the wear of the tires without effecting a corresponding advantage.

The objections raised to the tender I recommend are—"it is to have a well," is "costly and inefficient in design," "the water and coal capacity is small," and "the coal will as a consequence have to be piled up high to enable the proper quantity to be carried." This is alleged to be dangerous, as it often happens that large lumps drop off, and sometimes strike men engaged in repairing the road, also that I provide for six wheels instead of two four-wheeled bogies, which is considered a grave error. Well, as regards the cost, I have only to say that it is all included in the £2,315, which is for the engine and tender complete, and I think it will be found in this respect to compare very favourably with those to be built under his specification. As regards the "design," it is of the usual horse-shoe form, which for convenience in coaling and general efficiency has given entire satisfaction, and will in these respects compare very favourably with the American pattern which he advocates. The quantity of coal and water to be carried was fully considered, and I have no fear about the capacity being equal to the requirements in these respects without it being necessary to pack the coal up as alleged. As regards the assertion about the danger to the permanent-way men through being struck with lumps of coal falling, I have no recollection of such a thing occurring on our lines, and I am confident there is no foundation for it. I prefer the six wheels to the two four-wheeled bogies, for the reason that they admit of greater controlling power being exercised by the brake upon the wheels, and our experience undoubtedly proves this. The objection raised to the position of the lamp brackets on the tender affords ample testimony of the "straits" my critic was put to in finding something on which to ground a difference of opinion.

My critic sums up his objections to the class of passenger engines I recommended as follows:—

"I consider that the author of the specification has ignored the main question of first cost, utility, simplicity, and efficiency, and I have no hesitation in saying that a far more efficient and less costly engine and tender could be made in our workshops at Eveleigh than the one proposed.

"I strongly recommend the construction in our own shops of twenty-five more of the '304 class' of engines, which were designed for and intended to work five different kinds of traffic, viz.:—
Mail trains, fast cattle and goods, suburban passenger and goods traffic, and shunting generally."

As I have already disposed of his absurd assertions as to the cost, if built at Eveleigh, as he recommends, I will not again refer to it beyond mentioning that the engines he recommends cost £2,600 each free on board of ship at New York, and that when cost of freight, insurance, shipping, wharfage, cartage, erection, &c., is added, it would bring the price up to about £2,970 each in steam, as against £2,315 for those delivered in steam under my specification. No one who has the slightest knowledge of the question would make such wild assertions unless with the view of misleading. If, as I understand, the lowest Colonial tender received for engines under my specification was over 60 per cent. higher than the lowest English tender, it is certainly a subject for grave consideration how far work done by Government labour, even allowing for our superior appliances at Eveleigh, would be economical.

As for the assertion of my ignoring the main question of *utility, simplicity, and efficiency*, I am satisfied the engines I recommend will prove satisfactory in these and every other respect. I never heard of an engine being specially designed for so many different kinds of work (from mail trains to shunting) before, and I think such a statement will be a surprise to Locomotive Superintendents who have hitherto acted in the belief that it is desirable, in the interest of efficiency and true economy, to have each class of traffic served as far as practicable by engines best adapted for it.

Specification No. 191, for twenty-eight Goods Engines.

My critic starts his comments on this specification by saying that if it were not stated that the cylinders were to be 19 inches diameter and 24 inches stroke instead of 18 inches diameter and 26 inches stroke, it would exactly describe the "205 class," so that he here practically admits that they are not a new class, as he previously said they were. As a matter of fact, ten of the "205 class" have cylinders of exactly the same size as those specified for, as I have before mentioned. He designates the "205 class" as being the most sluggish engines we have, that they are but poor copies of the Consolidation engines introduced in 1877, with which they were intended to compete, but have ignominiously failed to do so, and that if the proposed engines are built further failure will take place. From these condemnatory terms it would be assumed that they have nothing to recommend them in his opinion, but it will be seen on reference to the Commissioner's S3-19,720 that in my absence he himself suggested some improvements—that such is not the case, as in the report referred to he says:

"Generally speaking these are a good class of engine, and I consider them a marked improvement upon the 93 class, but there is still room for many improvements in them, &c., &c."

He then goes on to mention the details in which the improvements could be made, which are almost identical with those which he now says the want of renders them what he designates "failure." It is notorious of my critic that he never sees anything that he could not improve on if he had a chance. It is singular that he should suggest improvements in the "Mogul Class," which he now condemns, when he could have recommended the Consolidation engine instead, if he then considered they were best; it was clearly his duty to do so.

I am at a loss to know what he means by designating the "Mogul" as copies of the Consolidation engine, the more particularly when he repeatedly asserts that a difference in detail constitutes a "new type," for, as a matter of fact, they are of an entirely different design, as the following will show:—The Mogul is a six-coupled 4-foot wheel with a bogie; the cylinders are 19 inches diameter, by 24 inches stroke, with the usual English tender on six wheels, whereas the Consolidation is an eight-coupled 4-foot wheel with a bogie; the cylinders are 20 inches diameter, by 24 inches stroke, and the tender is of the American pattern, carried on two four-wheeled bogies.

The

The difference in power amounts to one truck on the ascending grades over the mountains in favour of the Consolidation, but the load on the descending grades is the same for both classes; but the Consolidation require an extra fireman, the expense of which in itself is sufficient to justify my not recommending them, but there is a still more important objection to the Consolidation, which is the much greater wheel base, that causes the leading bogie wheels to lift off the rails when running round the 8-chain curves on the Western Line. When this was pointed out to the Baldwin Company, who built and introduced them into the Colony, they admitted it was a defect, and upon their suggestion several schemes have been devised to effect a cure, all of which have failed to effect the desired result.

The statement that I intended the goods engines to be made by Beyer, Peacock, & Co. is evidently made with the view of having it inferred that I unduly favoured that firm. The fact that I recommended that public tenders be invited for them affords sufficient testimony, if any were needed, that such was not contemplated. It will, I flatter myself, take more than *his* insinuations to prejudicially affect my character for integrity, so I shall treat it as unworthy of further notice.

In conclusion, my critic states he would advocate, not only the building of the fifty engines before mentioned, but would advocate the construction of a great many new engines of a more suitable class in place of a lot of obsolete engines we seem to be unable to utilize. He will be surprised, no doubt, to hear that most if not all of the obsolete engines he refers to have already been replaced by others more suited to our wants, and as other engines become useles or worn out, they will be replaced in like manner. I will, for obvious reasons, refrain from alluding to his remarks about "the best appliances, &c.," being "a huge co-operative concern in which every railway man is personally interested," and the railways being "State properties, the whole question is a national one;" but I would call attention to the fact that the "best appliances" referred to were specially selected by me, and afford convincing evidence that I know what was "best" in such a very important professional matter, and that even he has to admit it. As the question of the experience of my critic has been introduced into this matter, I assume it will not be considered out of place if I state what mine has been.

After serving my apprenticeship in an engineering works in Scotland, I joined the Edinburgh and Glasgow Railway in 1845, and remained three years in the shops as a leading fitter, when I went to the Locomotive Works of the London and North-Western Railway at Wolverton, where I was employed as a leading fitter for three years. I was then promoted to the position of Locomotive Foreman of the Camden Town Depôt, which I held for three years. I was appointed by Mr. McConnell, the Locomotive Superintendent of the London and North-Western Railway, to supervise the construction of the engines and rolling stock for this Colony—he being the Consulting Engineer of the agent of the "Sydney and Goulburn Railway Co." When the engines and rolling stock were completed, I came to this Colony in charge of them, under agreement, and arrived here in January, 1855, and remained in the employ of the Company until the Railways were taken over by the Government, shortly after which I received the appointment of Locomotive Overseer, which position I held until April, 1882, when I was promoted to the office I now hold of Locomotive Engineer of the New South Wales Railways.

W. SCOTT, 12/5/87.

Minute to The Commissioner for Railways.

MR. SCOTT'S remarks, of 12/5/87 (Comr's. M.P., 87/9,852), upon Mr. Midelton's report (requested by the Honorable the Minister for Public Works) on specifications and recommendations submitted by Mr. Scott for obtaining additional locomotive engines.

To dispose of the plausible assertions and peculiar reasoning advanced by Mr. Scott, I am compelled to go into the matter at greater length than I could have desired.

Mr. Scott in the first place says, "Without any desire to enter into a controversy with the gentleman's opinion, which appear to have guided the Honorable the Minister in his action," and then he immediately writes twenty-five pages of foolscap to upset my opinions, occasionally descending to personal references of invidious nature; at one time alluding to what he terms my "vanity," then of being "notorious" for qualities which he wishes understood as baneful, and again that I make "wild" and "absurd" assertions, his great effort being directed to depreciate and cast doubt upon everything I have said in furnishing the Honorable the Minister with my conscientious opinion upon the matter which he referred to me for report.

I will however at once analyse the mass of mediocre matter, which, with a certain amount of ingenuity displayed in cloaking true facts and raising false issues, is all that Mr. Scott's remarks really represent.

It seems to me that Mr. Scott's attempt to depreciate my remarks, against adding to the already excessive number of types of engines in use on our railways, recoils upon himself. Every railway man of locomotive experience is fully aware that the great advantage in having as many engines of one type in use as possible lies in their dimensions admitting of interchangeability of the parts. This is what was in my mind when I referred to the forty-two classes of engines now on our railways, and to Mr. Scott, as a locomotive man, the justice and force of my reference must have been quite apparent. Yet, with considerable subtlety, he attempts to show that I cannot be "sincere" in my representation, because, as he says, the classification sheet of the engines bearing my signature does not show as many classes as stated in my report to the Honorable the Minister. The classification referred to is based upon the general *outline* of the engines and in regard to the description of work they are equal to, the object being to group together, as much as possible, the different engines of similar power, and within one class are included many engines of different "types;" but to prevent the possibility of misconception in the matter, there is a special column in the classification sheet distinctly describing the difference in dimensions of the engines included within each class. Of this, Mr. Scott is perfectly informed, and it is from the very details entered by me on the classification sheet that he gathers the particulars with which he seeks to belittle my remarks against unnecessarily increasing the types of engine. But he shoots very wide of the mark intended, as I will now show. Mr. Scott knows that the engines he instances as included within one class will not admit of interchangeability of parts, and indeed, Mr. Scott himself, goes on to actually prove the gravamen in my reference by quoting the dimensions of several types included in one class in my classification. Had I used the word "types" instead of classes in my report, Mr. Scott would not have had available the peg upon which he hangs his peculiar argument; but this is only a fair specimen of the disingenuous reasoning apparent throughout Mr. Scott's remarks.

If

If the fact that other railways have too numerous types of engines in use, is consoling to Mr. Scott, to me it seems only reason why we should avoid the same error. He states that he "has really only introduced one new type of engine on our lines during the six years he has had the control of the Locomotive Branch." This is incorrect, for Mr. Scott caused the introduction of the "255 class," and there are four types within that class. The American mogul engines,—the suburban tank engines in opposition to my direct proof against the suitability of those engines as shown by the papers on the subject at the time; and now he adds the Vulcan engines. At one time he preferred inside cylinders, and at another outside cylinders—thus showing his indecision. And notwithstanding his assertion that it is "absurd" to say that minor alterations in the details constitute a "new type," I affirm that it is the alterations in the details that constitute a new type of engine. I might add that the prediction upon which he ventures "that there will be many alterations from the pattern engines, if engines are built in the Colony," will not be verified should the engines be built in the Colony, as there is a special clause in the specification directed against it (*vide* specification). Indeed, I have arranged that as many parts of the passenger engine as can be made to suit the goods engine shall be so made.

In his reply to my remarks upon his want of actual experience of the "Vulcan" engines, Mr. Scott says I wish to infer "that he has taken a leap in the dark," and that I forget that I "might have been asked the same question when I recommended the 304 class."

Now, as a specimen of disingenuousness, the whole of the paragraph referring to this question stands out with perhaps greater prominence than any other portion of Mr. Scott's lengthy statements. There is no analogy between the position and circumstances in which Mr. Scott and myself were severally placed. When I designed the engine (304 class) I had the knowledge that there was not an engine on the New South Wales Railways equal to the task of taking thirteen loaded carriages over the mountain line. I also had experience of the "60 class" engine, built expressly for this work in 1875, which engine gives off a power of 168 lb., and yet could not do the work. So I designed an engine giving off only 140 lb. of power with the same sized wheels as the "60 class" engine, which has proved itself fully equal to the work I have stated. And now Mr. Scott, although possessed of the same experience as to our wants years before I arrived in the Colony, made no attempt to produce an engine equal to the service required, but when the success of my engine becomes a fact accomplished, with the latter experience, he steps in and recommends another type of engine of *exactly the same power*. (In literature this kind of action is called plagiarism.) Therefore if they will do the same work (which I very much question), he has made a serious mistake in endeavouring to increase the types of engines unnecessarily. I might add that (as I have already pointed out in my report to the Hon. the Minister) this engine must have a most injurious effect upon the permanent way of the railways.

With due deference to Mr. Scott's remarks relative to the increased speed required in running the trains, I would point out that an engine of the 304 class runs the passenger train from Penrith, which train is heavier now than it ever has been. According to time-table and reference to Commissioner's M.P. 83/23,540, will show that I anticipated all that Mr. Scott now raises, and that the "304 class" engines possess all necessary to meet the requirements of the Penrith trains, being equal to a maximum speed of 35 to 40 miles an hour, in accordance with my specification.

With reference to the "Mogul" type of engine, No. 205 class, I must again point out that Mr. Scott's representations are incorrect. I had considerable experience of these engines before Mr. Scott had. They were put together and run for some time during the period I was Acting Locomotive Engineer when Mr. Scott was in England, and at the Commissioner's request, after Mr. Scott's return, because of this very experience, to which the Commissioner makes special reference (see his M.P. 83/19,194), I reported upon these engines on the 27/11/83, intimating clearly the different direction in which improvements should be effected, and Mr. Scott agreed with my suggestion. (Reference should be made to the paper.) Again, after further experience of the Mogul engines I wrote on 23/4/84, on the Commissioner's M.P. 84-5,900, in favour of the "Consolidation" engines, and from the thirty-eight reports from different inspectors and engine-drivers *re* failures of the Mogul engines, such as slide-valves, crank-pins, and draw-bar springs, &c., breaking No. 219 engine with fifty brass tubes put in, and tube-plate bulged after eleven months' service, I had come to regard the Mogul as a costly engine to keep in repair, as well as being very destructive to the road.

Mr. Scott says, referring to myself, "He forgets that we have ten engines of the 'Mogul' class, with precisely similar cylinders as those recommended."

I do not forget, on the contrary I pointed it out at the time the type of engine of No. 295 class was introduced by Mr. Scott. (The engines of this class were made in America at the same time as my engine, No. 304 class.) The following minute on the Commissioner's M.P. 83-23,540, shows that Mr. Scott objected to my engine (304 class), and introduced the one in question with a foot smaller wheel, and which engine he stated would run 35 miles an hour and "allow a good margin," which would be ample for any mixed passenger or live stock train."

"Believing that the speeds of our mail trains must be increased, I could not think of recommending the use of such an engine as Mr. Midelton advocates for running mail trains."

Now what are the facts *re* the service rendered by the two classes of engines just referred to? Why my engines have worked the mail trains over the mountains successfully for the last two years, whereas Mr. Scott's engines have never been tested at all to ascertain if they will fulfil the condition laid down by himself.

With further reference to the too numerous types of engine Mr. Scott says:—"It is perfectly absurd to assert that such lines as ours, with different descriptions of traffic to be provided for, could be worked advantageously or profitably with only three types of engine."

Perhaps he can show where such a thing exists. First let me point out what my words referring to the necessity for avoiding too many types of engines were. "This is costly and objectionable, for almost any railway could be properly worked with, at the most, six different classes of engine, and many lines could be worked with three." I think the object sought in endeavouring to fix me to saying, "Three types of engine could properly work our railways," is not difficult to see. And now to comply with Mr. Scott's request as per the last line of the foregoing extracts. If he will refer to the *National Car Builder* of May, 1885, he will see illustrations of four types of engine used in working the traffic of the New York West Shore and Buffalo Railroad—a line of 850 miles, the equipment of which being 177 engines and 7,291 vehicles. The types of engine being A and B, passenger; C, consolidation; and D, six wheels coupled

coupled tank engines. This line is acknowledged by all railway men to be the finest and best equipped in America, even not excepting the Pennsylvania railroad—and all this equipment was being prepared during the very time that Mr. Scott was in America and had he been so inclined he could have obtained valuable information in respect thereof.

With reference to the "304 class" engines not now being *allowed to take thirteen vehicles* over the mountain line, all I can say is that such a fact reflects upon Mr. Scott's management of the Locomotive Branch, for when I had charge of the engines under Mr. Scott, thirteen vehicles *were taken* without the service of an assisting engine and the same thing can be done now.

I will meet Mr. Scott's remark "That it would be more to the point for me to state on what lines engines with 5-foot wheels run express trains," by simply pointing out that as far back as 1872 Mr. Webb, of the London and North-western Railway, ran a train from London to Liverpool, a distance of over 200 miles, in five hours, with an engine with four coupled wheels of 5 feet diameter, and that the same rate of speed has been run on our lines by my engine. If reference be made to the Commissioner's M.P.'s. 87-3,216, 87-4,076, 87-4,334, and 87-5,898, the facts revealed, if estimated correctly in regard to the special trip made by one of my engines with the firemen's train on the 22nd February last, show a performance so good that I very much doubt if anything superior is on record.

Mr. Scott's assertions on pages 11, 21, and 22 of his remarks, to the effect that he is positive that I could not build engines at the Eveleigh workshops for 50 or 60 per cent. more than the cost of the engines now being delivered by the Vulcan Co., are mere assertions, and the matter he advances to support them simply specious pretences put forward to hide his own inability to grasp this important question in all its bearings, and I am not surprised that he cannot properly appreciate the advantages to accrue to the department in dealing with it in the manner I have recommended. In his efforts to show that the position I have taken up in the matter is an untenable one, I am charged with making absurd and wild assertions; need I remind Mr. Scott that abuse is not argument. I repeat here all I have already said in regard to building new engines at the Eveleigh shops, but I do not think I am at present called upon to submit particulars of the line of detail actions I should take and consider necessary for the success of such an undertaking. I am content to simply direct attention to the fact that as yet Mr. Scott has shown no reason for his self-satisfying declaration that he has disposed of my absurd assertions as to the cost of engines if built at Eveleigh.

In reply to the remarks bearing upon the subject, I may say that I am perfectly aware that when contractors make their own drawings for engines they have to build, that it places extra responsibility upon them, and I am also aware, if Mr. Scott is not, that such course relieves the locomotive engineer of the responsibility which properly and exclusively belongs to such an officer, and forms a very important part of the special duties for the performance of which he is paid a salary.

Passing over the intervening matter, as possessing no special significance, till I come to Mr. Scott's remarks *re steel versus* Yorkshire iron for boilers of engines, I would say this: The proof of Mr. Scott's undecided tendency lies in the fact that he had two brands of Yorkshire iron for boilers printed in his specification, and he afterwards added in manuscript a third. I can import the best boiler steel made, for £8 2s. 6d. per ton f.o.b. Glasgow, whereas the Yorkshire iron preferred by Mr. Scott would cost from £30 to £39 per ton.

The following extract from the Presidential address at the N.E.C. Institute of Engineers and Shipbuilders, 1885-6, will perhaps enlighten Mr. Scott:—"The success which has attended the introduction of mild steel in the construction of marine boilers is so marked that but one opinion exists as to the suitability of this material for such purposes; and as Mr. Head says, 'One contributing cause for this development is doubtless the employment of the higher pressures now in daily use; or, perhaps to speak more correctly, the capabilities of this material have assisted to render possible such advances in pressures as would otherwise have been out of the question. But be this as it may, call it what you like, cause or effect, there can be no question as to the success of steel boilers built by the Company with which I was connected in the spring of 1878, which are now running without having cost a penny for repairs, and practically in as good a condition as ever, and doubtless other manufacturers could bear similar testimony.'" Mr. Scott could have seen lately at the Circular Quay, in some of the new Orient steamers, steel boilers 15 feet in diameter carrying a working pressure of 160lb. to the square inch. Now surely in the face of this there cannot be much that can be considered an extraordinary departure in proposing to make of steel locomotive boilers of 4 feet 6 inches diameter, carrying 140 lb. to the square inch, more especially when one considers that Mr. Scott quotes Mr. Webb as having used steel *of his own make* on the London and North-Western Railway. And here let me say that had Mr. Scott been as alive to his opportunities as he might, and ought to have been, when in America, he would have found hundreds of steel boilers in use in locomotive engines. Yet with imperturbable self confidence Mr. Scott asserts that this matter can only yet be considered as in the experimental stage. I fear that steel for boilers, as well as many other advancements in engineering science, would have *remained* in the "experimental stage" were the majority of engineers as conservative as Mr. Scott. Perhaps it may not be out of place to also point out that of ninety-seven motors in the Tramway Department of the Colony ninety-two are fitted with steel boilers, and that even the two motors built by Mr. Wearne in Sydney are fitted with steel boilers, so that if Mr. Scott had taken the trouble to watch what was passing under his eyes so to speak, he could have acquired valuable information relative to the use of steel in locomotive boilers. As he asks for it I have not the slightest objection to putting Mr. Scott on the way of obtaining a few of the best brands of steel which will fulfil the conditions I have named; they are,—

The Steel Company of Scotland (Limited), Glasgow.

The Landore Siemens Steel Company, Swansea.

The Leeds Forge Company, Leeds.

Park Bros. & Company, Pittsburgh, U.S.A.

Ohio Steel Company, Cleveland, O.

Perhaps this will suffice.

In reply to Mr. Scott's peculiar remarks *re steam domes*, I did not think it necessary to take the dome off the boiler of the pattern engine No. 133 for the mere sake of allowing the contractors to see the engine without a dome. When I mention that the engines of 304 class have run for over two years without a dome the success of the change is established.

Mr

Mr. Scott should keep pace with the times. Evidently he did not notice the domeless engines on the Great Northern, Great Western, and South-Eastern Railways in England. Yet the fact remains that such engines are largely in use, in fact exclusively so on the Great North Railway, which had over 500 engines in the year 1876.

In regard to Mr. Scott's perforated plate, which he takes credit for as a spark arrester, I see, according to the light he now throws upon the subject, that it was Mr. Scott's retiring nature which prevented him from stipulating for his own spark arrester in his specification, but as he stipulated for "the best," and as he now tells us his spark arrester is admitted by everyone who has seen it to be "the best," the inference is obvious.

My reference to the water jet acting on the wheels causing the engine to slip is not "absurd," and the attempt made to place me in a false position by explaining that it is not intended to be used when the engine is pulling is puerile.

I say that if the jet is often used on down gradients the wheels would be wet, and in ascending gradients with wet wheels, and it would happen at times the handicap on the engine would be great. I certainly think, after reflection, that this is a case where the disadvantages outweigh the advantages. I am therefore opposed to the water-jet arrangement on engine wheels.

With reference to the remarks dealing with the Westinghouse brake, I think a little reflection will make it quite clear that the reason advanced by Mr. Scott for not working the Westinghouse brake on the engine is really a reason in favour of its being so worked.

I can afford to ignore Mr. Scott's remarks about "horseshoe" *versus* "wedge" shaped tenders. I will, however, again refer to the seemingly small matter of the position of the side-lamps on the tender, as it is just one of those small matters sufficient to be important in averting or occasioning serious accident. The reason the side-lamps should be placed on the front end of the tender rather than on the back end is that the men on the engine may be enabled to see ahead or behind without having a dazzling light thrown in their eyes; indeed, the proper place for these lamps is on the side of the engine-cab, above the men's head, in which position it would help instead of hinder their range of vision.

It is quite true that my ten engines (304 class) cost £2,600 each, f.o.b. New York, but it must not be forgotten that there was no competition for supplying them—that they were built to a *special specification* stipulating wide departures from the beaten track, all of which tends to increase the cost of the first engines of a new type,—and I have no doubt whatever that if engines were tendered for now in England and America under the same specification, with the detail drawings now available, that we should obtain them for a less price than actually paid for the Vulcan engines now being delivered. I might mention, because Mr. Scott does not refer to the fact, that the ten engines (296 class) built to his specification by the same makers, and at the same time as my engines, cost exactly the same price.

In the year 1884.

And now to refer to the cost of the Vulcan engines, which Mr. Scott quotes over and over again in the course of his remarks at those points where he apparently thinks it is likely to create effect, as £2,315, and as the cheapest engine ever offered to the Government.

It will no doubt be a rude shock to the reliableness of Mr. Scott's statements when I say that reference to the invoices of the Vulcan Company will show that the amount paid, or to be paid, for their engines is very much nearer £2,500 each than the figures stated by Mr. Scott, and as to being the cheapest engine ever offered to the Government, reference to the Commissioner's minute paper 80-5,712 will show that offers were made to the department by Messrs. Beyer, Peacock, & Co. to supply goods engines of the 205 class at £2,300 each. I need not say that Beyer, Peacock, & Co. are second to none as locomotive manufacturers.

I now come to the question of goods engines, but I will not combat Mr. Scott's incorrect assertions. It is sufficient to say that I have always recommended "consolidation" engines for goods traffic ever since 1880, when I first had experience of them and of their merits, evidence of which is afforded on the Commissioner's minute paper 84-5,900 by my minute of 23/3/84, as follows:—

"* * * * * If it is decided to import goods engines I recommend that we have the Consolidation type, and to be exactly like those last imported, except as far as this specification (Spec. for 304 class engines) can be made to hold good."

This is good evidence I think that I have been consistent in endeavouring to limit types as much as possible, and make the parts of goods engines interchangeable with passenger engines. Again, Mr. Scott has purposely suppressed a very valuable report on the utility of the Consolidation engines by Driver John Jones, dated 15/11/79 (copy attached). I may mention that Driver Jones was a superior engineman, and was always selected by Mr. Scott himself to run special trial trips of engines for test purposes, therefore his remarks are entitled to great weight.

Mr. Scott makes a point of the second fireman being required on the Consolidation engine, and states "that in itself was sufficient to justify his not recommending the consolidation engine." To this I would reply that when I had the opportunity I tried by certain alterations to the arrangement of the brake gear to dispense with the second fireman, and should have succeeded had I met with proper support from Mr. Scott.

In the engines I proposed to build to the pattern consolidation engine No. 133, I have, by simply removing the cab 15 inches further back, and rearranging a few details, taken all the action necessary to dispense with the second fireman.

The best answer I can give to the sensational paragraph about the bogie-wheels lifting on the curves is that the engines have been running successfully over the Mountain line for close upon ten years.

In regard to Mr. Scott's remarks in attempted refutation of my statement that "it was evidently intended that the goods engines should be supplied by Messrs. Beyer, Peacock, & Co.," I repeat what I said, and to anyone acquainted with the favorable circumstances in which that firm stands to supply the engines in question, the reason is obvious.

In conclusion I beg to point out that it is most unsatisfactory to continue to debate the question as to the most suitable engines for our requirements, which can only be satisfactory and finally settled by actual experience of the working of the different types of engine under precisely similar conditions. And I submit that at least my engines have by their *work* during the past *two years* demonstrated beyond all question their great efficiency in all important respects, and I trust that this, with the facts I have stated in this paper, will assist the Commissioner in arriving at a sound decision upon this important, though unnecessarily rendered somewhat intricate, question.

Randwick Works.

THOS. MIDELTON, M.I.M.E.
[Enclosure.]

[Enclosure.]

Mr. Tipping,—
Sir,

Penrith, 15 Nov., 1879.

I have travelled with all the Consolidation engines on the Western line, as requested, &c. I beg to make the following statement to the several questions:—

1. Do these engines keep up sufficient steam with an ordinary load? They do since I have been with them; there has been no case of sticking up, but one or two struggles to reach the destination where the pulling has been long and severe. This, in my opinion, was caused by unskilful firing; they require more judgment in firing than the old engines, having such a large area to fire over, and sometimes inferior coal will creep in. There are instances of the old engines sticking up, sometimes for want of steam from various causes, but as a rule the Consolidation engines steam as well as the old engines, and better than some of them.
2. Do they require any more attention than any other class of goods engines? They do not, excepting in watching that bolts and nuts do not stack back through not having a split-pin in to secure them.
3. Is the present mode of firing the best, if not, can you suggest any alteration? Different men have different ways of firing, but I consider the best to be a low flat fire, so as not to choke up the arch, and fire about six shovelfuls at a time.
4. Is the quality of the coal suitable? It is, as the mountain coal makes no clinker, it is readily acted upon by the rocking fire bars.
5. Is it absolutely necessary to have a second fireman beyond Lithgow, or between Bathurst and Orange? It is at present, not altogether on account of the hard work, but the inability of the drivers to assist in breaking. If the driver was supplied with a steam-brake in his corner, or things could be brought closer together, so that the driver could assist his mate in shunting, &c., then I think the second fireman could be dispensed with on the easier lines.
6. Report on the brake power of both engine and tender. The tender brake is a good one, but takes sometime to get it on, owing to its peculiar construction. The great loss of power is in the engine brake, which should have eight blocks instead of four, and six inches longer, if it is possible to get them on owing to the great weight of the engine. The break-rod and screws of both engine and tender should be lengthened two or three inches so that they could be taken up a hole before starting, instead of having to wait until they are worn right up, and having to start the journey with about two or three threads on the screws.
7. Do the drivers take sufficient interest in these engines and give them a fair trial as to their taking the maximum load with due regard to economy in fuel and stores, keeping time, &c.? The drivers take a very fair amount of interest in them, as they must do to get along the roads, but there is not that pride and care exercised as there would be if every man had his own engine. His care and attention extends of course to the end of the trip only, as he will have another engine the next day, and so on, but generally speaking, I do not think the men appreciate them at present as they will bye-and-bye when they get more accustomed to them. The engines have power to take one or two wagons more, but I do not think the water in tender would hold out between some of the water cranes, and they are very difficult to get along with their present sand gear in greasy weather.

General Remarks.

In the consolidation engine we have, I think, the *grandest goods-engine ever placed on the Western road*; they are very heavy certainly, but they pull and run well with very little signs of heating if properly lubricated; peculiarly adapted for the Western line; runs round the curves *better*; and is in my opinion much *safer* on the curves than the *old* goods engines. The bogie in front of them is in fact a splendid idea for the goods engines for the Western road, but their break-power is not sufficient, and their sand boxes and gear should be altered to suit our requirements. As we have sand boxes and gear on some of the old engines which I think cannot be excelled, it would be a good idea to put them on these. Their sand box being placed on the top of the boiler occasions great loss of time and much labor in filling it. Two large sand-boxes could be placed on the truck in front, or bracketed on the side as on the old engines. They should have the short lever and quadrant, instead of their straight pulling handle, as a much better means for gauging it. They should be worked separately as it is impossible to catch the right and left curves, &c.

Straight Road.

I know there is an objection to sanding one rail at a time owing to all the strain coming one side but these engines are doing the same thing now, as one sand-pipe is running the sand on the ballast instead of the rail on the sharp curves, and wasting it owing to the cause above mentioned. The practice also of running these engines down the mountains, tender first, cannot be too soon put a stop to, as it is unsafe in greasy weather through not being able to get any sand under tender brake and the small brake-power of the engine, they are unable to hold the train properly. I believed the two first goods engines that arrived here are the best with the short blast pipes. They are more lively, pull better, and burn less fuel, and do not heat their smoke-box like the others; but their injectors should be horizontal, as they work much better in that position. In conclusion, I beg to say that I think all the present difficulties will disappear in the future, as the men get more accustomed to them, and the alterations which I have suggested are carried out.

I remain, &c.,

JOHN JONES.

Loco. Overseer (Mr. Scott).—JOHN TIPPING, 17/11/79.

Sent the original papers to the Commissioner on the 1/7/82, with these comments: "The attached report by driver J. Jones is, in my opinion, a very valuable document. He is a very steady, thoughtful man; and I agree with what he has written in almost every particular. My experience of these engines here, leads me to almost the same conclusions. I forward these papers for your information." The Commissioner replies thus on 10/7/82.

"I shall be glad if Mr. Midelton will make these engines as effective as possible by the additions of the improvements suggested by driver Jones, in which Mr. Midelton concurs, and will report to me the result (say) at the end of this year."

CH. A. G.

I think the original papers should be put with these, as I fancy I wrote more than is stated in my memo. above, which I have copied from my own copy of Jones' report.—THOS. MIDELETON, 20/5/87.

Minute

It was not stopped until I did it in 1882.—T.M.

Minute by The Chief Clerk to The Commissioner for Railways.

TENDERS for the manufacture of fifty Engines in the Colony.

In the advertisement for the above it is stated that particulars can be obtained at this office. One gentleman called to-day, but I was not in a position to furnish him with any particulars further than to inform him that the pattern engines would be dismantled and on view at Eveleigh running shed. To whom am I to refer intending tenderers as to the details of the engines required?

D.C.M'L., 27/4/87.

Instruct them to go to the running shed, Eveleigh, inspect No. 308 engine and tender and No. 133 engine. Any engine and tender between 304 and 313 inclusive can be inspected.—T.M., 28/4/87.

Draft specification left with Assistant Secretary for printer at 11:30 a.m. to-day.—T.M., 28/4/87.

Yes, when we receive the drawings from America and make drawings of goods engines here.—T.M.

Mr. Midelton will please say if he wishes any one in attendance at Eveleigh. If instructions were given to the employee in charge of shed to point out the engines which are to be placed there as pattern engines, I presume that should suffice for that portion of the public requirement. In the specification to be drawn up the general dimensions of the engines will be given, and also a statement of the material which is to be used. No doubt, ultimately, detailed drawings will be required, but these could perhaps be better supplied when a contract has been accepted. It will not be convenient to persons intending to compete to visit Randwick for the purpose of seeing Mr. Midelton. The skeleton specification should be at this office, and perhaps Mr. Midelton could arrange to meet those interested in Sydney at this office at stated times.—CH. A.G., 27/4/87.

Minute by Mr. Midelton to The Commissioner for Railways.

* * * I will go to Eveleigh to-day and make all arrangements respecting the pattern engines. I could attend Eveleigh daily from 3 to 6 p.m. and meet intending contractors there; they could also attend at any time to inspect the engines, and also see copy of specification here (at Randwick) and at the Phillip-street office, as above. This, I think, is all that is required. Several copies of the specification could be printed by to-night or to-morrow evening certain. I should like to see a proof copy before it is signed by the Commissioner.—T.M., 28/4/87. Commissioner.

The specification is in the hands of the printer, and we are promised a proof to-morrow morning.—D.C. M'L., 28/4/87. Seen.—I sent specification to Mr. Midelton yesterday, with some suggestions re the title of the superintending officer.—CH. A.G., 30/4/87.

The Assistant Secretary of Railways to The Superintendent Tramway Rolling Stock.

Manufacture of Engines in the Colony.

WITH reference to the resolution recently passed by the Legislative Assembly, providing for the manufacture in the Colony of 100 locomotive engines, the Secretary for Public Works has decided to invite tenders for the supply of twenty-five consolidation goods engines, and twenty-five express passenger engines similar to those recently imported, and has directed that they are to be constructed under your superintendence. I am directed to request, therefore, that you will be good enough to draw up such specifications as may be necessary for carrying out the contracts, and that, where desirable, you will arrange for the substitution in the Colonial-made engines of other material for some of that used in the pattern engines in the tires, wheels, and boiler-plate. The tenders are returnable on the 17th prox., which will not allow of sufficient time for the preparation of detailed specifications, and pattern engines are therefore to be exhibited to manufacturers in the running shed at Eveleigh to tender from. The two pattern engines should be at once dismantled and placed in the shed, where intending tenderers can see them, and I shall be glad if you will, as early as possible, arrange for all other matters which may be necessary to give effect to the Minister's decision in this matter.

27 April, 1887.

A. RICHARDSON,
Assistant Secretary.

Noted, and instructions carried out.—T. MIDELTON, 3/5/87. Commissioner.

List of Tenders received for Locomotives to be Manufactured in the Colony to Mr. Scott's Specification.

Name.	20 Goods, South.		8 Goods, North.		12 Passenger, South.		4 Passenger, North.	
	Price.	Total.	Price.	Total.	Price.	Total.	Price.	Total.
Thomas Wearne	£ 3,750*	£ 30,000	.....	.....	£ 3,750*	£ 30,000	.....	.....
Mort's Dock Company	3,995	79,900	4,185	33,480	4,375	52,500	4,555	18,220
Atlas Company	4,040	80,800	4,225	33,800	4,405	52,860	4,585	18,340
Henry Vale	3,785	75,700	.....	.....	.....	.....	.....	.....
Hudson Bros.	3,680†	73,600	3,760†	30,050	3,820	45,840	3,970†	15,880
‡ Australian and American Agency Company...	.....	.....	.....	.....	.....	.....	.....	.....

* Only tenders to supply 8 engines.

† These are the lowest offers.

‡ Ineligible, as the offers are for engines to their own specifications and for delivery in America.

List of Lowest Tenders received in England.

Name.	20 Goods, South.		8 Goods, North.		12 Passenger, South.		4 Passenger, North.		Remarks.
	Price.	Total.	Price.	Total.	Price.	Total.	Price.	Total.	
Dubbs & Co.....	£ 2,165	£ 43,300	£ 2,165	£ 17,320	Ineligible, as they do not propose to comply with conditions of specification.
Beyer Peacock .....	.....	.....	.....	.....	2,495	29,940	2,495	9,980
Neillson (Glasgow)	2,245	44,900	2,245	17,960	2,375	28,500	2,375	9,500	

SUMMARY.

Total of Messrs. Dubbs, and Beyer Peacock's tenders ...	£100,540.	Neither firm complying with conditions of contract.
„ Messrs. Neillson for the whole of the engines ...	£100,860.	Conditions complied with.
„ lowest tender in each case irrespective of conditions	£98,620.	Dubbs for goods, and Neillson for passenger.

List of Tenders received in the Colony for 50 Engines to Mr. Midelton's Specification.

Name.	25 Goods.		25 Passenger.		Remarks.
	Price.	Total.	Price.	Total.	
Hudson Brothers.....	£ 4,050	£ 101,250	£ 3,698	£ 92,450	Only tenders for 15 of each.
G. A. Key.....	3,960	99,000	3,705	92,625	
H. Vale.....	3,960	59,400	3,650	54,750	
Mort & Company	4,080	102,000	3,702	92,550	
Atlas Company	4,010	100,250	3,715	92,875	
J. Monday	2,874	71,850	2,874	71,850	Only tenders for 10 of each.
T. Wearne	3,980	39,800	3,714	37,140	
Morris Brothers	3,990	39,900	3,800	38,000	
J. D. Brown.....	3,460	86,500	3,460	86,500	To be allowed space in Eveleigh workshops and use of tools.

Minute by The Locomotive Engineer.

MR. MIDELTON informs me that the two locomotives which were recently used as patterns in connection with the tenders that were recently invited are no longer required for that purpose. Will you please say if they may be taken into traffic, as they are very much required.

The Commissioner.

W. SCOTT, 12/6/87.

Memo. by The Secretary for Public Works.

Department of Public Works, Sydney, 17 June, 1887.

I UNDERSTAND that the engines exhibited in connection with the tenders for locomotives are not yet in use. I shall be glad if the Commissioner will depute someone to examine them, to see if any repairs are necessary before they go out on the road, and then arrange for their running.

Mr. Midelton might inspect, but any repairs to be carried out under Mr. Scott's orders.

JOHN SUTHERLAND.

Let this be done.—CH A.G., 18/6/87. Locomotive Engineer and Mr. Midelton, B.C. Seen. —W. SCOTT, 22/6/87.

Seen, 24/6/87. I hardly understand the Minister's meaning in this matter. Both engines (No. 307, passenger, and No. 133, goods) are now (27/6/87) standing at Eveleigh shed out of use. The tender of 307 was attached to No. 305 engine, in place of the one which was damaged last week on the morning of the trial of 305.—THOS. MIDELTON, 27/6/87. The Commissioner.

Mr. Scott.—A.R., B.C., 29/6/87. I have examined the engines and given directions as to what repairs are to be effected.—W. SCOTT, 30/6/87. The Commissioner. Mr. Midelton to see. In order to save unnecessary writing, I may inform Mr. Midelton that the Commissioner has seen his minute of the 27th June.

Minute by The Locomotive Engineer.

ON your 87-12,116 it was decided that Mr. Midelton should inspect the engines used as patterns in connection with tenders which were invited for the manufacture of fifty locomotives in the Colony, with the view of ascertaining what repairs are necessary before bringing them into use again. I have to report that Mr. Midelton has not yet inspected the engines, and as we are very short of engine-power I shall be glad if you will issue such instructions as will facilitate their being brought into use as quickly as possible.

The Commissioner.

W. SCOTT, 25/6/87.

Mr. Midelton.—A.R., B.C., 28/6/87.

The

The reason I did not inspect was because I was engaged on the Peat's Ferry "Board," and another reason is because the tender of the engine in question was taken and put in No. 305 engine, in place of her own tender, which was damaged on the morning of the 16th of June before going out on the engine trials, therefore it was unnecessary and unreasonable for Mr. Scott to apply for permission, &c., under such circumstances. I visited Eveleigh yesterday and I saw No. 307 engine; it is nearly but not quite ready for use; it has no tender and cannot have one unless another engine is deprived of a tender, which I find is being done, but I think unnecessarily, as it leaves matters where they are at present as regards quantity of engines available for traffic. No. 313 is stopped, and her tender is to be put on to No. 307; it would be better to repair 307 tender, and so use both engines. I should like to effect a slight alteration of No. 307 brake-gear before it goes out, if Commissioner approves; the counter-weights on the wheels now catch the brake-rods and it is dangerous.—THOS. MIDDELTON, 7/7/87. Commissioner.

Make it safe for running by all means.—CH. A.G., B.C., 7/7/87. Loco. Engineer.

Please have the brake-rods attended to, so that the engine may be kept running some little time longer. It will, however, be necessary to take her in for the purpose of having new axle-brasses fitted, so as to prevent the side-play which is the cause of the balance-weights striking the brake-rods. This should be done as soon as practicable. Is not 307 tender now being repaired?—W. SCOTT, 13/7/87. Assistant Loco. Engineer.

Minute by The Secretary for Public Works.

Department of Public Works, Sydney, 3 May, 1887.

Subject:—Re use of machinery at Eveleigh for supply of Locomotives.

MR. GARRARD, M.P., introduced a deputation to me to-day with reference to the alleged proposal to allow tenderers for the supply of locomotives the use of the machinery in the workshops at Eveleigh.

The deputation consisted of Messrs. Garrard, Abbott, See, O'Sullivan, Ms.P., Bloomfield, Hudson, Franki, Wearne, Morris, W. E. Mort, Sands, Hoskins, and Vale.

They represented that they understood from the public prints that the Government intended to allow contractors for the manufacture of locomotives the use of the machinery at Eveleigh workshops, and they contended that this would be an injustice to the firms who had spent large sums of money in building up private workshops.

They further considered that it should be the aim of the Government to encourage private firms. If, as suggested, the Government allowed the use of the shops, or undertook to build the engines, they would be entering into competition with private firms who had invested fully £1,000,000 in buildings and machinery, and in a sense they would be causing the manufacturers to be entering into competition with themselves, for in a degree they were part owners of the Government works at Eveleigh, as they were taxpayers. When the Government proposed to erect these works, and asked Parliament to vote the funds, it was never intended that these shops should be used for manufacturing work, as it was stated they would be devoted to the repairing of machinery and stock. They contended that it would not only be an injustice to them for the Government to enter into competition but it would be unwise, as the Government never got work done so economically as it was done in private workshops. The system had been tried in other parts, and experience showed this; in America they had no Government works, and in England they had recently decided not to extend their Woolwich works, but to allow the State requirements to be met by private firms. They thought it was an unwise policy for the Government to be adopting a large plant. A foundry had been set up at Eveleigh, but the private foundries in existence already met all requirements, and if private persons found that the Government were providing these appliances they would decline to invest capital in manufacturing industries, and this would act most injuriously upon the best interests of the Colony, as in times of danger we would have to rely largely upon our local manufactories.

It was stated that through the inducement offered by the Government some of the best mechanics in the private firms left to join the Government works, and throughout the country there was a desire on the part of young men to look for Government employment rather than take up private service or take up land for production. They thought the Government should, as far as possible, break down this system rather than increase it, by undertaking new works, and consequently employing more labour. When the motion was carried in the House to have 100 locomotives made in the Colony, it was never anticipated that they would probably be made in the Government shops.

I informed them that the Government had no intention whatever of adding anything to their present heavy responsibilities with regard to the employment of labour; they were aware they had engaged twice or three times as many men as they should and that this was prejudicial to the interests of the Colony. The farming interest was crippled because the young men of the farming class looked to the Government for employment rather than to obtain a living from the soil. The Government were aware of all this and would give the matter their best consideration. I was the medium for bringing the matter under attention, but the conditions would be altered, as it had been decided that all deputations to all Ministers would be received in the Cabinet room, when reliable press men could be present; at the present time, with divided deputations, the press writers were scattered, and to meet the exigencies some days young reporters were sent out who did not fully understand the position and were unwittingly the medium of misrepresentation.

It had been taken for granted that we were to make the locomotives in our works, but I might say at once that no such thing was intended, and no such proposal had engaged the attention of the Government. I was fully aware of the merits of this matter, and would be very careful in any representation I would make, knowing as I did what the effect would be if the Government were to increase the number of men they now have employed. I fully agreed with them that we should so seek to establish our private manufactories as to be able to rely upon them in case of emergency, and I had expressed that years ago in connection with the manufacture of torpedoes. I believed our local works should keep pace with the times, and by obtaining the best improvements be able to do any nature of work.

With regard to the offer to allow contractors the use of tools, I pointed out that we had at Eveleigh certain special tools that were perhaps not possessed by any private firm, and to facilitate the contract I had approved of tenderers being allowed the temporary use of these specialities under our supervision, but in their

their tenders they would have to state what tools they would require and certain terms would then be fixed, but the Government would entertain no speculative offers in this direction, and the whole arrangement had been made in the interests of the contractors. I was giving them every opportunity to secure this work by giving them reasonable terms and simplifying the design of the engines. I was glad to hear that masters and men had determined to do their best to secure this contract for the Colony, and if they did not take advantage of it, it would be a bad thing for the Colony. The employer and employee must agree to let the Government obtain as low a price as possible, because they might not get so good a chance again. The Government had the English prices, and they were not likely to give the colonial tender an advantage that could not be justified in giving an undue benefit to a certain class.

It had been rightly said that the Eveleigh workshop belonged to the people, and they as taxpayers should not be compelled to compete against themselves. The Government, I believed, would not attempt to do that, and so injure interests in which, as they pointed out, a million of money had been invested. I admitted that in many ways the contractors of the Colony had not had fair play, but I was trying now to give them the greatest fair play, and if they did not take advantage of it, it would be no fault of mine.

The matter would not be finally decided by me—it would be settled by the Government after full consideration, and I would submit the various points that they brought under my attention, but my sympathies were in favour of having all work, whether woodwork or iron, made in the Colony so far as it could fairly be done.

JOHN SUTHERLAND.

Locomotive Engines.

Minute by The Superintendent of Tramway Rolling Stock to The Commissioner for Railways.

In compliance with the foregoing minute I have the honor to report as follows:—The very important question of designing and manufacturing, as well as repairing, locomotive engines, tenders, and rolling stock generally, in the workshops owned by a State or by a railway company, as the case may be, has occupied my mind for over twenty years; and I may say that I have studied the matter as much perhaps as any man in the Colony in consequence of my professional training, which commenced in very large works in England owned by a railway company, where all the rolling stock they required was designed and manufactured by their own officers and men, the work being done better and at considerable less cost than it could have been done by private firms.

The company alluded to (the Great Western Railway Company), like other similar companies in England, not only did as I have said, but they rolled in their own Rail Mill nearly all the rails they required for the maintenance of lines opened for traffic and the construction of new lines. The London and North-western Railway Company do more, for they make their own boiler plates, tires, axles, &c.

When I first came to this Colony, in 1880, I was engaged by the late Locomotive Engineer (Mr. R. H. Burnett) to design the proposed new workshops at Eveleigh, but nothing was done, practically, until I became Acting-Locomotive Engineer, when you, on the 19th of January, 1883, approved and endorsed my design of the Eveleigh shops in the following terms: "May be carried out, both Engineer for Existing Lines and Locomotive Engineer concurring"; and the shops now erected and to be erected are substantially my design, and they have been expressly laid out for the purpose of *manufacturing*, as well as *repairing*, railway rolling stock, and will be equipped with the best machinery and appliances accordingly; and it is satisfactory to note that Mr. Scott, the present Locomotive Engineer, who was sent on a tour by the Government through America and England, and who had copies of the designs of these works sent to him in London to work to, reported in July, 1883, when he returned to this Colony that he was "exceedingly pleased to be able to say that our new shops will compare very favourably both in design and general arrangements with the *best* I have seen in my travels."

This I could cordially endorse if Mr. Scott had done as he promised he would do—that is, "*work strictly to the drawings I sent home* for his guidance." But he has, unfortunately, altered the overhead travelling cranes, and also the main shafting arrangements, which alterations I still contend is a serious mistake.

I also think that other mistakes are taking place at Eveleigh now, in placing the machinery, benches, &c., &c., the way it is being placed. In a new works like that, the machinery, &c., should be properly placed, so as to avoid unnecessary handling of raw material, &c., and for turning out work quickly and economically.

In round figures there will be spent on the Eveleigh works about £600,000; and I estimate that there is £120,000 worth of machine tools, exclusive of buildings, small hand tools, &c., employed in the Locomotive Department of the New South Wales Railways, at the following stations:—Redfern, Eveleigh, Newcastle, Randwick, Penrith, Bathurst, Goulburn, and Junee shops. This if properly placed and fully employed would be far more than sufficient for keeping our present rolling stock in efficient repair, and we could in addition manufacture all the locomotives likely to be required in the whole of Australasia for the next fifty years. Consequently, if we do not manufacture locomotives, &c., at least for ourselves, it is evident that the vast amount of capital invested in buildings, machinery, &c., will only be partially worked and utilized. We have, unfortunately, made the same costly mistake that many English and other railway companies have made—that is, gone in for decentralizing our repairing establishments, and large workshops have, in consequence, grown up at the stations I have named; whereas we should have built and equipped our central works at Eveleigh long ago, and do nothing but the *daily running repairs* at the out-stations referred to. All manufacturing and *heavy* repairing should be done at head quarters under the constant supervision of the chief and subordinate officers of the Locomotive Department, in whom *personal responsibility* should be centred, instead of its being divided, as at present, among a great many

many subordinate officers hundreds of miles apart. Centralization is now the recognised practice in the Locomotive Departments of all well-managed railways, and, if it is justifiable for so many of the said companies all over the world to manufacture their own rolling-stock, rails, plates, &c., &c., and many other things they use on their lines, it certainly is equally justifiable, equitable, and philanthropic for a State to do the same thing, because, in the first case, a few shareholders only are benefited, whereas, in the latter case, the whole population is benefited and interested, and it really is a benefit to every individual in the State.

It is, perhaps, not generally known that some of the Railway Companies actually *manufacture more* of the details of a locomotive than the private firms do; for instance, they manufacture steel (boiler) plates, iron and steel cranked and straight axles, steel tires, frame plates, &c., &c., whereas none of the locomotive engine builders do that. They call for prices, and they purchase that class of material from the various manufacturers of such articles; then it is forwarded to their works to be manipulated and made into a locomotive. I propose that the Government should do the same thing. They should call for prices, and then import such articles as I have named, and which cannot, for some time to come, be made in the Colony, the freight and first cost of which, delivered in Sydney, would not, I think, exceed the cost of the same material delivered in the works of a Glasgow or Manchester engine-builder; therefore up to this point the Government stand in the same position as the manufacturers, the only question now remaining for consideration being that of *control or management of the workshops, and the price of labour*; regarding the first I do not see any insuperable difficulty or reason why the Eveleigh Works could not be managed by one head upon exactly the same system, principle, or basis, as private establishments in the Colony of a similar character are controlled, books kept, and a proper half-yearly report produced. Indeed I believe the artisans would much prefer such a system of management to the present, because they would all know who was *head*, and *merit* then would predominate and rise to its proper level and be utilized, whereas now it is of no use whatever; it rather tends to hinder than advance its possessors, and unless proper discipline and control is established, I should strongly recommend that the work I suggest be never started.

The next question is the price of labour. This Colony has consented to pay a workman here on the spot about as much again for what he does, as it—through contractors—pays a similar workman for what he does in England, but the artisans here argue that they can do as much if not more work in eight hours than can be done by their brothers in England in ten hours, and I believe this to be true where proper discipline and control is practised; but of course the same quantity of work cannot be got out of *machinery* in eight hours as in ten. Therefore it is evident that a locomotive made here will cost more than it would if made, *from the same drawing*, where labour is cheaper; but this is not, under the circumstances, sufficient justification for having our engines built outside the Government workshops.

I will now proceed to show the advantages to be gained and the reasons why we should do as I propose.

We have the workshops, the tools—such as no other establishment in the Colony has—the skilled officers and men, all specially suited for manufacturing as well as repairing, and if it is justifiable to do *repairing* it is equally justifiable to *manufacture*; indeed much of the so-called repairing *is manufacturing*.

Unless manufacturing is done the shops and plant will not be fully utilized.

We should now, after the "tests" of the locomotives which were made on the 15th and 16th of June, adopt the simple and efficient class of locomotive and tender, which *we can manufacture*, and the more we simplify the details the less the cost of production will become and the nearer we shall approach the cost of the imported engine, which is usually paid for by weight, and which, however much it is simplified, only puts more profit into the manufacturer's pocket, whereas if *we supply our own engines* we profit most by it ourselves. It is clear, of course, that the simpler an engine is the less it will cost to make and keep in repair, and the more that is done in that direction the sooner we shall balance the higher price of labour here to what it is at home.

Work done by ourselves would be better done, because good work should and would be the *sole aim* of everyone engaged upon it. No *profits* having to be made, all exertions would be thrown into the *quality* and *quantity* of work to be turned out, and all difficulties of "contracts," inspection, and litigation would be avoided. Manufacturers aim chiefly at making large profits, "extras," &c., and as everyone engaged upon this work would see, or soon be caused to see, that the more he worked, and the better he worked in this cause the more he would gain. I think the success of the scheme would be near and certain, especially as there is no novelty about the matter; we should be simply following established precedents.

What is generally known as the American type of locomotive *can* be made here, and we have now lying idle hundreds of tons of good material which could be worked up at once in these proposed new engines, in the bar frames, motions, wheels, cylinders, &c., &c., whereas the English type of engine cannot be so easily made here; for instance, we should either have to import "frame plates" or erect special rolling mills for rolling them.

I have already reported that a simple, a far more efficient, and less costly engine and tender can be made here in our own shops than those proposed and recommended so strongly by the Locomotive Engineer. The correctness of this view is proved by the fact that the Colonial tenders for my passenger engines are £220 less per engine, and £290 less per engine for the goods engine I recommended than the Colonial tenders received for the English type of engine referred to, and as the *average tender* from six English houses for the passenger engines is £2,650, and £2,743 for the goods engines, I am convinced that we can produce in our own shops as good an engine as the imported one for the same price.

One of the most magnificent class of passenger engines and tenders in Great Britain is made by the Great Northern Railway Company at their Doncaster Works, for £2,025 each, and I could name no less than twenty-seven different Railway Companies, in England and America, who make their own engines in their own shops. The Great Western Railway Company made no less than twenty-four new engines during the *half year* ending 31 December, 1886, *at the cost of revenue*, at their own works. In doing this they not only *saved the profit* which would go to manufacturers, and cost of inspection, *but secured the exact type of engine which they knew best suited their requirements*.

The London, Brighton, and South Coast Railway Company have practically rebuilt the whole of their locomotive stock during the past twenty years at their works at Brighton, where they employ 1,200 hands constantly; and I notice in a recent American newspaper that the Pennsylvania Railway Company have given orders for forty new engines to be at once put in hand at their own works at Altoona.

It will be seen from the foregoing that in the building of the locomotives in the Government workshops of the colony the only serious drawback would be the extra cost of labour, for which we should have to pay about double the English price; but on the other hand, in favour of that course, we should save litigation, contractor's *profit*, the cost of inspection, &c., and at the same time secure better workmanship in every respect, and an engine made in every way suited to the special requirements of our railways.

As the latter appears to me to more than counterbalance the former, I have only to repeat my former recommendation in favour of the engines being built in the splendid new shops at Eveleigh.

Randwick Works, Sydney, July 11th, 1887.

THOS. MIDELTON, M.I.M.E.

Minute by The Secretary for Public Works to The Commissioner for Railways.

Department of Public Works, Sydney, 28 May, 1887.

PLEASE write to Mr. A. MORRIS, Agent Baldwin Company, asking him upon what terms his Company will supply twenty-five engines to Mr. Midelton's specification, and twenty-five consolidation goods engines, for delivery f.o.b., New York, and in steam in Sydney; and also to state time of delivery.

JOHN SUTHERLAND.

The Commissioner for Railways to The Agent for the Baldwin Locomotive Works.

Sir,

Department of Railways, Sydney, 28 May, 1887.

I have the honor, by direction of the Honorable the Minister for Public Works, to inquire upon what terms your Company (Messrs. Burnham, Parry, Williams, & Co.) will supply twenty-five engines to Mr. Midelton's specification and twenty-five consolidation goods engines similar to those supplied to the Department in 1879.

I shall be glad if you will state price of delivery f.o.b. in New York, and in steam in Sydney, and also mention time of delivery.

I have, &c.,

CH. A. GOODCHAP,
Commissioner for Railways.

The Agent for the Baldwin Locomotive Works to The Commissioner for Railways.

Sir,

Norwich Chambers, Hunter-street, 30 May, 1887.

I have the honor, in reply to your letter of the 28th instant (No. 3,120), to say that a cable has this day been forwarded to the Baldwin Locomotive Works, asking them to name prices and times of delivery of the two classes of locomotives referred to by you. Whatever prices may be named will include any modifications or improvements which experience may have suggested to your engineers.

I have, &c.,

AUGUSTUS MORRIS,
Agent.

The Agent for the Baldwin Locomotive Works to The Commissioner for Railways.

Sir,

Norwich Chambers, Hunter-street, Sydney, 2 June, 1887.

I have the honor to communicate the following offers from the Baldwin Locomotive Works for the supply of 100 locomotives.

The Baldwin Company are prepared to deliver f.o.b. in New York or Philadelphia 100 locomotive engines during six months, commencing with December of this year, or with January of next, or as may be preferred.

The price required for the Midelton engines, 8'30 D, is £2,600 for each, f.o.b.

The price required for the consolidation engines, 10'34 E, similar to those shipped to the Government in 1879, or according to the Baldwin Co.'s letter to the Commissioner, dated 31st May, 1884, in reference to an improved type of consolidated engine, is £2,900 f.o.b. The materials throughout to be identical with those on the Midelton engines.

If required to deliver and erect at the Eveleigh Station or Railway works under steam, £300 must be added to the price of each engine.

The terms of payment to be the same as those agreed upon when the twenty Midelton and Mogul engines were supplied in 1884.

In submitting these terms the Baldwin Locomotive Works are prepared to accept any modifications of details which experience may have suggested, but which will not conflict with the general design of the locomotives proposed, or be inconsistent with American practice.

The fullest guarantees of the goodness of the materials and the efficiency of the engines that may be desired will be given.

I have, &c.,

AUGUSTUS MORRIS,
Agent for the Baldwin Locomotive Works, Philadelphia.

Minute of The Commissioner for Railways.

REFERRING to question given in House last night, as to conditions under which the engines advocated by Mr. Scott are to be tested against those recommended by Mr. Midelton, I request that Mr. Scott will furnish me by Monday morning next with proposed conditions of test. Cn.A.G., 20/5/87.

I would recommend that one of each class be put to run the day passenger-trains between Sydney and Bathurst, and an accurate account be kept of the load hauled and the stores consumed.—W. SCOTT, 21/5/87. Commissioner.

The

The Superintendent of Tramway Rolling Stock to The Commissioner for Railways.

IN response to your letter of the 19th instant, I beg to submit the following conditions to be observed in case the 304 class of engines are tested in competition with the new engines from the Vulcan Foundry Co. :—

1. That each officer (Mr. Scott and myself) shall select his own engine, tender, and enginemen.
2. That each engine and tender shall be fairly equipped with coal and water ready for the road, and that the weight on each wheel of engine and tender shall be accurately ascertained before going out; neither engine to have any sand in sand-boxes or water conveyed to any of the wheels.
3. As much coal as may be considered safe by each officer in each case is to be put on each tender, and the said coal to be either Zig Zag or Vale of Clwydd, and to be taken from the same waggon and properly weighed in baskets and put on the tenders, the total weight to be recorded in lbs., and the coal which remains on the tender after the trial in each case shall be taken off and weighed in our presence.
4. The trial trips shall be from Sydney to Eskbank and back, and shall be run to a time-table to be made out by the Traffic Manager, each train to start and return in daylight, and to be timed the same as the Western Mail on the down and up journey.
5. The train to consist of eight of the Redfern carriages (double-bogie type), all to be coupled up as may be directed and properly lubricated and examined.
6. The general condition of each engine, the time each has been running, &c., shall be recorded.
7. The weight of train shall be accurately ascertained.
8. Water to be taken at Sydney, Linden, and Esk Bank only.
9. Each driver to record the trips in the usual manner, and no person to be allowed to ride on the engine or tender except the driver and fireman in each case.
10. Two guards to be supplied by Traffic Department—one to ride in front of train, and the other at the rear, and they shall record the trips in the usual manner.
11. A printed time-table to be supplied to those conducting the tests.
12. As these trials are of great public interest, persons concerned in the matter, to the number of about 100, could be allowed to ride in the carriages as passengers, but they must take no part in the trials or assist in any way. The number of passengers so attending to be ascertained by counting, and this duty to fall to the two guards named.
13. No brake-van to be used. The Westinghouse brake to be worked from the engine on the tender and carriages only.
14. The carriages are not to be uncoupled for any purpose whatever, and the same carriages to be used by each engine in each trial.
15. Each engine and tender shall be oiled and trimmed by each driver the night before the trials, and on the running of the trial the enginemen shall procure from the store the stores they may require on the trip, and the same to be properly weighed and issued to them, and to be duly recorded by storeman and driver on his sheet.
16. Nothing shall be done except Mr. Scott and myself are present to see what is done, and that it is done properly, and be properly recorded.
17. Brake blocks, hangers, and rods to be taken off each engine.
18. Each engine to be tested to blow off steam at 140lb., and the same gauge to be used in each case.
19. Mr. Scott to have sole control of everything the day his engine is tested.
20. Mr. Midelton to have sole control of everything the day his engine is tested.

THOS. MIDELTON, 23/5/87.

The tests proposed by Mr. Midelton are preferable. Will Mr. Scott say if he has any observation to make or any suggestion in connection with them.—CH.A.G., 25/5/87.

Minute by Mr. Locomotive-Engineer Scott.

Mr. Scott's own proposition was to test the engines between Sydney and Bathurst. Mr. Midelton suggested Sydney to Eskbank and return; but I presume there would be no objection to extend the journey from Eskbank to Bathurst.—CH.A.G., 31/5/87.

Mountains, where fast running is not possible with any engine—in fact, such a test would be more applicable to a "Bank" engine than a fast "Passenger" engine, such as mine is. As mentioned in my report of 12th instant, the engines built to my specification by the Vulcan Foundry Co. were intended to compete with fast water-carriage, and reduce the time of running of our principal mail and passenger trains; therefore to confine the trials to a portion of the lines where such advantages would be reduced to the minimum would be manifestly unfair. If it be decided to have the engines tested as to their relative merits under all circumstances, I decidedly think such tests should be conducted under the direction and

This has been arranged for.—CH.A.G., 31/5/87. supervision of properly qualified locomotive experts outside the Department, who would have no interest whatever in the result. I will now particularize some of the objections that occur to me in Mr. Midelton's conditions.

- 1, 2, and 3 I decidedly object to dispensing with anything provided for the more efficient working of the engines, and therefore protest against the sanding arrangements not being availed of, if necessary. To the other conditions I have no objections.
4. I most decidedly object to the trials being confined to this portion of the line. To be fair, they should be made to extend to Bathurst, where the engines have to run with the trains, or from Sydney to Goulburn; and, if possible, a clear run of about 30 miles between stopping-places should be arranged for, so that the speed may be ascertained.

This is not reasonable. Mr. Midelton has said that his first stipulation was, when recommending his design of engine, that his engine would take thirteen vehicles over the mountains; that they did so while he had charge of the Loco Branch, but that since the load, without reason, had been limited to twelve vehicles. Mr. Scott, in his report of 12/5/87, says that Mr. Midelton's engine will soon fail in its usefulness, as the tendency is to increase the load of trains, but if it can take sixteen vehicles its usefulness will increase.—CH.A.G., 31/5/87.

5. The load proposed is equal to sixteen, whereas the train load in regular service for the "304 class" is twelve vehicles. I therefore consider that what is proposed is simply a test of power, where a goods engine will, of course, give better results than a passenger engine, particularly over the portion of the line proposed by Mr. Midelton, chiefly mountain grades, where the running is slow. I consider the "service load" should be adhered to in the trials.

- 6, 7, and 8. As I object to the trials being made over the portion of the line proposed, the places named for watering may not answer. I therefore consider that water should be taken when each considers it necessary, but the time lost in taking it should be calculated.
- 9, 10, 11, and 12. As the engines were not designed for similar services, I think it more than probable that the opinions formed by the public would be fallacious, and therefore consider that any trials decided upon should be purely Departmental. Of course this would not apply to any locomotive experts whose opinions the Commissioner might desire to obtain. The result of the trials could be published for public information afterwards, if deemed necessary.
13. Although I do not apprehend anything occurring that would necessitate the use of a brake-van, there is the possibility of it being required, and therefore it should form part of the train.
14. I, of course, see no objection to the same class of carriages being used; however, that implies that the trials shall be made on different days, when the conditions under which they have to run may be totally different. I therefore consider that the trials should be made on the same day, so that the conditions of running should be as nearly equal as possible, or else have a number of days for each engine.
15. I see no objection to the conditions proposed, excepting as regards the time for oiling. Mr. Midelton can of course have it done when he thinks proper, and I claim an equal privilege.
16. I see no objections to Mr. Midelton, or any one whom he may select, being present to see that the proper thing is done, and I will do what I consider necessary to secure it being done.
17. I most decidedly object to the removal of the brake arrangements. They are part of the engine, and should be retained, and used if found necessary.
18. I have no objections to the pressure of 140 lb., but if the trials are to be carried out on the same day description of gauges would have to be used which could be tested previous to the trials.
- 19, 20. I scarcely see the necessity for specifying these conditions. I assume Mr. Midelton has no desire to interfere in any way with any arrangements I may make in conducting the trials. I certainly shall not in any way attempt to interfere with his.
- In conclusion, I would say that Mr. Midelton appears to be stipulating for conditions to suit as nearly as possible the type of engine he recommends. The conditions laid down should, in my opinion, approximate as closely as possible to those under which our traffic has to be worked, and which a locomotive engineer would be necessarily guided by in ordering his type of engine.

W. SCOTT, 30/5/87.

Minute by The Commissioner for Railways.

WHAT was required was an engine which would take with reasonable speed a heavy passenger train over the Mountains. It was a matter of complaint on my part that the trains could not be controlled except by the use of an assisting engine, and I asked that an engine might be designed to obviate the necessity of two engines being used. Mr. Midelton designed engine Class 304 accordingly, and up to the time of his leaving the Locomotive Branch he says the engine performed the service required—viz., the haulage of a train load equal to thirteen vehicles.

Mr. Scott says that the train load is being increased beyond that, and yet the engine he has designed is not equal to the requirements—at all events he objects to its capacity to take sixteen vehicles being tested, although Mr. Midelton is willing that his engine should be tested to that extent—a condition which Mr. Scott should not be slow to accept if he adheres to his statement that the engine will not take more than twelve vehicles.—CH. A.G., 31/5/87.

Minute by The Commissioner for Railways to The Superintendent of Tramway Rolling Stock.

I HAVE made some remarks upon Mr. Scott's paper, but, notwithstanding, I should be glad if conditions mutually agreed to could be adopted. Mr. Midelton should see Mr. Scott's observations, and, as far as possible, try and meet the objections he has raised. The conditions are numbered 1 to 20. Mr. Scott agrees apparently to 1, 2, 6, 7, 9, 10, 11, 16, 18, 19, 20; of the eleven terms objected to, four—viz., 8, 12, 14, 15—may be considered unimportant.

The remaining five terms can be perhaps modified and agreed to:—

3. Engines carrying and making use of sand.
4. Line upon which test is to be made—Sydney to Eskbank, or Sydney to Bathurst.
5. The weight of train—sixteen or thirteen vehicles.
13. Brake-van attached to train. [I assume that if brake-van is attached the number of carriages will be reduced by one.]
17. Removal of brake arrangements from engine.

CH. A.G., 31/5/87.

The Superintendent of Tramway Rolling Stock to The Commissioner for Railways.

Remarks on Commissioner's M.P. 87-10,284 herewith.

IF I understand the matter correctly, the tests are to be carried out to prove whether Mr. Scott or I have given the best advice, and provided the best class of locomotives for the requirements of the railway department.

Mr. Scott was asked to furnish "Conditions of test," and his reply was brief and unsatisfactory, viz., that each class of engine be put to run the day passenger-train between Sydney and Bathurst, and an accurate account be kept of the loads hauled, and the stores, &c., consumed."

I was also asked to submit "Conditions of test," which I supplied (see Commissioner's M.P. 87-10,450). These having been sent to Mr. Scott for consideration, he, of course, "most decidedly and emphatically protests against many of the conditions stipulated by Mr. Midelton, as they are at variance with the work for which the Vulcan engines were designed and intended to perform." Now, if these engines are not designed to eclipse the performance of all other engines in the service, what are they designed for? Why was another class introduced? Again, he objects to my conditions, but he does not propose better ones, nor give a single reason why he objects to mine. Seeing

Seeing that six of my engines have been working the day passenger-train from Sydney and Bathurst, and also the night mail-trains over the same road for about two years, they have answered that test, therefore I see no use in doing it again; and to put the Vulcan engine on the work, as proposed by Mr. Scott, would mean delay, as many months would be swallowed up before anything like accurate data could be obtained, or correct conclusions arrived at; therefore it is best to decide the question in a couple of days, as I propose, especially as we are about to obtain fifty more engines, and time is of great importance.

There are two questions to decide—one has reference to the type of passenger-engine, the other to the type of goods engine required. I should like to prove, too, that my Suburban Tank-engines are the best we have, because Mr. Scott stubbornly opposed me on that important question also.

The conditions of test I have laid down are fair and reasonable, and I desire nothing but what is strictly right and proper, and if I have "stipulated for conditions to suit as nearly as possible the type of engine I recommend," and can fulfil them, and Mr. Scott cannot, then I hold that to be proof that I provided a better engine than Mr. Scott has, and if the weather is the same on each trial day, I see nothing to reasonably object to. Of course I should select a fine day for each test, and exactly the same conditions as near as can be obtained; but if sand is to be carried and used, I must stipulate that the test shall be made on a wet day in each case. Mr. Scott's objections to my "Conditions of test" is admission that my engine is the best by a long way, otherwise he would gladly work his engine under those conditions. Again, if I alter my conditions to meet *his* views, I should virtually admit that my engine can only do the same work as his; whereas I claim that it can do more, although of the same power, and that it is the best "all round" engine and tender ever put on the New South Wales railways. He states the Vulcan engines were intended to compete with fast water-carriage, and reduce the time of running of our principal mail and passenger trains; so are mine, and not only that, but to haul the "service load" of thirteen loaded carriages up 1 in 30 at any time. This is a matter Mr. Scott overlooks altogether.

He says:—"If it be decided to have the engines tested as to their relative merits under all circumstances, such tests should be conducted under the direction and supervision of properly qualified locomotive experts outside the Department." Of course it is decided to make such tests, and I have drawn up conditions accordingly. (See Com. M.P., 87-10,480.) I state the worst possible circumstances. Nothing more can be done? I do not see the necessity for employing any experts. If Mr. Scott and I obey the same conditions, and test each engine under the same circumstances exactly, I should prefer being judged by the logical-minded men who would attend the trials rather than by "experts," who certainly cannot know more, if as much, of the details of these engines, and the conditions under which they will work on our line, than Mr. Scott or myself. In addition to the tests provided for, I am prepared to attach my engine to a train of thirteen carriages and run it over any portion of the New South Wales lines to any time-table which the Traffic Branch may think proper to (ever) work to. If Mr. Scott wants to test "speed" in preference to "utility," we can have a 34-mile run to Penrith and back for the purpose with the load I name. My reason for stating Eskbank and back was that I considered it the most severe test, and because the journey can be done in one day. I have no objection to extend it to Bathurst or to Bourke, but it will be an unnecessary expense and waste of time. It is astonishing that Mr. Scott has reduced his wheel from 72 inches to 66 to attain "speed." He seems to revel in calling my engine a "goods engine," whereas it is anything he likes to call it, because it will work *any train* which the Traffic Department choose to attach it to; and as it can be safely run at high speeds over the 8-chain mountain curves better than any other, will do 40 miles an hour on straight roads, and take good loads up 1 in 30. I think my conditions approximate as closely as possible to those under which our traffic has to be worked, and which a locomotive engineer would be necessarily guided by in ordering his type of engine. I also think that I have properly provided to have the engines tested as to their relative merits under all circumstances.

The "service load" has always been thirteen carriages up 1 in 30, even with two engines (or say 118 tons exclusive of engine and tender). I should much prefer taking sixteen, as per conditions 5 and 12. If I alter my conditions the relative merits of the two engines will not be tested by a long way, therefore it would be useless to attempt the test at all.

As I claim to have put the best class of engine on the New South Wales lines, as they have done better work than any others, and fulfil conditions which are highly beneficial to the Department, Mr. Scott should now prove with the Vulcan engine that he can do more, and do it better—in short, surpass me in every respect. Otherwise, he has made a serious mistake, and introduced another type of engine and tender without any good reason for so doing. Even if he can do all I claim to do with mine, he will still be wrong, because there was no necessity for altering the type, seeing that we had introduced and adopted a "good (s) engine."

- 1, 2, and 3. Mr. Scott objects to running without sand, because he knows now that the "adhesion" is insufficient, although it is a heavier engine than mine by about 2 tons. Does anyone consider it fair to use sand on a dry rail in starting if an engine is properly proportioned? The utility of Mr. Scott's engine entirely depends upon the use of sand; and if he runs out of sand between two stations where sand can be obtained he will delay traffic, and fail to make much "speed" even with a 66 wheel. My engines carry sand, but it is rarely used—indeed I may say never used. I need not point out the economy of this.
4. I am not at all particular where the trials take place—any part of the N. S. Wales lines will suit me—but I thought I would stipulate the worst case I could think of, and do the work expeditiously and cheaply. I willingly consent to run to Bathurst, but four days will be occupied instead of two. If Mr. Scott wants to test "speed," I will undertake to haul a greater load than his engine can, and at a higher speed.
5. As the Vulcan engine gives off 141.14 lb., and my engine 140.40 lb. of power, why does Mr. Scott object to the load I propose, for, as regards power, his is a "goods engine" as well as mine. I too "consider the service load—that is, thirteen loaded vehicles—should be adhered to" in these trials, or 8 double bogie Redfern cars, with 100 passengers.
- 6, 7, and 8. I do not object to Mr. Scott's proposal *re* taking water and coal; but, as my engine can run from Sydney to Linden (and probably to the bottom points at Lithgow) without taking water, and from Sydney to Bathurst and back without taking coal, I need not point out to the Commissioner the great economy of being able to do that.

- 9, 10, 11, and 12. If the engines are "not designed for similar services" they will be *used* in similar service, that is certain; and whether the trials are departmental and private, or entirely public, I do not mind in the least, but I prefer being judged openly by those who may see fit to attend, as well as by one or two whose duty it may be to decide the question. In my opinion it is more of a public question—than it is one for experts; and I have no fear of the public being able to correctly judge which is the best engine for our railways if they see the facts as they take place.
13. The reason I stipulated carriages only was that the continuous brake shall be worked by the driver exclusively; and, as Mr. Scott does not apprehend anything occurring that would necessitate the use of brake-van, I think the matter should stand as it is.
14. I propose to make a trial on two different occasions with the same carriages under exactly the same conditions in each case for each engine as far as it is possible, the same persons to attend each trial, &c., and nothing could be fairer.
15. Of course each driver may oil, &c., as he likes before starting, but I must see Mr. Scott's engine oiled, and he may see mine oiled, but it should be done as I say to be fair to both, and to ascertain the consumption of stores on the trial trip.
16. If Mr. Scott chooses to allow some person to act on his behalf I have no objection, but whatever he does I must see it, and it shall be binding on him, but I consider he should act himself, and not delegate his powers to any one, and that condition 16 stand.
17. I have no objection to the engine brake-gear remaining on, but it should, in my opinion, be taken off in such trials as these.
18. The steam-gauge will be the same for each engine; it will be tested before being used on each engine, and also afterwards.
- 19 and 20. The conditions were made to prevent others from interfering. I certainly will not interfere with Mr. Scott's trial; but, as he is Loco. Engineer, some one may understand that he would be in charge the day of my trial, whereas this should not be the case.

I consider the conditions as originally submitted should be printed and adhered to—they are fair and reasonable—and if properly and courteously regarded there should be no difficulty or dispute whatever. Mr. Scott appears to consider "speed" everything. I, on the other hand, think general utility the main question, and I have provided conditions of test and an engine accordingly. If he cannot comply with my conditions he must be held answerable for that. I know my engine will do all he wants. Will his engine do all I want? if so, the way I suggest will test and settle the question.

Randwick Works, June 3/87.

THOS. MIDELTON.

Minute by Mr. Locomotive-Engineer Scott to The Commissioner for Railways.

HAVING read the conditions for the trials of the two types of engine, I again most strongly protest against any portion of the engine being interfered with in any way whatever. Each engine should be fully equipped and in efficient working order, including sand in sand-boxes and all brake-gear and appliances as in ordinary train-working, so as to be available if required.

I would also again point out that equal to twelve carriages is the maximum load for the Vulcan engines on the 1 in 30 grades. If thirteen are put on I take no responsibility.

These engines are designed to work through passenger traffic, not merely for use as bank engines.

From ten to eleven carriages is the usual load from Penrith, and the Vulcan engines are quite equal to all that is required of them for general passenger trains on all lines.

W. SCOTT, 13/6/87.

It seems to me that Mr. Scott gives up the whole contention by this representation. Mr. Midelton claims that his engine will do all and more than the Vulcan engine will do. It will take as great a load and will run as fast. It was designed to take thirteen carriages over the Zigzag, and Mr. Scott's engine should do the same. If it will not, and Mr. Midelton's engine will run as fast, then it seems to be clear there was no justification for ordering another type of engine, and Mr. Scott has not consulted the best interests of the Department in doing so. Submitted for Minister's consideration. I still think the testing should be proceeded with upon the conditions named, and if Mr. Midelton's engine does the work (and it must be remembered that Mr. Scott has practically said it will not do it, for in working, he has refused to allow it to take thirteen carriages up the Zigzag without an assistant engine—an expense the engine was designed to save, then I think it will be established, even if Mr. Scott's engine also does the work, which, however, he says it was not designed to do) that Mr. Midelton's design should not have been departed from in ordering new engines.—CH. A.G., 14/6/87.

Approved.—J.S., 14/6/87.

Write separate memos. to Mr. Scott, and say that testing must take place under the conditions issued. That his engine, the Vulcan, will be tested on Wednesday, and Mr. Midelton's on Thursday. Ask traffic manager to arrange for the running in accordance with time-table for the tourists' run on holidays, that is as regards time of departure, &c., &c.—CH. A.G., 14/6/87.

Memo. sent
14/6/87.
Telephoned and
memo. sent
14/6/87.

Minute by The Chief Clerk to Mr. Locomotive-Engineer Scott.

WITH reference to your minute of yesterday's date on the subject of the tests to be made of the engines designed by Mr. Midelton and yourself, I am desired by the Commissioner to inform you that the testing must take place under the conditions issued.

The engine built by the Vulcan Company is to be tested to-morrow, and Mr. Midelton's on Thursday.
B.C., 14/6/87.

D. C. M'L.

Minute by The Chief Clerk to Mr. Locomotive-Engineer Scott.

THE Commissioner has written the following minute :—

“If the trials be made beyond Lithgow it will mean that four days instead of two will be consumed in the trials. The trials will not commence till Wednesday morning. On Friday we shall require all our rolling stock to meet the requirements of the excursion traffic for Jubilee.

“I must therefore decide that the tests be made between Sydney and Lithgow, and be concluded on Thursday night.”

Please note the above decision.
B.C., 13/6/87.

D. C. McL.

Telegram.

Testing relative capacity of Engines.

TELEGRAPH to Mr. Speight as under :—

“Can you allow your Acting Locomotive Engineer, Mr. Alison Smith, to come to Sydney for three days next week, or the following week, to test the relative merits of two classes of engines? The Minister for Works will be greatly obliged if you can do this.”

C.H.A.G., 19/5/87.

Telegram sent accordingly.—J.E.P., 19/5/87, 12:30 p.m.

The Commissioner for Railways to F. Roberts, Esq.

Sir,

11 June, 1887.

With reference to the trial which is to be made of the two classes of locomotive engines recommended by the locomotive engineer and Mr. Midelton respectively, I have the honor to inform you that Mr. Secretary Sutherland has approved of your appointment in conjunction with Mr. Smith, of the Victorian railways, to conduct the said test, and I enclose herein a copy of the conditions under which the relative merits of the engines shall be ascertained.

I have, &c.,
CHAS. A. GOODCHAP,
Commissioner for Railways,
(Per A.R.)

The Commissioner for Railways to The Assistant Locomotive Engineer, Victorian Railways, Sydney.

Sir,

15 June, 1887.

With reference to the trial which is to be made of the two classes of locomotive engines recommended by the locomotive engineer and Mr. Midelton respectively, I have the honor to inform you that Mr. Secretary Sutherland has approved of your appointment, in conjunction with Mr. F. Roberts, of the South Australian railways, to conduct the said test, and I enclose herein a copy of the conditions under which the relative merits of the engines shall be ascertained.

I have, &c.,
CHAS. A. GOODCHAP,
Commissioner for Railways.

The Relative Merits of Locomotive Engines belonging to Classes of Nos. 305 and 373.

Messrs. Allison D. Smith, M.E., and T. Roberts, C.E., to The Commissioner for Railways.

Sir,

Melbourne, 22 June, 1887.

In compliance with the request contained in your letter, No. 87/11,622, dated the 11th inst., and your memo. of conditions of tests, a copy of which we attach (Appendix A), asking us, by the direction of the Honorable the Minister for Works, to conduct practical experimental tests with the classes of locomotive engines recommended respectively by the Locomotive Engineer and Mr. Midelton, we have the honor to report as follows:—

The engine, No. 373, selected by the Locomotive Engineer is a new one, of a type very favourably recognized and much used in England, but following the American practice in having outside cylinders, horizontal steam-chests, and the swinging link four-wheel leading bogie.

The specification was framed by the Locomotive Engineer, but the engine was designed in England, and built by the Vulcan Foundry Company, of Newton-le-Willows, Lancashire, and had run up to the date when the tests were made 2,323 miles. It was in first-class order, although, like all new engines, doubtless a little stiff.

The engine, No. 305, selected by Mr. Midelton, is one of the well-known American "Mogul" type, fitted with De Lacy's patent balanced slide valves, and built by the Baldwin Locomotive Company, of Philadelphia, United States; it had run 41,970 miles, up to May 31st last, since it was put upon the rails, and nothing had been done to it except ordinary running-shed repairs; the tires were considerably worn, and the bearings generally very free, otherwise it was in first-class working order.

General outlines of both engines, marked B and C respectively, are attached to this Report as appendices.

Before proceeding to make the practical tests over the mountains, we accurately weighed each engine in steam, and tender fully equipped with coal and water, carefully recording the weight upon each wheel; these are detailed in Appendix D.

A comparative table below shows that, while the engines are of almost equal tractive power per lb. of effective pressure on the pistons, the "Mogul" engine, owing to the greater weight on the coupled wheels (there being six in this class as against four on the "Vulcan" engine) has a larger percentage of weight available for adhesion at the expense of a longer rigid wheel base and the disadvantage of coupling in a third pair.

The number of lb. of tractive power per ton of load on the coupled wheels in the "Mogul" is an average one, while that in the "Vulcan" engine is excessive.

No. of Engine.	Type.	Cylinders.		Wheels.		Tractive Power per lb. of effective steam-pressure.	Weight on coupled wheels.	Initial lbs. Tractive Power per ton of load on coupled wheels.	Rigid wheel base.
		Diameter.	Stroke.	No. coupled.	Diameter.				
373	"Vulcan"	in.	in.	4	ft. in.	142.2	tons. cwt.	5.05	ft. in.
305	"Mogul"	19	26	6	5 0	140.4	28 3	4.12	8 3
		18	26				34 0		15 0

As will be seen by the diagram of general outlines (Appendix B) the tender of the "Vulcan" engine is carried on six (6) wheels, having a rigid base of 11 feet 6 inches, with a water capacity of 2,500 gallons, and space for $4\frac{3}{4}$ tons of fuel; total weight loaded 29 tons 17 cwt.

The "Mogul" tender is carried on two (2) 4-wheeled bogies, the greatest rigid base being 4 feet 6 inches, with a water capacity of 2,925 Imperial gallons, and space for 5 tons of fuel; total weight loaded 32 tons 6 cwt.

On the 15th instant we made the experimental trip with the "Vulcan" engine, starting at 7 a.m., and working to a time-table specially prepared by the traffic officers to the speeds of the "Western mail." (Appendix E.) The load consisted of six (6) bogie cars, and weighed in our presence totalled, including passengers, 102 tons. The length of the cars over buffers was 273 feet. The steam-pressure gauge was carefully tested, and the safety-valves loaded to stand a pressure of 140 lb. per \square inch. Deducting allowances for stoppages and detentions on the road, the engine lost six (6) minutes between Sydney and Penrith, and eight (8) minutes from Penrith to Katoomba; but gained $18\frac{1}{2}$ minutes between Katoomba and Mount Victoria, and $7\frac{1}{2}$ minutes between Mount Victoria and Eskbank, which station was made the termination of our trials. The whole journey was run in 12 minutes less time than that allowed by the time-table.

It was a fine bright morning, but until the sun attained a considerable altitude the rails were slippery with hoar frost in the cuttings; we found it absolutely necessary to allow the free use of sand to keep the engine from stopping altogether when slipping commenced, and water was sparingly used two or three times on the flanges of the tender wheels.

We travelled on the engine together during the whole distance over the mountain, and observed that on no part of the ascent could proper advantage be taken of the large cylinder power, steam having to be cut off at $52\frac{1}{2}$ per cent. of the stroke, or thereabouts, to avoid slipping. When urged beyond this, even on a dry rail, it required all the driver's attention to prevent slipping.

The principal time lost was between Wentworth Falls and Katoomba, steam gradually falling to 105 lb. pressure per square inch till at about the $65\frac{1}{2}$ -mile-post, on a rising gradient of 1 in 33, and in an

8 and 10 chain reverse curve it finally came to a dead stop, where we remained for two minutes until steam rose to full boiler pressure, when a start was effected without difficulty. The curves were taken quite easily, and the engine was very steady on the foot-plate at all speeds, the highest rate of which we noted on any portion of the journey being 40 miles per hour, and we do not think this was exceeded.

On the day following we made the second experimental trip with the "Mogul" engine, leaving Sydney at 8.45 a.m., or 1 hour and 45 minutes late, owing to an accident in the running-shed yard. The same pressure gauge was used as on the previous day, and the safety-valves weighted to blow off at the same pressure as the "Vulcan" engine, viz., 140 lb., the same train was also taken.

Deducting allowances for stoppages and detention on the road, the time occupied in running between Sydney and Penrith was $19\frac{1}{2}$ minutes faster than allowed by time-table; between Penrith and Katoomba, $18\frac{1}{2}$ minutes were gained; between Katoomba and Mount Victoria, $18\frac{1}{2}$ minutes were gained; and between Mount Victoria and Eskbank, $11\frac{1}{2}$ minutes—equal to a total gain of 68 minutes over time-table time for the whole journey. It was a fine bright morning, and as we reached the mountains later than on the previous day, there was less frost on the rails, which was decidedly in favour of the engine. No sand or water on the wheels was used, and on this trip the engine only slipped occasionally. When working up the steepest gradients steam was cut off at $70\frac{1}{2}$ per cent. of the stroke, and the engine appeared to be thoroughly master of the work, indeed the great gain in time during the ascent shows that the load might have been increased with safety. It should, however, be observed that, in approaching the same portion of the road where the "Vulcan" engine stopped, the steam-pressure in this case likewise fell, and the driver had allowed the water to get so low that it disappeared from the gauge-glass and gauge-taps and did not again show until we had been standing at Katoomba for $1\frac{1}{2}$ minutes with both injectors full on. This engine also took the curves very easily and was quite steady at the highest speed we noted, viz., 45 miles per hour. Analysis of running given below:—

ANALYSIS OF RUNNING.

Stations.	Miles.	Minutes by Time-Table for Running.	Actual Running Time.		Time compared with Time-Table.			
			Engine No. 373.	Engine No. 305.	Faster.		Slower.	
					Engine No. 373.	Engine No. 305.	Engine No. 373.	Engine No. 305.
		h. m.	h. m.	h. m.	Minutes.	Minutes.	Minutes.	Minutes.
Sydney								
Penrith	34	1 10	1 16	0 50 $\frac{1}{2}$		19 $\frac{1}{2}$	6	
Katoomba	32	1 55	2 3	1 36 $\frac{1}{2}$		18 $\frac{1}{2}$	8	
Mount Victoria.....	11	0 40	0 21 $\frac{1}{2}$	0 21 $\frac{1}{2}$	18 $\frac{1}{2}$	18 $\frac{1}{2}$		
Eskbank.....	17 $\frac{1}{2}$	0 47 $\frac{1}{2}$	0 40	0 36	7 $\frac{1}{2}$	11 $\frac{1}{2}$		
Total	94 $\frac{1}{2}$	4 32 $\frac{1}{2}$	4 20 $\frac{1}{2}$	3 24 $\frac{1}{2}$	26	68	14	

We regret that the time at our disposal was entirely too short to enable us to take indicator diagrams, because had we been able to do so we could have stated exactly the horse-power that each engine developed at various portions of the journey.

The following table analysis shows the consumption of fuel, water, and stores, with the work executed in train miles run:—

Engine.		Train Miles.	Fuel.		Water.		Lubrication—Oil and Tallow.	
Description	No.		Total lbs.	Lbs. per mile.	Total gallons.	Lbs. evaporated per lb. of coal.	Total lbs. used.	Lbs. per 100 miles.
"Vulcan"	373	189	9,355	49.5	7,025	7.5	12.25	6.48
"Mogul"	305	189	11,751	62.17	6,141	5.22	11.25	5.95

The excessive consumption of fuel by the "Mogul" engine is probably due to the high average speed of 20 miles per hour at which the ascent was made, the difference in levels between Penrith and Katoomba being 3,247 feet, equal to a constant gradient of 1 in 52 for 32 miles, with numerous curves of very short radius; the ruling gradient was 1 in 30 for 2 $\frac{3}{4}$ miles, and the sharpest curve, 8 chains radius reverse. In descending, and throughout the trials, the Westinghouse automatic air brake, with which the cars and tenders were fitted, was used exclusively to control the speed and in station stops.

In conclusion, we are of opinion that the six-coupled engine recommended by Mr. Midelton is more suitable than the four-coupled engine recommended by the Locomotive Engineer for the particular class of traffic and road on which the experiments were made. The trials showed conclusively that the "Vulcan"

"Vulcan" engine had not sufficient adhesion on the coupled wheels to utilize its great tractive power. The specification shows that the makers were authorized to load the coupled wheels up to 30 tons in the first place, and in a letter to the consulting engineer in London, a press copy of which was shown to us, and an extract from which we attach (see Appendix F), the Locomotive Engineer subsequently authorized 32 tons as a maximum. We consider that those who were responsible for designing the engines in England should have worked to the authorized maximum of weight, or in departing from that, have made a corresponding reduction in the tractive power of the engine. Had this been attended to the engine would have been well-proportioned, although the weights on the coupled wheels would have been severe on the road. The advantage of the six coupled engine recommended by Mr. Midelton is, that it has 34 tons of distributed weight availed of for adhesion, the greatest load on any pair of wheels being 12 tons—thus making it lighter on the permanent way, and able to utilize the full amount of tractive power developed in the cylinders; it has also the advantage of greater heating surface than the "Vulcan" engine.

We desire to express our high appreciation of the great courtesy extended to us by the Locomotive Engineer and his staff, who afforded us every assistance, and cheerfully supplied us with all the information and data that we required.

We have, &c.,

ALLISON D. SMITH,

M. Inst. M.E., M. American R. R. Master Mechanics Association, Acting Locomotive Superintendent Victorian Railways;

THOS. ROBERTS,

Assoc. M. Inst. C.E., M. Inst. M.E., Asst. Locomotive Engineer, South Australian Railways.

APPENDIX A.

Government Railways—Minute Paper.

Subject: Condition of testing Engines designed by Mr. Scott and Mr. Midelton.

I HAVE considered the proposals and the objections raised to some of them and believe that justice will be done, and the relative merits of the engines ascertained by the observance of the following conditions:

1. That Mr. Scott and Mr. Midelton shall each select his own engine and tender and enginemmen.
2. The engines and tenders to be fully equipped, having a full complement of coal and water; if the day be fine and dry no sand to be placed in the boxes, and no water be conveyed to any of the wheels. If, in the judgment of the experts, the rails are greasy, sand may be used. The weight upon each wheel of engine and tender to be carefully ascertained before going out.
3. As much coal as may be considered safe by each officer in each case is to be put in each tender, and the said coal to be either Zig Zag or Vale of Clwydd, and to be taken from the same waggon and properly weighed in baskets and put in the tenders, the total weight to be recorded, in lbs., and the coal which remains on the tenders after the trial in each case shall be taken off and weighed in the presence of Mr. Scott and Mr. Midelton.
4. The trial trips shall be from Sydney to Bathurst and back, and shall be run to a time-table to be made out by the Traffic Manager, each train to start and return in daylight, and to be timed the same as the Western Mail on the "down" and "up" journeys.
5. The train to consist of rolling stock equal to thirteen carriages, and amount of dead weight to be added equivalent to the weight of passengers if the carriages were filled, the carriages, &c., to be coupled up as each competitor may direct, and properly lubricated, &c.
6. The general condition of each engine, the time each has been running, &c., shall be recorded.
7. The weight of train shall be accurately ascertained.
8. Water to be taken as required, the watering stations to be previously arranged.
9. Each driver to record the trips in the usual manner, and no person to be allowed to ride on engine or tenders except the drivers and firemen in each case and the experts.
10. Two guards to be supplied by the Traffic Department, one to ride in front of van and the other at the rear, and they shall record the trips in the usual manner.
11. A printed time-table to be supplied to those conducting the tests.
12. Press reporters and others, numbering not more than twenty-five (carefully checked by the guards of the trains), to be allowed to travel in the carriages only of the train; they are to be spectators only, and not to interfere in any way with the trial.
13. The train to be worked exclusively by the Westinghouse brake and by the enginemmen only; the use of the brakes on the engines to be prohibited; if a brake-van form a portion of the train all parts admitting of manipulation of the brake to be removed from the brake-van.
14. The carriages are not to be uncoupled for any purposes whatever, and the same carriages to be used by each engine on each trial.
15. Each engine and tender shall be oiled and trimmed by each driver the night before the trial, and on the running of the trial the enginemmen shall procure from the stores the stores they may require on the trip, and the same to be properly weighed and issued to them, and duly recorded by storeman and driver on his sheet.
16. Brake blocks, hangers, and rods to be taken off each engine.
17. Each engine to be tested to blow off steam at 140 lb., and the same gauge to be used in each case.
18. Mr. Scott to have sole control of everything the day his engine is tested.
19. Mr. Midelton to have sole control of everything the day his engine is tested.

The testing of these engines will be accomplished under the supervision of two (2) Locomotive experts, who may make joint or separate reports.

They will be appointed by the Minister of Public Works.

The testing to take place between Tuesday, the 14th, and Friday, the 18th instant.

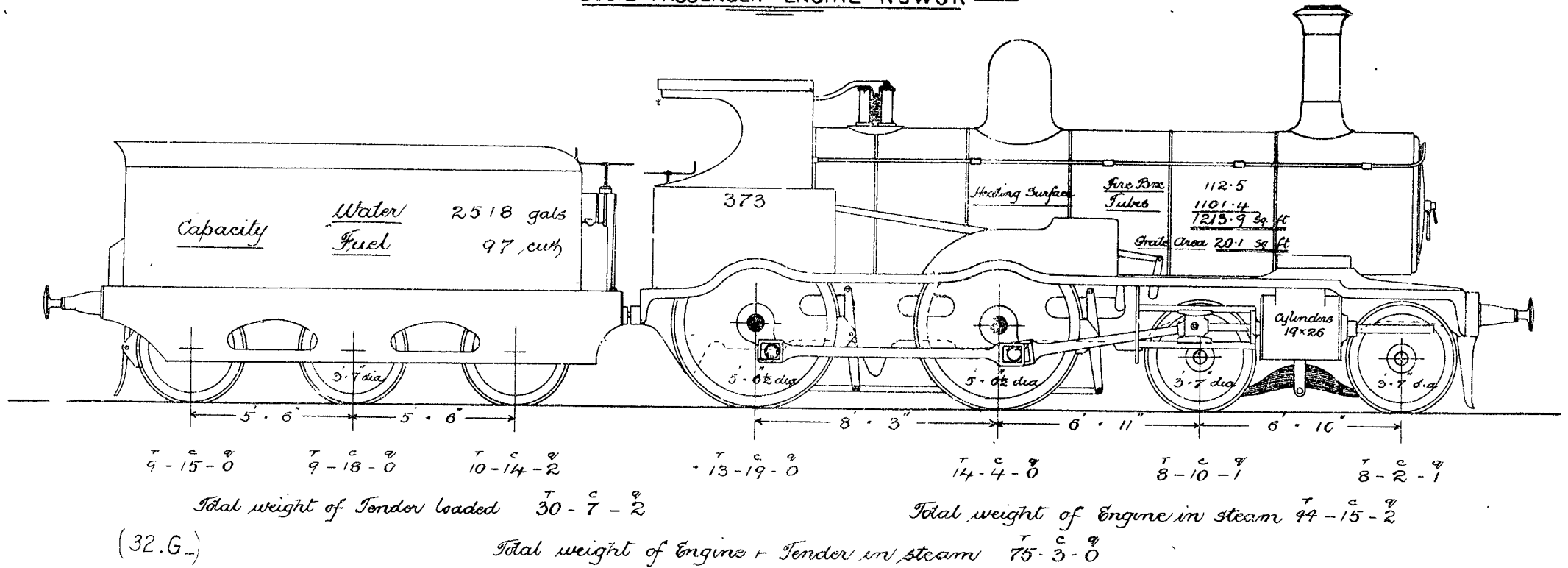
S/G/S7.

CHAS. A. GOODCHAP.

[Two diagrams to follow, Appendix B and Appendix C.]

APPENDIX B.

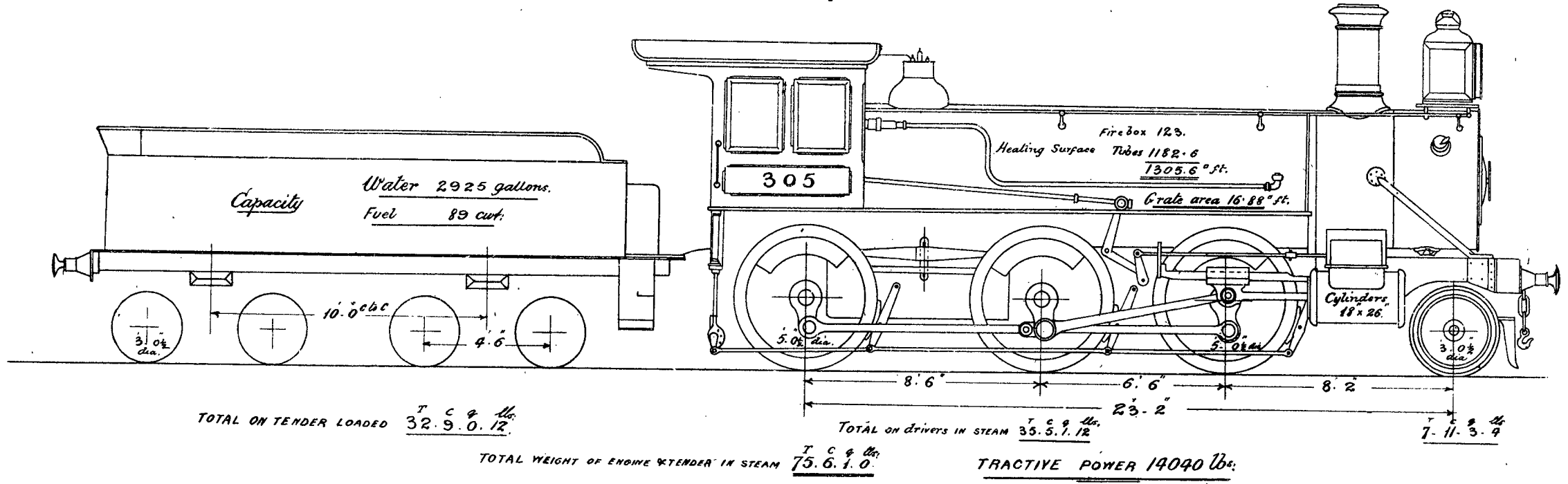
— BOGIE PASSENGER ENGINE NSWGR —



Loco. Engineers Office
Redfern 18th June 1887

APPENDIX C.

MOGUL ENGINE, NEW SOUTH WALES RAILWAYS.



(32.H.)

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

Locomotive Engineers Office
 Reopen 18th June 1887.

APPENDIX D.

TABLE of Weights on Locomotive and Tender wheels on dates of Trial.

Vulcan Engine, No. 373.			Mogul Engine, No. 305.					
Weight.			Weight.					
T.	c.	q.	T.	c.	q.			
R. front bogie.....	4	13	0	L. leading bogie	4	5	2	
L. "	3	14	0	R. "	4	9	3	
			8	7	0			
R. trailing bogie	4	11	0	L. leading coupled	4	14	1	
L. "	3	15	2	R. "	5	8	3	
			8	6	2			
R. driver coupled	6	13	0	L. driver coupled.....	5	11	1	
L. "	7	4	0	R. "	6	8	2	
			13	17	0			
R. trailing coupled	6	13	0	L. trailer coupled	6	3	1	
L. "	7	13	0	R. "	5	14	1	
			14	6	0			
Total			44	16	2	Total		
Tender fully loaded, with tank quite full, and 4 tons 14 cwt. 3 qr. 7 lb. of coal.			Tender fully loaded, with tank quite full, and 4 tons 9 cwt. 1 qr. 9 lb. of coal.					
L. leader	4	11	1	L. leading bogie	3	19	3	
R. "	6	1	1	R. "	4	10	1	
			10	12	2			
L. middle	4	5	0	L. leading bogie	3	14	1	
R. "	4	9	2	R. "	4	15	0	
			8	14	2			
L. trailing	6	3	0	L. trailing bogie	3	19	2	
R. "	4	6	3	R. "	3	13	0	
			10	9	3			
Total			29	16	3	Total		
Weight on coupled wheels			28	3	0	Total		
Total weight, engine and tender			74	13	1	Total		
						Weight on coupled wheels		
						34		
						0		
						1		
						Total weight, engine and tender		
						75		
						1		
						3		

APPENDIX E.

GREAT SOUTHERN, WESTERN, AND RICHMOND RAILWAYS.

Special Train Notice, No. 55.

M.P., 87/3,803c.

ON Wednesday, 15th, and Thursday, 16th June, 1887, a Special Passenger Train will run from Sydney to Esk Bank and return as under:—

Down.			Up.		
No. 7.					
		a.m.			p.m.
Sydney	Dep.	7 0	Esk Bank.....	Dep.	12 50
Granville	"	7 32	Zig Zag (B.P.) .....	"	.....
Parramatta	"	7 39	Clarence Siding .....	"	.....
Blacktown	Arr.	.....	Mt. Wilson.....	"	.....
Blacktown	Dep.	7 57	Mt. Victoria	Arr.	.....
Rooty Hill	Arr.	8 5	Blackheath	Dep.	1 47
Rooty Hill	Dep.	8 9	Katoomba	"	1 57
St. Mary's.....	"	8 19	Wentworth Falls	"	2 15
Penrith	Arr.	8 30	Wentworth Falls	"	2 29
Penrith	Dep.	8 37	Lawson.....	"	2 40
Glenbrook	"	9 8	Linden .....	"	.....
Springwood	"	9 31	Springwood.....	"	3 18
Lawson	Arr.	10 17	Springwood.....	Arr.	.....
Lawson	Dep.	10 24	Glenbrook	Dep.	3 40
Wentworth Falls.....	"	10 44	Penrith.....	"	4 10
Katoomba	"	11 3	St. Mary's .....	"	.....
Blackheath	"	11 20	Rooty Hill .....	"	.....
Blackheath	Arr.	11 30	Blacktown	Arr.	.....
Mt. Victoria	Dep.	11 32	Blacktown	Dep.	.....
Mt. Wilson	"	11 45	Parramatta	Arr.	.....
Clarence.....	"	12 0	Parramatta	Dep.	5 0
Zig Zag (B.P.)	Arr.	12 15	Granville.....	Arr.	.....
Zig Zag (B.P.)	Dep.	12 20	Granville.....	Dep.	5 0
Esk Bank	Arr.	12 25	Sydney.....	Arr.	5 48

This train will also stop at Emu Plains, Lucasville, Blaxland, Karaba, The Valley, Faulconbridge, Numantia, Woodford, Hazelbrook, Medlow, and Hartley Vale—allowing 30 seconds at each place.
Line must be kept clear for this train.
Acknowledge receipt by wire at once.

Traffic Manager's Office,
Sydney, 14th June, 1887.

W. V. READ,
Traffic Manager.

APPENDIX F.

Extract from letter from Mr. Scott to Mr. J. D. Baldry, dated 16 March, 1886.

WITH reference to the cable *re* the greatest weight that can be carried on the driving wheels of the twelve engines which are being built by the Vulcan Company, there is nothing in the way of (say) 16 or 32 tons on the four coupled wheels. I hope by this time the matter has been satisfactorily arranged.

Minute of The Commissioner for Railways.

Report of Messrs. A. Smith and F. Roberts, Locomotive Officers, Victoria and South Australia, on certain engines tested by them.

FORWARD copy of report to Mr. Midelton for any observations he may wish to make thereon.

I wish the report made not later than the 6th July.

CH.A.G., 2/7/87.

Minute by The Superintendent of Tramway Rolling Stock.

THE report of these gentlemen fully confirms my report of the 19th April last to the Hon. the Secretary for Public Works, and leaves no doubt whatever as to which class of locomotive is best for the New South Wales lines.

I will now only make remarks where I think it necessary to do so.

1. I do not quite understand what these gentlemen were requested to do.

2. The 373 type of engine is much more "favourably recognized and used" in America and Australia than it is in England, Messrs. Smith and Roberts to the contrary notwithstanding; the horizontal steam-chests on the tops of the cylinders are bad imitations of American practice, being so very unhandy.

3 & 4. I would point out that "up to date when the tests were made" my engine having made 40,000 more miles than the other, has, of course, more frictional resistance than a brand new engine with tires turned perfectly true.

7. It is admitted that a six-coupled engine is absolutely necessary, and that a four-coupled engine will not do for these lines (at least for the first 200 miles from Sydney in any direction), and although the rigid wheel base is long, my engine will traverse curves with less friction than No. 373 will; and the condition of the flanges of her tires proves this. I doubt if the tires of 373 nine months hence will bear favourable comparison.

I should be glad if it were shown how the same results can be better obtained without "the disadvantage of coupling in a third pair" of wheels. Mr. Roberts himself has been compelled to put a 10-wheeled *six*-coupled engine on the Adelaide and Melbourne line for working passenger trains, the said coupled wheels being 6 inches *smaller* in diameter than my engine, and it has singularly enough the same grave defect as Mr. Scott's engine, viz., not enough weight for adhesion.

8. It has but 28 tons 8 cwt. 3 qr., although the tractive force is more than either Mr. Scott's engine or mine, and the grades are 1 in 45 there against 1 in 30 here. Mr. Scott unwisely carries 16 tons 10 cwt. on his (four) bogie wheels; Mr. Roberts carries 10 tons 14 cwt. on his (four); and I carry 7 tons only on two wheels when the engine springs are properly adjusted. No. 305 now I notice carries 8 tons 15 cwt., which indicates that the springs required adjusting, and although "the larger percentage of weight available for adhesion" is obtained "at the expense of a longer rigid wheel base," it is admitted that No. 305 "took the curves very easily, and was quite steady" at a speed of 45 miles an hour; and had the judges made templates of the "treads" of all her tires as they are now worn after running 42,000 miles over 8-chain curves, and published diagrams from them, with the diagrams of "general outlines," the information would have been valuable and interesting.

9. Nothing is said about the dangerous height the coal was stacked on 373; it was quite 18 inches higher than the top of the tender, and large lumps had to be specially packed round the sides and end to enable 4½ tons to be carried at all. The weight, too, per wheel was 5 tons, and often, no doubt, exceeds 8 tons, as the springs are not compensated. My tender wheels have a constant load which never exceeds 4½ tons on any condition of road. Other advantages have been overlooked. The fact of being able to carry coal enough for a trip from Sydney to Bathurst, or Goulburn, and back is very important; this of course saves the haulage of coal to those places in waggons, and also the various loadings and unloadings. On the trial trip my tender ran from Lawson to Esk Bank and back (74 miles) without taking water. In these items alone I consider the saving will equal the first cost of the ten engines in a few years.

12. The judges should have said "we were—in opposition to the conditions of test—compelled to allow sand to be used on a dry rail a great many times with No. 373 to enable us to get the engine along." I saw sand used on a dry rail and water used at the same time on the tender tires, which lubricated them and washed the sand off for the train to run easier; I did not use sand or water on the rails, nor was it necessary with 305 engine.

13. In this paragraph it is admitted that the large cylinder power cannot be utilized, proving my words that "their unsuitability will be established on trial." The start at 65½ miles from Sydney would not have been made at all if sand had not been used freely, and at that time the sun had nearly attained its greatest altitude, and the rails were quite dry and clean.

15. I am sorry the judges do not inform you that I pointed out to them that the train was not the weight I expected it would have been, and on the morning of my trial I had another carriage put ready for attaching to the train, but this was not allowed. I then directed my driver to *make good time* at all stations, and to show that my engine could handle such a train with ease and better than it was handled on the previous day by No. 373. This was done, and *sixty-eight minutes* made in a journey which should have taken 272.5 minutes (one-quarter less time than that allowed).

16. Due allowance is not made for the serious nature of the accident in the Eveleigh yard with my engine before it started. I am not surprised that the coal consumption was greater than with 373 under such conditions. At 6:20 a.m. my engine was backing out; it ran through a pair of facing-points which had been wrongly left open; the tender was nearly upset, and the driver of course "banked his fire," and never expected to go out at all that day; there was, however, a delay of one and three-quarter hours, and in great confusion another tender was obtained, and a start made at 8:45 from Redfern with a spoiled fire, coal consumed while standing, signals against us, and stops made several times during the first 13 miles; the driver and fireman both disheartened with what had occurred—and yet, with all this and a dirty boiler (which had been in use two and a quarter years), an *odd* tender and a whole set of tires which required turning up, better speed was made than with the new engine, and considering that more work was done in the greater speed run, it is not difficult to see why more coal was consumed. I think that the coal, oil, and tallow consumption for the work done during the past two and a quarter years with my engines will compare favourably with any other engine on the New South Wales lines.

My engine "only slipped occasionally," and that was when starting from one or two wayside platforms, where the driver seemed impatient and to think it unnecessary to stop at all. The load could not only have been increased with "safety," but with advantage, and it is satisfactory to know that time was *gained* on the *heaviest parts of the road*.

19. The judges must, I am sure, admit upon reflection that the account of coal consumed and water evaporated per lb. of coal burned is most erroneous. A lot of coal was wasted in being shovelled hurriedly (some 8 feet) from the damaged tender to another tender. Indeed, no such accurate account of my coal was kept as was kept with Mr. Scott's engine. I do not see how the water evaporated per lb. of coal is to be accurately accounted for. In my case very little water was wasted by the injectors, whereas the Vulcan engine wasted immense quantities every time the injectors were used. I am not aware that the water which *entered* the boiler of either engine was accurately gauged, and unless this be done any data concerning evaporation is wrong and misleading.

The quantity of water drawn from each tender was roughly gauged, but all of it did not go into the boilers, and of course, as the Vulcan engine wasted most, the evaporation is said to be the highest. I am inclined to think that, as my boiler did the most work, the evaporation in it was highest.

The oil and tallow consumption is not accounted for in accordance with conditions of test.

21. I cannot conclude without remarking that there is to my mind evidence in the report of partiality, and a desire to tone down the defects in the Vulcan engine, so as not to reflect on the Locomotive Engineer, and this is hardly to be wondered at, seeing that Mr. Scott, some three years ago, thought fit to recommend Mr. Smith for the position of assistant to himself, and subsequently recommended Mr. Roberts for the same position, although I was his assistant at the time.

I beg most urgently to direct your attention to all I have said in my former report (dated 19 April, 1887), and compare the salient points in the report now submitted by Messrs. Smith and Roberts.

THOS. MIDELTON, M.I.M.E., 5/7/78.

REFERENCE to "Engineering" of April 15 and 29 last will show further proof of the correctness of my views. On page 407 there is an illustration of a six-coupled engine, which has 5' 2" wheels and 20" x 24" cylinders, giving off but 14 lb. of power more than my engine. This engine is used for "hauling passenger trains over the mountains, which formerly required two of the (Lehigh Valley Railroad) Company's engines of the ordinary construction." It is also said "there has been of late years a growing demand that heavy trains should be hauled at express speeds, and while anxious to comply with this demand, railway managers are unwilling to reconstruct their roads entirely with heavier rails, and to rebuild all their bridges, owing to the enormous outlay of capital that such a course would involve. The object of the design shown is to produce an engine able to cope successfully with very heavy express trains, while keeping the weight per axle much the same as it is on existing engines of the ordinary type." I need hardly say that this has been the object I have had in view for many years.

T.M.

Minute by The Commissioner for Railways.

Subject: Report of Messrs. A. Smith and T. Roberts, Locomotive Officers, Victoria and South Australia, on certain engines tested by them.

FORWARD copy of report to Mr. Scott for any observation he may wish to make thereon.

I wish the report made not later than the 6th July.

CH.A.G., 2/7/87.

Minute by Mr. Locomotive-Engineer Scott to The Commissioner for Railways.

As desired by the Commissioner, I have looked through the printed report forwarded by Messrs. Alison D. Smith and T. Roberts, the two experts appointed to test the relative merits of locomotive engines belonging to the classes Nos. 305 and 373.

I find page 3 of the printed report is confined principally to a description of the engines. This was so well known by yourself previously that comment is uncalled for.

In the first paragraph on page 4 (after describing the load taken by the Vulcan engine) deductions are drawn which are not quite correct, as will be seen by comparing the time-table prepared by the traffic branch with the "running time" shown on the "report sheets" of the driver and guard. The experts state that the engine lost 6 minutes between Sydney and Penrith. By the time-table, 1 hour 26 minutes was allowed for the run. The actual time taken (according to the statement of the experts themselves) was 1 hour 16 minutes, so that instead of losing 6 minutes the run was accomplished in 10 minutes less than the time allowed. Then the experts state that 8 minutes were lost between Penrith and Katoomba.

The

The time-table allowed 2 hours 19 minutes for the journey, but the actual running time was 2 hours 18 minutes; therefore, instead of 8 minutes being lost, 1 minute was gained. Again, the experts state that the run from Katoomba to Mount Victoria was accomplished in $18\frac{1}{2}$ minutes less than the allotted time, but seeing that the allotted time was 27 minutes, and the actual time taken was 23 minutes, it follows that the time gained was only 4 minutes, and not $18\frac{1}{2}$, as stated. The actual running time from Mount Victoria to Esk Bank was 43 minutes, and the allotted time 48 minutes, so that the journey was done in 5 minutes less than the allotted time, and not $7\frac{1}{2}$ minutes, as stated.

It will thus be seen that the Vulcan engine did the whole journey from Sydney to Esk Bank in 17 minutes less than the time allowed, and not 12 minutes, as stated by the experts.

The second paragraph describes a condition of the road which, at this season of the year, may naturally be expected as of almost daily occurrence; and I stipulated, in accordance with the universal practice, that sand-boxes should be fitted to the engines, in order that the difficulty and danger of slipping under such circumstances might be reduced to a minimum. With reference to the free use of sand, which the experts state was absolutely necessary to keep the engine from slipping, I may state only $1\frac{1}{2}$ cubic feet of sand were used.

Water was only applied once (and that was on the *up journey*), and then only for the purpose of cooling the brake-blocks after arrival at Springwood. The condition of the brake-blocks even then did not absolutely demand it.

Paragraph 3 calls for little comment beyond the fact that the engine took a load in excess of that for which it was designed at an expenditure of 7,740 cubic inches of steam in each cylinder for each revolution of the wheel.

Paragraph 4 records an important fact as to the hauling power of the engine. It is clearly demonstrated that on a rising gradient of 1 in 33, and in an 8 and 10 chain reverse curve, the engine (with a normal boiler pressure) started its load without difficulty. Want of proper care and attention on the part of the driver and fireman may have been the cause of the stoppage on the bank. This neglect, however, afforded an opportunity of testing the capability of the engine starting on a grade of 1 in 33, and it is gratifying to know that the result was so satisfactory, for it has established beyond question the correctness of my calculations as to what the engine would do.

With reference to the performance of engine No. 305 on the following day, I note that the experts state the conditions of the road were decidedly in favour of the engine, yet we are told that she slipped occasionally, and that sand was not used. I submit that if the engine slipped under such favourable conditions as regards the state of the road it may fairly be inferred that had the road been in the same state as it was on the previous day the use of sand would have been absolutely necessary. The use of sand for the prevention of slipping cannot be said to militate against the usefulness of either engine.

The steam is said to have been cut off at $70\frac{1}{2}$ per cent. of the stroke. This means that the engine took its load at an expenditure of 9,328 cubic inches of steam in each cylinder for each revolution of the wheel, or 1,588 cubic inches per revolution more than the Vulcan.

In other words, engine 305 used more steam by 440 cubic feet per mile than the Vulcan engine.

The running time of the engine, as stated by the experts, will also be found to be incorrect.

For instance, the time allowed for the run from Sydney to Penrith was 1h. 26m. The actual time occupied was 1h. 9m., but the experts in their analysis of running state $50\frac{1}{2}$ m., clearly showing that the deduction as to running is incorrect in both cases.

Each engine is stated to have taken the curves easily, and to be steady at all speeds, but the Vulcan is assumed to have run at 40 miles an hour, and the Mogul at 45 miles per hour. I may state no instructions were given by me to run otherwise than in accordance with the time-table, so that nothing can be deduced from the results of these trials to show that the Mogul is superior to the Vulcan as to speed capability.

On page 5 it is clearly shown that in the consumption of fuel the Vulcan engine is decidedly the more economical, viz., 49.5 lb. per mile for the Vulcan, as against 62.17 lb. per mile for the Mogul. I note the experts state that the probable cause of the excessive use of fuel by the Mogul engine was on account of the high average speed at which the ascent of 1 in 52 for 32 miles was made.

I scarcely think that such a deduction would be accepted as conclusive, and in justice to the experts I must say that they do not assert it definitely.

The conclusion drawn that 305 is more suitable for the class of traffic and road on which the experiment was made will, I feel sure, be disappointing, inasmuch as it does not give a decision such as was aimed at in making the trial. The length and grades selected for the test not being anything approaching the average condition of the lines of our system may, however, account for the result.

I might, in conclusion, here repeat that in recommending the Vulcan engine I did not look upon the haulage power over 1 in 30 grades for about 32 miles as forming a base on which to recommend an engine adapted to the general traffic and conditions of running on all sections. I aimed at securing an engine capable of hauling equal to twelve vehicles over the steep mountain grades, and taking heavier loads and running at higher speeds on other sections, because I saw at no distant date that much would be aimed at, not only to facilitate trade, but also, if possible, to compete with water-carriage.

I am pleased to add, for the Commissioner's information, that three of the Vulcan engines, which are now running passenger trains between Sydney and Bathurst, are giving proof of their efficiency to haul the stipulated load, equal to twelve vehicles. I feel sure, also, that in the matter of economy the results obtained by the experts will be maintained.

W. SCOTT, 7/7/87.

Minute of The Commissioner for Railways.

THE Minister wishes an experiment made with Redfern type of carriages (2nd class) on the occasion of the Volunteer Firemen special train to Albury on Monday next.

One of Mr. Middleton's engines to be used. Please see that it is in perfect order.

When change of engine is made another of Mr. Middleton's engines should be used to complete journey. Let a special account be kept of the consumption of fuel, water, &c.

Ch.A.G.,
10/2/87.

Loco. Engineer to arrange and consult with Traffic Branch.—D.C.McL., 10/2/87.

Re

Re Express Engines.

CONSUMPTION of fuel, water, and other running stores by express engines with train Sydney to Albury:—

5 tons 2 cwt. 3 qrs. 24 lbs. coal = 29'88 lbs. per mile,
8,755 gallons of water.
31½ lbs. castor, 8'8½
7¼ tallow ... 1'7

10'3¼ = 33d. per mile.

Comparative consumption in lbs. per mile if trains were of equal weight:—

American.	Express.
55'13 lbs.	45'91 lbs.

Comparative consumption in lbs. per ton weight of train for the whole journey:—

American.	Express.
180 lbs.	154 lbs.

GEO. DOWNE,
16/3/87

Report from Driver S. Campling to The Locomotive Foreman.

I HAVE to report for your information, *re* special passenger train run from Sydney to Albury on the 22nd instant as follows:—This train consisted of equal to 12½ carriages, drawn by engine No. 311. The first stop made after leaving Sydney was Picton Lakes, 59 miles, at 7'46 a.m., departed 7'52½; 6½ minutes taking water; crossed Up Express at Bundanoon, instead of Wingello, as per time table. Barber's Creek, 109 miles, arrived 9'37, and departed 9'42; 5 minutes taking water, arriving at Goulburn at 10'16 a.m.—31 minutes late—leaving Goulburn at 10'41—36 minutes late; 20 minutes being allowed for refreshments, 5 minutes more being taken to prepare the engine to go on. A stop of 5 minutes was made at the 141 mile post, in consequence of the road being lifted. Fish River tank, 160 miles; arrived 11'30, departed 11'34, taking water, and found one of the tender axle boxes had got very hot. Stopped at the 201 mile post attending hot box, 12'51 p.m., departed 12'54—3 minutes. Binalong, 1'9—1'12; 3 minutes hot box. 202½ miles post, arrived 1'38, departed 1'44; 6 minutes hot box, after which it began to get cool. Harden, 227 miles, 1'58, depart 2'4, taking water. Bethungra, arrived 3'24, departed 3'28½, 4½ minutes taking water. Junee, 286 miles, 4'0 arrived, 4'20 departed. Dinner—Wagga Wagga, arrived 5'0, departed 5'9, taking water and waiting to cross Up mail, instead of Culcairn, as per time table. Yerong Creek, arrived 5'54, departed 5'56, 2 minutes oiling, arriving in Albury at 7'11 p.m., 2 hours and 11 minutes late, delays as follows:—1 minute late leaving Sydney, 5 minutes at 141 mile post, 12 minutes through hot tender axle box; had it not been for these delays, the train would have arrived about 6'40 p.m. About one hour forty minutes was lost by locomotive, the wheel being too small to maintain a greater speed than which was run.

S. CAMPLING,
Engine Driver.

Referring to the special train which ran yesterday from Sydney to Albury with the Firemen, the Commissioner wishes to be furnished as quickly as possible with details of its running. Time of arrival at the different depôts according to Time-tables, and actual time of arrival, causes of delay, the time taken at each place for refreshment, or other stoppages, and the actual running time deducting all detentions. Please give also the approximate weight of the train, including weight of the passengers.—D.C. McL., 23/2/87, Traffic Manager.

THE following table shows the time the train was given to run the journey, in accordance with the Minister's wishes, and the time at which the special passed certain of the principal stations.

As per Time Table.	Actual running.
Sydney, dep. 6'0 a.m.	6'0 a.m.
Picton	7'28 "
Mittagong	8'39 "
Wingello, 8'55	9'28 "
Goulburn, arr. 9'45	10'16 "
" dep. 10'5	10'41 "
Gunning	11'42 "
Jerrawa	12'3 p.m.
Yass	12'23 "
Harden, arr.	2'0 "
" dep.	2'5 "
Wallenbeen	2'33 "
Cootamundra	2'53 "
Bethungra	3'35 "
Junee, arr. 2'10 p.m.	4'0 "
" dep. 2'30 p.m.	4'20 "
Wagga Wagga	5'8 "
The Rock... ..	5'40 "
Culcairn, 4'15	6'25 "
Gerogery	6'45 "
Albury, arr. 5'0	7'11 "
Which necessitated a speed of 35 miles per hour throughout, including stoppages.	Giving an actual speed throughout, including stoppages of 29½ miles per hour.

Of course I have not shown any stoppages for water which occurred at places other than those shown above. Indeed, in that respect I have given the actual running the advantage of five minutes at Harden, which I did not provide for in the special train notice, leaving it to the driver to make up the time so lost.

The only loss of time on the journey which could have been avoided was about 5 minutes, by permanent-way signal, near the 141-mile post. In every other respect it would be simply impossible to give a train a clearer road, and this, I understand the driver himself admits. Not only was there beautiful weather, and therefore a perfect rail to run upon, but every train, even the express, which was kept back 15 minutes, was made to give way to the special; and so completely was this done that not once throughout the journey had a stoppage to be made to enable the driver to sign for a "train ahead notice;" all he had to do was to pick up one staff or ticket, and deliver the other as he passed.

It will be understood that when I drew out the first time-table, giving the train 15 hours to do the journey, I had no idea that such special efforts were to be made to run it through quickly, consequently I allowed—

30	minutes	at Mittagong,	for breakfast and for an estimated 350 men.
10	"	"	Goulburn, to change engines and enable men to get out.
30	"	"	Yass, for dinner.
10	"	"	Harden, to change engines, and enable men to get out.
20	"	"	Junee, for tea.

100 = 1 hour 40 minutes, thus reducing the actual running time, and any other stoppages that might be necessary for water, to 13 hours 20 minutes.

Exclusive of the time actually taken at Goulburn and Junee for refreshments, and at Harden for water, and the time lost near the 141-mile post (55 minutes altogether), we find the actual running time to be 12 hours 16 minutes, but that, as I have said, was attained under the most favourable circumstances.

The train kept very fair time as far as Picton, but after that it lost time all the way through.

The following is the load of the train, exclusive of the engine and tender:—

		Tons	cwt.	qr.
Redfern type	Second class, No. 203	16	4	3
	" " 194	16	3	2
	" " 202	16	3	1
	" " 196	16	3	2
	" " 189	15	0	0
American car, first class,	" 53	16	10	3
		96	5	3
Estimated weight of 300 passengers at 15 to the ton.....		20	0	0
Luggage about.....		0	14	1
		117	0	0

W. V. READ,
24/2/87.

The actual stoppages for water, not embodied in the foregoing report, were:—

Picton Lakes	...	...	...	...	7	minutes
Barber's Creek	...	...	...	...	5	"
Fish River	...	...	...	...	4	"
Bethungra	...	...	...	...	5	"
Wagga Wagga	...	...	...	...	5	"

26 minutes

I should also mention that, between the 201-mile post and Harden, from ten to fifteen minutes were lost by the tender running hot.—D.K.

I have asked on other papers what engine was used. I see that Mr. Midelton's engine ran quicker to Goulburn than the express does.

Mr. Midelton's engine	...	...	...	...	4	hours	16	minutes
Express	...	...	...	...	4	"	50	"

Resubmit when Mr. Scott's report is received.—CH.A.G., 26/2/87.

EXTRACT from Traffic Manager's Minute of 10/3/87, relative to the subject of accelerating the speed of the morning train from Penrith.

"I HAVE arranged with the Locomotive Engineer to try one of Mr. Midelton's engines on the train.—W. V. READ, 10/3/87."

Hereon Commissioner minuted, 28/3/87, that he "wished the papers to be re-submitted at the end of April, to ascertain whether better time had been made by Mr. Midelton's engine."

Report of Traffic Manager.

Better time has been kept with the Midelton engine. This engine is able to make much better time up the inclines, and starts from the stations much quicker. In new table, now in hands of printer, I am taking 8 minutes off "up" journey, and 3 minutes off the "down."—W. V. READ, 20/5/87.

Minute by The Commissioner for Railways to The Locomotive Engineer.

New Engine by the Vulcan Foundry Company. * * *

LET me know as early as possible the total weight of the engine, and separately of the tender of the above class of engines, and also the weight which is upon each wheel, empty, and fully equipped for the road. Engine and tender, separately.
CH.A.G., 23/5/87.

Please arrange for the new engine now running to be weighed as soon as possible.—W. SCOTT, 25/5/87. Assistant Engineer. Mr. R. Scott to have this done, and attach result on separate paper.—GEO. DOWNE, 25/5/87. Details herewith.—W. SCOTT, 30/5/87. Commissioner.

Weight of No 373 engine empty and loaded * * *

		ENGINE (EMPTY).				Total.	
		Left.	Right.			T. c. q.	
		T. c. q.	T. c. q.				
Front bogie wheels		3 16 2	3 17 3	} On bogie		15 17 2	
Hind " "		4 0 2	4 2 3				
Driving " "		5 19 2	5 11 2		" driving axle		11 11 0
Trailing " "		6 16 3	6 12 2		" trailing "		13 9 1
		<u>20 13 1</u>	<u>20 4 2</u>			<u>40 17 3</u>	
		ENGINE (LOADED).					
Front bogie wheel		4 2 2	3 19 3	} On bogie		16 12 2	
Hind " "		4 4 3	4 5 2				
Driving " "		7 4 0	7 0 0		" driving axle		14 4 0
Trailing " "		7 0 0	6 19 0		" trailing "		13 19 0
		<u>22 11 1</u>	<u>24 4 1</u>			<u>44 15 2</u>	
		TENDER (EMPTY).					
Front wheels		2 14 0	2 0 0	Front axle		4 14 0	
Middle " "		2 3 3	3 0 0	Middle " "		5 3 3	
Hind " "		2 2 2	2 5 0	Hind " "		4 7 2	
		<u>7 0 1</u>	<u>7 5 0</u>			<u>14 5 1</u>	
		TENDER (FULL).					
Front wheels		4 19 0	5 15 2	Front axle		10 14 2	
Middle " "		5 3 0	4 15 0	Middle " "		9 18 0	
Hind " "		4 19 2	4 15 2	Hind " "		9 15 0	
		<u>15 1 2</u>	<u>15 6 0</u>			<u>30 7 2</u>	

W. SCOTT, 30/5/87.

Minute by The Chief Clerk to Mr. Locomotive-Engineer Scott.

Trial of Locomotives.

WITH reference to motion passed in the House on the 11th July, 1887, I should be glad to have a report, showing respectively the total cost to the Government of each of the two engines lately submitted to a trial test of efficiency between Sydney and Eskbank. D.C.M'L., 21/9/87.

Engine No. 373, Vulcan Foundry Company, £2,479 6s. 9d.; engine No. 311, Baldwin Company, £2,959 19s. 10d. According to information supplied by Superintendent Stores.—W. SCOTT, 21/9/87.

Minute by The Secretary for Public Works.

Manufacture of Locomotives.

Department of Public Works, Sydney, 30 September, 1887.

A DEPUTATION, comprising Messrs. Garrard, Hawthorne, F. Smith, Jeannerett, M.'sP., Hudson, Bloomfield, Franki, Henry Mort, John Morris, Henry Vale, and Edgington, waited upon me to-day with reference to the manufacture of locomotives in the Colony. They pointed out that tenders had been received five months ago for this work, but as yet no decision had been come to, and they asked that an early decision might be given. It was rumoured that, owing to the price of the Colonial tender, it was probable the work would be done in the Eveleigh workshops, as it was alleged the work could be done there cheaper than outside. They protested against this proposal as it would be an undue interference with private vested interests, as it would be an impolitic act to increase the number of Government employees unduly, and as it was the general experience that Government work was never carried out so economically as work done by private enterprise stimulated by competition.

They mentioned that at the present time many of their machines were lying idle, and large numbers of workmen were unemployed. Rather than see the work go out of the Colony, or be taken up in the Government shops, they were prepared to allow the work to be divided between them, the manufacture of the engines to be supervised by a Government employee, and the service paid for at the rate of 5 per cent. on the actual cost price of the materials. They thought the Government should encourage the

the local makers ; the cost of the first service might be high, but as they became familiar with the work, prices would go down to a reasonable limit. This had been the experience in Victoria in private workshops. They pointed out also that in Adelaide, where the cost of Government work had been examined, that the result, when compared with the cost of private working, was unsatisfactory.

I informed them that I could say little that was new. I had stated previously when they and the men waited upon me that the matter largely rested with them, and if they compelled the Government to import the locomotives on this occasion it might be a long time before they would have such an opportunity again of tendering for the supply. The Government had now to face a difficulty in this matter, and it was this difficulty that kept the question so long unsettled. So far as I was concerned, I was favourable to having this work, and in fact all work, done in the Colony, if it could be carried out at anything like the price we could import, with the addition of incidental charges. I had, when in office previously, arranged for locomotives to be made here, and only on one occasion, and then under exceptional circumstances, had I sent for engines out of the Colony ; the local manufacture had benefited the Colony, and I believed if the manufacturers had been as anxious as I had been to have the locomotives made here they would not have had any need to come before me that day. Certainly the engines could be made here as efficiently as in any part of the world, and my desire was to simplify the article we wanted as much as possible. I believed it could then be made as cheaply in the Colony as anywhere else.

It had been said that the Government were about to make the locomotives in our own workshops, but the Government had arrived at no decision whatever in this matter. We certainly would like to be in a different position, as the tenders we received were much higher than we expected and above what would justify us in having them done here if we were going to have them done by contract ; if we decided on having them done by contract they must come from the other side of the water. They had referred to work in Government shops, and a demand had been made for an inspection appointed from outside the Service to check the time and expenses. I stated I would be happy to allow such an officer to go into our shops to-morrow as I, with them, courted the fullest publicity. Some misapprehension had arisen with regard to my desire to have everything possible made locally ; some said it was protection, but in every instance since I had been in office this time the articles I had made here had been obtained cheaper than if they had been imported, and I was therefore much surprised to find the prices for these engines so much over the English price.

It was not unusual for Railway Companies all over the world to make their own rolling stock, locomotives, and carriages, and also materials, and they prove they can supply their own wants cheaper than if the work was done outside. Mr. H. Hudson here stated that I was incorrect in this statement ; he knew from personal experience that in England and America the Railway Companies obtained their supplies from outside makers, and instanced the large private workshops, such as the Baldwin Company, Beyer, Peacock, & Co., Dubs, Neilson, and others, from which the Railway Companies obtained their supplies. The most the Railway Companies did was repairs ; he knew of only one Company in England, the London and North-Western, that made its own stock.

I stated I did not speak from personal experience but from reading the leading English scientific and mechanical journals, and it was stated there that the Railway Companies of the world largely made their own supplies, and even their own rails. I did not want to have the engines made in our shops, but rather than have them go out of the Colony I would have them manufactured there so as to afford work to our own men. They had every opportunity of tendering, and were aware their prices were much in excess of the English offers, and the question simply was whether the Government would give them a large bonus over the manufacturers abroad. The matter would be for the Cabinet to settle. I would not advise the work going out of the Colony. Their offer to do the work at an increase of 5 per cent. on cost price was a new feature in the matter. They had, however, simply stated it verbally, but if they would put it in writing I would represent the matter fairly to the Government.

JOHN SUTHERLAND.

Messrs. D. & W. Robertson to The Secretary for Public Works.

Sir,

335 Pitt-st., Sydney, 3 October, 1887.

With reference to the manufacture of fifty locomotives in this Colony, as it is reported the local tenders are somewhat above the imported ones and as there are only a few firms in Sydney who can make a complete locomotive, we would respectfully suggest that fresh tenders be called on something like the following basis :—

1. Locomotive boilers.
2. Wall iron under-frames.
3. Locomotive tenders, complete.
4. Sets of boiler mountings, complete.
5. Cast iron-work, including cylinders, axle-boxes, &c.
6. Pistons, piston-rods, connecting-rods, &c., complete in sets.
7. Erecting the different parts at Eveleigh.

The whole work to be made to ten plates to be passed and approved by the Government Engineers during construction.

In getting tenders in this way it would permit of a large number of firms tendering that otherwise would not tender. We ourselves, for instance, could make the boilers and tenders at less than imported firms when it would not suit us to tender for a complete locomotive. In the same way several firms could make the brass work, loco. gear, &c., &c., and if proper supervision was employed it would give full employment for a large number of manufacturers in Sydney and District who otherwise could not share in this important work.

We are of opinion that if our suggestion is tried it will be found the work can be done in the Colony as cheap as the imported article, and thus give employment to the numerous first-class workmen now vainly seeking employment.

We have, &c.,

D. & W. ROBERTSON.

Messrs.

Messrs. Hudson and others to The Secretary for Public Works.

Sir,

33 Pitt-street, Sydney, 3 October, 1887.

We have the honor, in accordance with your request, to put in writing the verbal offer made to you by the deputation of engineering firms on Friday last the 30th ultimo.

We have now the honor to state that we are prepared to carry out the construction of 50 or more locomotives required by the Government, at the rate of £5 per centum on the cost of same.

We have, &c.,

HENRY HUDSON (for HUDSON BROS., Limited.)

MORRIS BROS.

J. P. FRANKI (for Mort's Dock and Engineering Co.)

HENRY VALE.

JOHN EDGINGTON, Atlas Engineering Co.

I should like report from Mr. Midelton.—J.S., 5/10/87.

This proposal is very different from the original one made by Capt. Broomfield, as reported in the newspapers. On behalf of Mort's Dock Co. he said he was prepared to make these locomotives under the eye of an officer of the Government, and only claim 5 per cent. profit on the cost of material and supervision. This means that he would supply machinery and labour gratis. Now we find five firms who are all prepared to execute the work "at the rate of £5 per centum on the cost." This means the more the engines cost to make the more the firms will profit by it. No Government or railway company would entertain such extravagant proposals, and I am surprised that any firm should have the temerity to make them. It goes to prove that the only object these manufacturers have in view is profit, whereas if the Department does its own work it will have no object in view but that of providing sound, good work at the cheapest rate, and work which will cost but little in maintenance. The proposal of the firms signing the paper is certainly a safe one for themselves, but most unsafe and unsatisfactory for the Government. Messrs. D. & W. Robertson seem to think that the Department require fifty locomotives made simply to give employment to seven different firms, and to all the "unemployed" hands in the Colony. This could be most completely carried out if these firms obtain the work in the way they suggest. The proposals of the combined firms, and Messrs. D. & W. Robertson's, are untenable.—THOS. MIDEルトON, 10/10/87. Commissioner.

[Two Plans.]

[2s. 3d.]

Sydney: Charles Potter, Government Printer.—1887.

1887.

(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

RAILWAYS.

(FURTHER PAPERS RESPECTING TESTS FOR SUITABLE TYPE OF ENGINE.)

Ordered by the Legislative Assembly to be printed, 25 October, 1887.

Mr. Acting Locomotive Engineer Midelton to The Traffic Manager.

New Engines for working Mail and Mixed Trains.

Now I have this matter in hand, I should be glad to know your views as regards the maximum number of vehicles (or total weight of train exclusive of engine and tender) you desire to work on your mail trains regularly.

As you of course know, we have been using *two* powerful engines on our mail trains for some time. I hardly think it necessary to point out how prejudicial this is in many ways, as you, of course, know that also.

If you will kindly let me know the weight of the heaviest train you desire to work, at an average speed of (say) 35 miles per hour, I should be glad, as the practice of employing *two* engines on *one* train should be discontinued as soon as possible. I am preparing designs for an engine which shall take the train I think you will propose, that is, of course, keeping within bounds as to safety on our steep grades.

Maximum height—
Southern Line, 2,280 feet;
Western Line, 3,668 feet.

I have my opinions of course, and when I have yours probably I shall find I have under-estimated your requirements. Please, therefore, let me have this as soon as you can.

THOS. MIDELTON, 20/3/83.

Memorandum to The Traffic Manager.

Locomotive Engines Branch, Redfern, 13 April, 1883.

WILL the Traffic Manager kindly return my m.p., 83-2,179, *re* new engines for working mail and mixed trains. The paper was sent to Traffic Manager on 21/3/83.

R.J.S.

The information we require from Inspectors not yet furnished. Will return the paper in the course of two or three days.—W. V. READ (*pro* J.P.), 16/4/83. I shall be glad to have your reply as early as possible; I have several important questions standing for this paper.—T.M., 17/4/83. Traffic Manager.

I return the paper herewith, and from inquiries I have made I find that an engine capable of maintaining a speed of 35 miles per hour on an ordinary road, and of drawing thirteen loaded vehicles up an incline of 1 in 30 or 33, would meet the requirements of the Department. I do not mean, of course, that a speed of that kind should be maintained upon such an incline, because that would be impossible. It will be a great desideratum if such an engine can be procured for our passenger trains, because I quite concur with Mr. Midelton, that it is undesirable to have *two* engines doing the work of *one*, as they have very frequently to do at present.—W.V.R., 25/4/83. Mr. Midelton.

Please see L.E., 84-2,946, Comrs. 84-10,352 and 84-9,134.

I am sorry it has taken two years to accomplish that which is so generally admitted to be so desirable. We now possess ten passenger engines which will do what is required, *viz.*, take thirteen vehicles over any portion of the N.S.W. lines at any time-table speed the Traffic Manager likes to decide upon. I have to-day (15/4/85) hauled a train of 101 tons (exclusive of engine and tender) from Penrith to Glenbrock under conditions which cannot be said to be *favourable*, the boiler of No. 311 engine (the one in question) being very dirty indeed, and also the water. The engine steamed freely, did not prime, hauled the load with ease, and ran perfectly cool all round. On the return journey No. 311 was attached to the up passenger train, and ran often at a speed of over 40 miles an hour for a long distance. I consider this most satisfactory, and these engines are capable of successfully working any passenger train we have, even the express, where, if one of them were used, a train of *double* the weight of the present one could be worked, but of course I should not advocate the use of a six-coupled 5-feet wheel engine where a four-coupled 6-feet wheel will do.—T.M., 15/4/85.

Traffic Manager will please note and return, so that I may forward paper to L.E. Seen.—W. V. READ (*pro* D.K.), 16/4/85.

Locomotive Engineer.—T.M., 16/4/85.

Minute by Mr. Midelton, Locomotive Overseer.

On letter received by Commissioner for Railways from Mr. W. Rhodes (of the Baldwin Company), offering six locomotives of the "Mogul" type, dated 1st December, 1883.

THIS represents the class of engine and tender I am now designing in accordance with a minute by you on a previous paper. I have ever since I came to the Colony—in 1880—argued that an engine such as here illustrated, having 18 × 26 cyls. and a set of 6-coupled wheels, 5'0 diameter, would with a suitable 8-wheeled tender to carry 3,000 gallons of water and 5 or 5½ tons of coal, be the best "all round" class of engine we could have, such as would be capable of working any passenger trains, or goods trains, or fast cattle traffic, in short it could be attached to any train and work it satisfactorily. I have already made my views known in the report and specification *re* the twenty new Mogul engines recently cabled for from England, but I regret to hear that my suggestions were *not regarded*. If the Loco. Engineer will give me his *full support* I shall have very great pleasure in preparing "Special specifications" as alluded to in the attached printed circular [extract from the *Chicago Railway Age*, May 29th and June 5th, 1879], and guarantee to have an engine which shall give equal performance, and under similar circumstances, to those named by Mr. Finney, and I recommend that such specification be prepared and submitted to the Baldwin Company for prices for six engines and tenders as suggested by Mr. Rhodes, as I am quite sure they will give us greater satisfaction than any engine we now have. It grieves me to see two engines on our mail trains when one (such as I propose) would do the work comfortably in all weathers.

T.M., 22/12/83.

The reason for this is shown in the papers.—W.S.

Mr. Midelton has my support when I consider he is right.—W.S.

The class of engine submitted by Mr. Rhodes on behalf of the Baldwin Company would be a great improvement on the Consolidation class supplied to us by this firm, and provided they undertake to build such a type of engine on our specification I recommend an order be given for six of them if the price be reasonable. The class of engine which I consider best adapted to our requirements is a 19 × 26 cylinder and a 54-inch driving wheel. This type of engine would have a tractive power of about 174, and can be run at a speed of 35 miles per hour, allowing a good margin of safety, which I consider would be ample for any mixed passenger or live stock trains. Believing that the speed of our mail trains must be increased rather than reduced, I could not think of recommending the use of such an engine as Mr. Midelton advocates for running mail trains.—W. SCOTT, 2/1/84. The Commissioner.

Will the Loco. Engineer be good enough to direct Mr. Midelton to draw up a specification to his design, and I shall be glad to receive a specification from Mr. Scott to his own design, as explained in his minute of 2/1/84. Then I think it would be well to obtain prices from Baldwin Company on a competitive basis for one or both of these engines. Let Mr. Midelton state the speed to which the engine he proposes can be run to with perfect safety.—CH. A. G., 22/1/84.

Stated 35 to 40 miles per hour on specification.

I must agree with Mr. Midelton that it is a grievous thing to see, when a train is slightly added to—(say) 40 tons added, and not weighing on the whole 120 tons (without motive power)—that two engines should be required to move it. If one engine can do such work, by all means let us have a design of it.—CH. A. G., 22/1/84.

Memo. to Mr. Midelton, 25 January, 1884. Referring to your minute of 22/12/83 on Mr. Rhodes' letter of December 1st, the Commissioner desires that you will draw up a specification of the engine you propose, and state the speed to which the engine can be run with safety.—W. SCOTT.

Specification herewith. I very much regret there is not time for preparing complete drawings also.—T.M., 26/2/84. Loco. Engineer.

Extract from Commissioner's Minute Paper, 84-10,352.

* * * * * Mr. Midelton has designed a powerful passenger engine which, when required, can be used as a goods engine. The two specifications are herewith. The latter engine is to enable us to increase the weight of our passenger trains without using two engines. * * * * *

CH. A. G., 27/3/84.

Approved.—F.A.W., 3/4/84.

1887.

(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

RAILWAYS.

(ENGINES USED BETWEEN SYDNEY, PENRITH, AND MOUNT VICTORIA.)

Ordered by the Legislative Assembly to be printed, 19 October, 1887.

RETURN to an *Order* of the Honorable the Legislative Assembly of New South Wales, dated 11th October, 1887, That there be laid upon the Table of this House,—

“ Statement showing the number of engines employed during the twelve months ending the 1st September, 1887, conveying goods and passenger trains between Mount Victoria and Penrith; also, the number of engines used in conveying the same trains between Penrith and Sydney.”

(Mr. Wall.)

RETURN showing the daily average number of Engines employed working Goods and Passenger Trains during the twelve months ending 1st September, 1887, between Mount Victoria and Penrith, and Penrith and Sydney.

Between Mount Victoria and Penrith.			Between Penrith and Sydney.		
Average number of Engines employed on Goods Trains.	Average number of Engines employed on Passenger Trains.	Total.	Average number of Engines employed on Goods Trains.	Average number of Engines employed on Passenger Trains.	Total.
22	4 $\frac{1}{3}$	26 $\frac{1}{3}$	9	3 $\frac{1}{2}$	12 $\frac{1}{2}$

NOTES :—The above figures are based on six days being considered as a week's work. Goods trains are occasionally run over these sections on a Sunday when found necessary to meet emergent occasions.

1887-8.

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

RAILWAY LOCOMOTIVES.

(COST OF CONSTRUCTION OF FIFTY COLONIAL MADE.)

*Ordered by the Legislative Assembly to be printed, 6 June, 1888.**[Laid upon the Table of the House, in accordance with promise made by the Honorable the Secretary for Public Works, in answer to question No. 4 in Votes and Proceedings No. 99, of the 6th June, 1888.]*

QUESTIONS.

1. In reference to the fifty Railway Engines ordered by the Government to be made in the Colony, what would be the difference per Engine in the cost of their construction if made with copper fire-box plates and brass tubes, as built by Beyer & Peacock, and those ordered by the Government to be made in the Colony with steel fire-boxes and tubes?
2. What is the difference in the life of fire-boxes with copper plates and brass tubes, and steel plates and steel tubes?

ANSWERS.

1. It is estimated that by the substitution of steel as material of construction in lieu of copper and brass in the fire-boxes and tubes respectively of the "Goods" Engine, a saving will be effected in these two items of at least £300. The Passenger Engine may be taken at 10% less than this. If the item of boiler shell, smoke-box, and stays be taken into consideration, there will appear a further saving in items as between best Yorkshire iron and steel of £68, thus showing a total saving in the raw material of the boiler of the Goods Engine of £368, the Passenger Engine being taken at 10% less.
2. The life of copper fire-boxes may be assumed as averaging (with repairs and partial renewals more or less costly) 7 years; that of steel fire-boxes as averaging 5½ years, averaging difference in favour of copper 1½ year. The life of brass tubes may be assumed as averaging, including two partial renewals and repairs (each costing about 6s. 6d.), 12 years; that of good steel tubes may be taken as 4 years. Average difference in favour of brass tubes, say 8 years. It is to be borne in mind that the quality of copper produced now-a-days for locomotive fire-boxes is very inferior to that manufactured 20 years ago, and that an engine whose fire-box has required heavy patching and repairs is no longer considered in first class order. The same remarks apply though in a less degree to tubes. Steel fire-boxes and tubes are cheaper and also much stronger and will bear far higher pressures than copper and brass, a most important advantage now-a-days. Modern marine boilers are made entirely of steel and they carry a much higher pressure than is usual in locomotive practice, viz, 150 to 160 lb. per square inch. There is a certain amount of prejudice in this matter which still has a firm hold upon some people who have had no experience with steel and they assume that copper gives no trouble, but that is not the case. On the 150,000 miles of railway in the United States a copper fire-box would be the exception, steel being the material used on the best roads. The vital question is which boiler will cost the least and earn the most money. Experience seems to answer steel, and as it is admitted that loco. boilers should be thoroughly examined internally once every five years it is impossible to do this without taking the fire-box out of the shell; it is therefore better to make a new steel fire-box (if necessary) to put into an old shell, than it is to put a repaired copper or steel fire-box back again into the same old shell.

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAY LOCOMOTIVES.
(COST OF IMPORTED.)

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

RETURN to an *Order* of the Honorable the Legislative Assembly of New South Wales, dated 27th October, 1887, That there be laid upon the Table of this House, a Return showing:—

- “(1.) The total cost of the Locomotive Engines known as classes ‘Heavy Consolidated’ and ‘Mogul,’ of American manufacture, such cost to include insurance, freight, cost of inspection, and all other expenses incurred in placing said Engines on line in running order.
- “(2.) A like Return in regard to the Locomotives imported from England, known as the ‘Vulcan.’
- “(3.) A like Return with regard to the cost of Locomotives of the class which the Government have decided to adopt, regardless of where such Engines were manufactured.”

(Mr. Fletcher.)

1. The total cost of the Locomotive Engines known as classes “Heavy Consolidated” and “Mogul,” of American manufacture, such cost to include insurance, freight, cost of inspection, and all other expenses incurred in placing such Engines on line in running order:—

Consolidated	...	...	...	...	...	...	...	...	...	£2,985
Mogul	...	...	...	...	...	...	...	...	...	£2,960

2. A like Return in regard to the Locomotives imported from England, known as the “Vulcan.”
- £2,511 2s. 1d.

3. A like Return with regard to the cost of Locomotives of the class which the Government have decided to adopt, regardless of where such Engines were manufactured:—

Goods	...	...	...	...	...	...	...	...	...	£3,000
Passenger	...	...	...	...	...	...	...	...	...	£2,989

These engines are similar to the engines referred to in Question No. 1, and are to be made in the Colony.

[3d.]

870—

[842 copies—Approximate Cost of Printing (labour and material), £1 1s. 3d.]

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RESUMPTION OF EDWARD IRBY'S LAND
AT BLUFF RIVER.

(PETITION FROM EDWARD IRBY, PRAYING TO BE HEARD BY COUNSEL AND ATTORNEY, BEFORE SELECT COMMITTEE ON.)

Ordered by the Legislative Assembly to be printed, 29 May, 1888.

To the Honorable the Speaker and Honorable Members of the Legislative Assembly in Parliament assembled.

The humble Petition of Edward Irby of Tenterfield, in the Colony of New South Wales, gentleman,—
SHOWETH:—

1. That your Petitioner is a gentleman, and resides at Tenterfield.
2. That your Petitioner is interested in the matter of the resumption, by the Government of certain lands, situated on the Bluff River in the Colony aforesaid, and has made certain claims in respect thereto.
3. That the matter of the said resumption has been referred to a Select Committee of the Legislative Assembly.
4. That your Petitioner desires to be represented at the meetings of the said Select Committee by Attorney and Counsel.

Your Petitioner, therefore, humbly prays that permission may be granted to him to be represented at the meetings of the said Select Committee by Counsel and Attorney.

And your Petitioner, as in duty bound, will ever pray, &c.

EDWD. IRBY.

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

REPORT FROM THE SELECT COMMITTEE

ON

COMBINATION TRUCKS;

TOGETHER WITH THE

PROCEEDINGS OF THE COMMITTEE,

MINUTES OF EVIDENCE,

AND

APPENDIX.

ORDERED BY THE LEGISLATIVE ASSEMBLY TO BE PRINTED,

20 *July*, 1888.

SYDNEY: CHARLES POTTER, GOVERNMENT PRINTER.

1888.

1887-8.

EXTRACTS FROM THE VOTES AND PROCEEDINGS OF THE
LEGISLATIVE ASSEMBLY.

VOTES No. 23. TUESDAY, 8 NOVEMBER, 1887.

18. COMBINATION TRUCKS:—Mr. Hassall moved, pursuant to Notice (*as amended by consent*),—
 (1.) That a Select Committee be appointed, with power to send for persons and papers, to inquire into a report upon the question of the Combination Trucks offered to the Government.
 (2.) That such Committee consist of Mr. Brunner, Mr. Black, Mr. Dawson, Mr. Kethel, Mr. Sutherland, Mr. Lyne, Mr. Hayes, Mr. Chanter, Mr. Carruthers, and the Mover.
 Debate ensued.
 Question put and passed.
-

VOTES No. 26. TUESDAY, 15 NOVEMBER, 1887.

2. COMBINATION TRUCKS:—Mr. Frank Smith presented a Petition from George T. Evans and Ambrose Thornley, of Sydney, representing that they are directly interested in the results of an inquiry now being made respecting the Combination Trucks offered to the Government; and praying to be heard by Counsel or Solicitor before the Select Committee now inquiring into the subject, with liberty to adduce such evidence as may be advised.
 Petition received.
 Mr. Frank Smith (*by consent*) moved, without Notice, That the prayer of the Petitioners be granted.
 Question put and passed.
-

VOTES No. 27. WEDNESDAY, 16 NOVEMBER, 1887.

5. COMBINATION TRUCKS:—Mr. Waddell presented a Petition from W. B. Wilkinson, of Dubbo, representing that he is directly interested in the result of an inquiry now being made respecting the Combination Trucks offered to the Government; and praying to be heard by Counsel or Solicitor before the Select Committee now inquiring into the subject, with liberty to adduce such evidence in his interests as may be advised concerning the subject matter of the said inquiry.
 Petition received.
 Mr. Waddell (*by consent*) moved, without Notice, That the prayer of the Petitioner be granted.
 Question put and passed.
- * * * * *

9. COMBINATION TRUCKS:—*Mr. Chanter*, for Mr. Hassall (*by consent*), moved, without Notice, That the correspondence respecting the Evans Combination Truck, laid upon the Table on 14th October, 1886, and the further correspondence relating to Combination Trucks, laid upon the Table during October, 1887, be referred to the Select Committee now sitting on Combination Trucks.
 Question put and passed.
-

VOTES No. 28. THURSDAY, 17 NOVEMBER, 1887.

3. COMBINATION TRUCKS:—Mr. Hassall (*by consent*) moved, without Notice, That the Select Committee now sitting on Combination Trucks be authorized to make visits of inspection to, and hold inquiries at, Redfern and Homebush.
 Question put and passed.
-

VOTES No. 59. TUESDAY, 28 FEBRUARY, 1888.

3. PAPERS:—
 Mr. Sutherland laid upon the Table,—
- * * * * *
- (4.) Further Correspondence respecting Wilkinson's and the Evans' Combination Trucks. Ordered to be printed, and referred to the Select Committee on "Combination Trucks."
-

VOTES

VOTES No. 79. WEDNESDAY, 18 APRIL, 1888.

5. COMBINATION TRUCKS :—Mr. Lyne (*by consent*) moved, without Notice, That the further correspondence respecting Wilkinson's Combination Truck, laid upon the Table of the House and ordered to be printed on the 4th April instant, be referred to the Select Committee now sitting on Combination Trucks.
Question put and passed.

VOTES No. 120. FRIDAY, 20 JULY, 1888.

9. COMBINATION TRUCKS :—Mr. Hassall, as Chairman, brought up the Report from, and laid upon the Table the Minutes of Proceedings of, and Evidence taken before, the Select Committee for whose consideration and report this subject was referred on 8th November, 1887, together with Appendix.
Ordered to be printed.

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1887-8.

COMBINATION TRUCKS.

REPORT.

THE SELECT COMMITTEE of the Legislative Assembly, appointed on the 8th November, 1887, "*with power to send for persons and papers to inquire into and report upon the question of the Combination Trucks offered to the Government,*" and to whom was referred on the 15th November, 1887, the "*Petition from George T. Evans and Ambrose Thornley ;*" on the 16th November, 1887, the "*Petition from W. B. Wilkinson,*" and "*the correspondence respecting the Evans' Combination Truck,*" and "*further correspondence relating to Combination Trucks ;*" on the 28th February, 1888, the "*further correspondence respecting Wilkinson's and the Evans' Combination Truck ;*" on the 18th April, 1888, the "*further correspondence respecting Wilkinson's Combination Truck,*" and to whom was granted on the 17th November, 1887, leave "*to make visits of inspection to, and hold inquiries at, Redfern and Homebush,*" have agreed to the following Report :—

Your Committee having examined the witnesses named in the List* (whose evidence will be found appended hereto), and carefully considered the whole of the evidence, find as follows :—

1. That at the time this inquiry was initiated, two patent combination trucks, viz., the "Evans" and "Wilkinson," had been definitely offered to the Government, the former for the sum of £16,000, and the latter for the sum of £5,000.
2. That in June, 1885, fourteen trucks were constructed by the Railway Department from a design furnished by Mr. Evans, which have been continuously in use for the conveyance of stock and merchandise over the railways of the Colony, and have conclusively proved their superiority over the ordinary stock waggons.
3. That by using the "Evans" truck a considerable saving has been effected in the working expenses of the Railway Department in consequence of its adaptability for the conveyance of either cattle, sheep, or goods, thereby materially avoiding the loss consequent on empty running.
4. That the Government, recognizing the advantages to be derived from the use of the "Evans" truck, had been in treaty for the purchase of the patent rights attached thereto for the sum of £16,000.
5. That your Committee are of opinion, notwithstanding the advantages claimed for the "Evans" truck, and the saving effected in working expenses which would follow its general adoption, £16,000 is an excessive sum to pay for the patent rights thereof, but that very great credit and some recognition is due to the inventor.
6. That after the "Evans" Combination Truck had been in use for over eighteen months, Mr. Wilkinson designed and patented a Combination Truck suitable for the conveyance of stock and merchandise, and also combining the system of end-loading with that at present in use.

* See List, page 14.

7. That the improved end-loading system designed and patented by Mr. Wilkinson is according to the testimony of stockowners, dealers, agents, and practical men, preferable to any system at present in use in the Colony of New South Wales, as applied to the loading and unloading of stock.
8. That several trials have taken place between the "Evans" and the "Wilkinson" trucks, in which the conditions were nearly equal, except that in converting from sheep to cattle and *vice versa* the "Wilkinson" had the advantage. The weights of the ordinary cattle waggons range from 6 tons 9 cwt. to 6 tons 15 cwt.; sheep waggons from 6 tons 15 cwt. to 7 tons 13 cwt.; whilst the "Wilkinson" weighs 7 tons 15 cwt. as against the "Evans" 6 tons 13 cwt., the cost of construction being also about £25 in favour of the latter.
9. That the principle of end-loading would prove of considerable value if brought into general use for the conveyance of stock, and your Committee recommend the patent rights referred to, to the consideration of your Honorable House, if such rights can be obtained by payment of a royalty or a reasonable sum. The adoption of this course would doubtless lead to the construction of an improved Combination Truck, combining all the excellencies and advantages of both the "Evans" and the "Wilkinson," and prove superior to anything at present in use throughout the Australian Colonies.

T. H. HASSALL,

Chairman.

No. 2 Committee Room,
Sydney, 17th July, 1888.

PROCEEDINGS OF THE COMMITTEE.

TUESDAY, 15 NOVEMBER, 1887.

MEMBERS PRESENT:—

Mr. Hassall, | Mr. Sutherland.

In the absence of a quorum the meeting called for this day lapsed.

WEDNESDAY, 16 NOVEMBER, 1887.

MEMBERS PRESENT:—

Mr. Hassall, | Mr. Brunner,
Mr. Chanter, | Mr. Lyne.

Mr. Hassall called to the Chair.

Entries from Votes and Proceedings appointing the Committee and referring the Petition from George T. Evans and Ambrose Thornley, of Sydney, read by the Clerk.

Committee deliberated.

Ordered,—That W. V. Read, D. Kirkcaldie, T. Braid, and W. Scott be summoned to give evidence next meeting.

[Adjourned to To-morrow, at half-past One o'clock.]

THURSDAY, 17 NOVEMBER, 1887.

MEMBERS PRESENT:—

Mr. Hassall in the Chair.

Mr. Brunner, | Mr. Carruthers,
Mr. Lyne, | Mr. Chanter.

Entries from Votes and Proceedings referring Petition from W. B. Wilkinson, of Dubbo; correspondence respecting Evans' Combination Truck; and further correspondence relating to Combination Trucks, read by Clerk.

Printed copies of Petitions and Papers referred before the Committee.

Present:—Bruce Smith, Esq. (*Counsel*), and J. McLaughlin, Esq. (*Solicitor*), appeared for Messrs. Evans and Thornley. W. B. Wilkinson, Esq., appeared in person.

W. V. Read, Esq. (*Traffic Manager*), called in, sworn, and examined.

Cross-examined by Mr. Wilkinson and Mr. Smith.

Room cleared.

Committee deliberated.

Ordered,—That the Chairman obtain the necessary leave from the House to make visits of inspection and hold inquiries at Redfern and Homebush.

[Adjourned to To-morrow at One o'clock.]

FRIDAY, 18 NOVEMBER, 1887.

MEMBERS PRESENT:—

Mr. Hassall in the Chair.

Mr. Chanter, | Mr. Lyne,
Mr. Kethel, | Mr. Sutherland.

Entry from Votes and Proceedings authorizing the Committee to make visits of inspection and hold inquiries at Redfern and Homebush, read by the Clerk.

Present:—Bruce Smith, Esq. (*Counsel*), appeared for Messrs. Evans and Thornley. W. B. Wilkinson, Esq., appeared in person.

Room cleared.

Committee deliberated, and then proceeded to the Redfern Railway Station, where they inspected the Evans and the Wilkinson Patent Combination Trucks.

Reassembling of the Committee to be arranged by the Chairman.

[Adjourned.]

TUESDAY, 22 NOVEMBER, 1887.

MEMBERS PRESENT:—

Mr. Hassall in the Chair.

Mr. Lyne, | Mr. Dawson,
Mr. Sutherland.

Present:—Bruce Smith, Esq. (*Counsel*), appeared for Messrs. Evans and Thornley. W. B. Wilkinson, Esq., appeared in person.

Richard Hodnett, Esq., called in, sworn, and examined.

Cross-examined by Mr. Smith and Mr. Wilkinson.

Room cleared.

Committee deliberated.

Ordered,—That Mr. Evans and Mr. Wilkinson be summoned to give evidence next meeting

[Adjourned to To-morrow, at One o'clock.]

WEDNESDAY,

WEDNESDAY, 23 NOVEMBER, 1887.

MEMBERS PRESENT:—

Mr. Hassall, | Mr. Lyne.

In the absence of a quorum the meeting called for this day lapsed.

THURSDAY, 24 NOVEMBER, 1887.

MEMBERS PRESENT:—

Mr. Hayes, | Mr. Chanter.

In the absence of a quorum the meeting called for this day lapsed.

FRIDAY, 25 NOVEMBER, 1887.

MEMBERS PRESENT:—

Mr. Hassall in the Chair.

Mr. Lyne, | Mr. Hayes,
Mr. Chanter.

Present:—J. McLaughlin, Esq. (*Solicitor*), appeared for Messrs. Evans and Thornley. W. B. Wilkinson, Esq., appeared in person.

Room cleared.

Committee deliberated.

Ordered,—That Mr. Wilkinson and Mr. Evans be summoned to give evidence next meeting.

[Adjourned to Wednesday next, at *half-past Ten* o'clock.]

WEDNESDAY, 30 NOVEMBER, 1887.

MEMBERS PRESENT:—

Mr. Sutherland, | Mr. Lyne.

In the absence of a quorum the meeting called for this day lapsed.

THURSDAY, 1 DECEMBER, 1887.

MEMBERS PRESENT:—

Mr. Hassall in the Chair.

Mr. Lyne, | Mr. Brunner.

Present:—Bruce Smith, Esq. (*Counsel*), appeared for Messrs. Evans and Thornley. W. B. Wilkinson, Esq., appeared in person.

W. B. Wilkinson, Esq., sworn and examined.

Cross-examined by Mr. Smith.

Room cleared.

Committee deliberated.

Ordered,—That D. Kirkcaldie, A. Yeomans, and W. Scott be summoned to give evidence next meeting.

[Adjourned to To-morrow, at *Eleven* o'clock.]

FRIDAY, 2 DECEMBER, 1887.

MEMBERS PRESENT:—

Mr. Hassall, | Mr. Hayes.

In the absence of a quorum the meeting called for this day lapsed.

TUESDAY, 6 DECEMBER, 1887.

MEMBER PRESENT:—

Mr. Hassall.

In the absence of a quorum the meeting called for this day lapsed.

THURSDAY, 8 DECEMBER, 1887.

MEMBERS PRESENT:—

Mr. Hassall in the Chair.

Mr. Lyne, | Mr. Brunner.

Present:—Bruce Smith, Esq. (*Counsel*), and J. McLaughlin, Esq. (*Solicitor*), appeared for Messrs. Evans and Thornley. W. B. Wilkinson, Esq., appeared in person.

Allan Yeomans, Esq., called in, sworn, and examined.

Cross-examined by Mr. McLaughlin and Mr. Wilkinson.

Witness withdrew.

David Kirkcaldie, Esq. (*Assistant Traffic Manager*); called in, sworn, and examined.

Cross-examined by Mr. Wilkinson and Mr. McLaughlin.

Witness withdrew.

William Scott, Esq. (*Locomotive Superintendent*), called in, sworn, and examined.

Cross-examined by Mr. Smith and Mr. Wilkinson.

Room cleared.

Committee deliberated.

[Adjourned to Wednesday next at *Eleven* o'clock.]

WEDNESDAY,

WEDNESDAY, 14 DECEMBER, 1887.

MEMBERS PRESENT:—

Mr. Hassall, | Mr. Brunker.

In the absence of a quorum the meeting called for this day lapsed.

THURSDAY, 15 DECEMBER, 1887.

MEMBERS PRESENT:—

Mr. Hassall, | Mr. Chanter.

In the absence of a quorum the meeting called for this day lapsed.

WEDNESDAY, 29 FEBRUARY, 1888.

MEMBERS PRESENT:—

Mr. Hassall in the Chair.

Mr. Brunker, | Mr. Lyne,
Mr. Sutherland, | Mr. Hayes.

Present:—W. B. Wilkinson, Esq., appeared in person.

George Downe, Esq. (*Assistant Locomotive Engineer*), called in, sworn, and examined.

Cross-examined by Mr. Wilkinson.

Witness withdrew.

Henry William Larance, Esq., called in, sworn, and examined.

Cross-examined by Mr. Wilkinson.

Room cleared.

Committee deliberated.

Ordered,—That G. T. Evans be summoned to give evidence next meeting.

[Adjourned to Wednesday next, at *half-past One* o'clock.]

WEDNESDAY, 7 MARCH, 1888.

MEMBERS PRESENT:—

Mr. Hassall in the Chair.

Mr. Lyne, | Mr. Hayes.

Committee deliberated.

Ordered,—That G. T. Evans and J. Harper be summoned to give evidence next meeting.

[Adjourned to To-morrow, at *half-past One* o'clock.]

THURSDAY, 8 MARCH, 1888.

MEMBERS PRESENT:—

Mr. Hassall in the Chair.

Mr. Brunker, | Mr. Lyne,
Mr. Hayes.

Present:—Bruce Smith, Esq. (*Counsel*), appeared for Messrs. Evans and Thornley. W. B. Wilkinson, Esq., appeared in person.

George Trotter Evans, Esq., called in, sworn, and examined.

Room cleared.

Committee deliberated.

Ordered,—That G. T. Evans be summoned to give evidence next meeting.

[Adjourned to Wednesday next, at *half-past One* o'clock.]

WEDNESDAY, 14 MARCH, 1888.

MEMBERS PRESENT:—

Mr. Hassall in the Chair.

Mr. Brunker, | Mr. Hayes.

Present:—Bruce Smith, Esq. (*Counsel*), for Messrs. Evans and Thornley. W. B. Wilkinson, Esq., appeared in person.

George Trotter Evans, Esq., called in and further examined.

Room cleared.

Committee deliberated.

[Adjourned to Wednesday, 28 March, at *half-past Ten* o'clock.]

WEDNESDAY,

WEDNESDAY, 28 MARCH, 1888.

MEMBER PRESENT :—

Mr. Hassall.

In the absence of a quorum the meeting called for this day lapsed.

WEDNESDAY, 11 APRIL, 1888.

MEMBERS PRESENT :—

Mr. Hassall, | Mr. Lyne.

In the absence of a quorum the meeting called for this day lapsed.

THURSDAY, 12 APRIL, 1888.

MEMBERS PRESENT :—

Mr. Hassall in the Chair.

Mr. Lyne, | Mr. Kethel.

Present :—Bruce Smith, Esq. (*Counsel*), and J. McLaughlin, Esq. (*Solicitor*), for Messrs. Evans and Thornley. W. B. Wilkinson, Esq., appeared in person.

George Trotter Evans, Esq., called in and further examined.

Cross-examined by Mr. Wilkinson.

Room cleared.

Committee deliberated.

[Adjourned to Wednesday next, at *half-past Two* o'clock.]

WEDNESDAY, 18 APRIL, 1888.

MEMBERS PRESENT :—

Mr. Hassall in the Chair.

Mr. Lyne, | Mr. Sutherland,
Mr. Kethel.

Present :—Bruce Smith, Esq. (*Counsel*), and J. McLaughlin, Esq. (*Solicitor*), appeared for Messrs. Evans and Thornley. W. B. Wilkinson, Esq., appeared in person.

George Trotter Evans, Esq., called in and further examined.

Cross-examined by Mr. Wilkinson.

Witness *handed in* Reports, by Mr. John Harper, on the Evans and Wilkinson Combination Trucks (*Appendix A*).

Room cleared.

Committee deliberated.

Ordered,—That W. B. Wilkinson and John Harper be summoned to give evidence next meeting.

[Adjourned to To-morrow, at *half-past Ten* o'clock.]

THURSDAY, 19 APRIL, 1888.

MEMBERS PRESENT :—

Mr. Hassall in the Chair.

Mr. Lyne, | Mr. Hayes.

Entry from Votes and Proceedings referring further correspondence respecting Wilkinson's Combination Truck, *read* by the Clerk.

Printed copies of paper *referred* before the Committee.

Present,—Bruce Smith, Esq. (*Counsel*), and J. McLaughlin, Esq. (*Solicitor*), appeared for Messrs. Evans and Thornley. W. B. Wilkinson, Esq., appeared in person.

W. B. Wilkinson, Esq., further examined.

Witness *handed in* copies of letters addressed by him to the Commissioner for Railways not included in the printed papers before the Committee (*Appendix B*).

Cross-examined by Mr. Smith.

Room cleared.

Committee deliberated.

Ordered,—That John Harper and Henry Hudson be summoned to give evidence next meeting.

[Adjourned to Wednesday next at *half-past Ten* o'clock.]

WEDNESDAY, 25 APRIL, 1888.

MEMBERS PRESENT :—

Mr. Hassall in the Chair.

Mr. Kethel, | Mr. Lyne

Present,—Bruce Smith, Esq. (*Counsel*), appeared for Messrs. Evans and Thornley. W. B. Wilkinson, Esq., appeared in person.

John Harper, Esq. (*Goods and Live Stock Superintendent, Railway Department*), called in, sworn, and examined.

Cross-examined by Mr. Smith and Mr. Wilkinson.

Mr. Wilkinson during his cross-examination of witness tendered as evidence a statutory declaration by Robert Allen Fraser, of Dubbo, which the Committee declined to admit.

Witness withdrew.

Henry Hudson, Esq., called in, sworn, and examined.

Cross-examined by Mr. Wilkinson and Mr. Smith.

Room cleared.

Committee deliberated.

Ordered,—That Mr. John Brown, Mr. Joseph Wilkins, Mr. Joseph Wilkins, jun., and Mr. Edward Loughrey be summoned to give evidence next meeting.

[Adjourned to To-morrow, at *half-past Ten* o'clock.]

THURSDAY, 26 APRIL, 1888.

MEMBERS PRESENT:—

Mr. Lyne, | Mr. Hayes.

In the absence of a quorum the meeting called for this day lapsed.

WEDNESDAY, 2 MAY, 1888.

MEMBERS PRESENT:—

Mr. Hassall in the Chair.

Mr. Bruncker, | Mr. Kethel.

Present:—J. McLaughlin, Esq. (*Solicitor*), appeared for Messrs. Evans and Thornley. W. B. Wilkinson, Esq., appeared in person.

Warden Harry Graves, Esq., called in, sworn, and examined.

Cross-examined by Mr. Wilkinson and Mr. McLaughlin.

Witness withdrew.

Mr. John Brown, called in, sworn, and examined.

Cross-examined by Mr. McLaughlin and Mr. Wilkinson.

Edward Andrew Loughrey, Esq., called in, sworn, and examined.

Cross-examined by Mr. Wilkinson.

Room cleared.

Committee deliberated.

Ordered,—That Andrew Johnstone, Alexander Bruce, J. Wilkins, and J. Wilkins, jun., be summoned to give evidence next meeting.

[Adjourned to To-morrow at *half-past Ten* o'clock.]

THURSDAY 3 MAY, 1888.

MEMBERS PRESENT:—

Mr. Hassall in the Chair.

Mr. Bruncker, | Mr. Lyne,
Mr. Hayes, | Mr. Kethel.

Committee Deliberated.

Present:—Bruce Smith, Esq. (*Counsel*), and J. McLaughlin, Esq. (*Solicitor*), appeared for Messrs. Evans and Thornley. W. B. Wilkinson, Esq., appeared in person.

Mr. Hassall having temporarily vacated the Chair—

Mr. Hayes called to the Chair (*pro tem*).

Andrew Johnstone, Esq., called in, sworn, and examined.

Cross-examined by Mr. Smith.

Witness withdrew.

Mr. Joseph Wilkins, called in, sworn, and examined.

Cross-examined by Mr. Smith.

Witness withdrew.

Charles Lindsay Nicholson, Esq., called in, sworn, and examined.

Cross-examined by Mr. Smith.

Room cleared.

Committee deliberated.

Ordered,—That Mr. H. Badgery, Mr. J. Shaw, Mr. Herkes, Mr. Alexander Bruce, and Mr. W. Green be summoned to give evidence next meeting.

[Adjourned to Wednesday next at *half-past One* o'clock.]

WEDNESDAY, 9 MAY, 1888.

MEMBERS PRESENT:—

Mr. Hassall, | Mr. Bruncker.

In the absence of a quorum the meeting called for this day lapsed.

WEDNESDAY, 16 MAY, 1888.

MEMBERS PRESENT:—

None.

In the absence of a quorum the meeting called for this day lapsed.

WEDNESDAY,

WEDNESDAY, 30 MAY, 1888.

MEMBER PRESENT :—

Mr. Hassall.

In the absence of a quorum, the meeting called for this day lapsed.

THURSDAY, 31 MAY, 1888.

MEMBER PRESENT :—

Mr. Hassall.

In the absence of a quorum the meeting called for this day lapsed.

WEDNESDAY, 6 JUNE, 1888.

MEMBER PRESENT :—

Mr. Hassall.

In the absence of a quorum the meeting meeting called for this day lapsed.

THURSDAY, 7 JUNE, 1888.

MEMBERS PRESENT :—

Mr. Hassall in the Chair.

Mr. Lyne, | Mr. Hayes.

Present :—J. McLaughlin, Esq. (*Solicitor*), appeared for Messrs. Evans and Thornley. W. B. Wilkinson, Esq., appeared in person.

Alexander Bruce, Esq. (*Chief Inspector of Stock*), called in, sworn, and examined.

Witness (*handed in*) portion of his annual report for 1870; his report to the Minister on the Wilkinson Combination Truck, and two letters with plans respecting "end" loading, from Chief Inspector of Stock, South Australia.

Mr. McLaughlin objected to the documents being admitted as evidence.

Committee decided to admit them for perusal only.

Cross-examined by Mr. McLaughlin.

Witness withdrew.

Norman Selfe, Esq., called in, sworn, and examined.

Cross-examined by Mr. McLaughlin.

Witness withdrew.

[Adjourned to Tuesday next, at *half-past Ten* o'clock.]

TUESDAY, 12 JUNE, 1888.

MEMBERS PRESENT :—

Mr. Hassall in the Chair.

Mr. Lyne, | Mr. Sutherland.

Present :—J. McLaughlin, Esq. (*Solicitor*), appeared for Messrs. Evans and Thornley. W. B. Wilkinson, Esq., appeared in person.

H. S. Badgery, Esq., called in, sworn, and examined.

Cross-examined by Mr. Wilkinson.

Witness withdrew.

John Shaw, Esq., called in, sworn, and examined.

Cross-examined by Mr. Wilkinson.

Witness withdrew.

Mr. W. A. Herkes, called in, sworn, and examined.

Cross-examined by Mr. Wilkinson.

Witness withdrew.

Mr. William Green, called in, sworn, and examined.

Cross-examined by Mr. Wilkinson.

Room cleared.

Committee deliberated.

Ordered,—That J. Wilkins, junr., and the Commissioner for Railways be summoned to give evidence next meeting, and that Mr. G. J. Mulholland be requested to state when he can attend to be examined.

[Adjourned to Thursday, at *half-past Ten* o'clock.]

THURSDAY, 14 JUNE, 1888.

MEMBERS PRESENT :—

Mr. Sutherland, | Mr. Kethel.

In the absence of a quorum the meeting called for this day lapsed.

TUESDAY,

TUESDAY, 19 JUNE, 1888.

MEMBERS PRESENT:—

Mr. Hassall in the Chair.

Mr. Lyne, | Mr. Kethel,
Mr. Hayes.

Present:—J. McLaughlin, Esq. (*Solicitor*), for Messrs. Evans and Thornley. W. B. Wilkinson, Esq., appeared in person.

The Chairman read a certificate from Dr. Muskett, stating that Mr. Mulholland would not be able to attend before the Select Committee for at least three weeks.

C. A. Goodchap, Esq. (*Commissioner for Railways*), called in, sworn, and examined.

Cross-examined by Mr. Wilkinson.

Witness withdrew.

Mr. Joseph Wilkins, junior, called in, sworn, and examined.

Cross-examined by Mr. McLaughlin.

Room cleared.

Committee deliberated.

[Adjourned to Tuesday next, at *Eleven o'clock*.]

TUESDAY, 26 JUNE, 1888.

MEMBERS PRESENT:—

Mr. Hassall, | Mr. Kethel.

In the absence of a quorum the meeting called for this day lapsed.

WEDNESDAY, 27 JUNE, 1888.

MEMBERS PRESENT:—

Mr. Hassall in the Chair.

Mr. Sutherland, | Mr. Brunner.

Present:—J. McLaughlin, Esq. (*Solicitor*), appeared for Messrs. Evans and Thornley. W. B. Wilkinson, Esq., appeared in person.

Hugh M'Lachlan, Esq. (*Chief Clerk, Railway Department*), called in, sworn, and examined.

Witness withdrew.

Mr. George Mulholland appeared before the Committee to be examined on behalf of his Combination Truck.

Mr. McLaughlin addressed the Committee.

Room cleared.

Committee deliberated.

Parties called in and informed by the Chairman that under the terms of reference from the House the inquiry must be confined to the Evans and Wilkinson Patents, they being the only Combination Trucks offered to the Government prior to the appointment of the Committee.

[Adjourned to Tuesday, 10 July, at *Eleven o'clock*.]

TUESDAY, 10 JULY, 1888.

MEMBER PRESENT:—

Mr. Kethel.

In the absence of a quorum the meeting called for this day lapsed.

THURSDAY, 12 JULY, 1888.

MEMBERS PRESENT:—

Mr. Hassall, | Mr. Lyne.

In the absence of a quorum the meeting for this day lapsed.

TUESDAY, 17 JULY, 1888.

MEMBERS PRESENT:—

Mr. Hassall in the Chair.

Mr. Lyne, | Mr. Brunner,
Mr. Carruthers, | Mr. Kethel,
Mr. Dawson.

Chairman laid before the Committee, for inspection, photographs of the trucks in use on the Queensland and South Australian Railways.

Chairman submitted draft report, which was read a first time, as follows:—

“The

"The SELECT COMMITTEE of the Legislative Assembly, appointed on the 8th November, 1887, 'with power to send for persons and papers to inquire into and report upon the question of the Combination Trucks offered to the Government,' and to whom was referred on the 15th November, 1887, the 'Petition from George T. Evans and Ambrose Thornley;' on the 16th November, 1887, the 'Petition from W. B. Wilkinson,' and 'the correspondence respecting the Evans' Combination Truck,' and 'further correspondence relating to Combination Trucks;' on the 28th February, 1888, the 'further correspondence respecting Wilkinson's and the Evans' Combination Truck;' on the 18th April, 1888, the 'further correspondence respecting Wilkinson's Combination Truck,' and to whom was granted on the 17th November, 1887, leave 'to make visits of inspection to, and hold inquiries at, Redfern and Homebush,' have agreed to the following report:—

"Your Committee having examined the witnesses named in the List (whose evidence will be found appended hereto), and carefully considered the whole of the evidence, find as follows:—

"1. That at the time this inquiry was initiated two patent combination trucks, viz., the 'Evans' and 'Wilkinson' had been definitely offered to the Government, the former for the sum of £16,000, and the latter for the sum of £5,000.

"2. That in June, 1885, fourteen trucks were constructed by the Railway Department from a design furnished by Mr. Evans, which have been continuously in use 'to the present time' for the conveyance of stock and merchandise over the railways of the Colony, 'during which period' have conclusively proved their superiority over the ordinary stock waggons.

"3. That by using the 'Evans' truck a 'very great' saving has been effected in the working expenses of the Railway Department in consequence of its adaptability 'for' conveyance of either cattle, sheep, or goods, 'and' thereby, 'to a great extent,' avoiding the loss consequent on empty running.

"4. That the Government, recognizing the advantages to be derived from the use of the 'Evans' truck, had 'agreed to' purchase 'from the patentee the legal' rights attached thereto for the sum of £16,000.

"5. That your Committee are of opinion, notwithstanding the 'great' advantages claimed for the 'Evans' truck, and the 'great' saving effected in working expenses which would follow its general adoption, 'the sum of' £16,000 'seems a large amount' to pay for the patent rights thereof, 'although at the same time freely admitting' that very great credit and some recognition is due to the inventor 'for having overcome the difficulty of providing a waggon equally suitable for the conveyance of stock or merchandise without materially increasing the weight over that of the ordinary stock trucks in general use.'

"6. That after the "Evans" Combination Truck had been in use for over eighteen months, Mr. Wilkinson designed and patented a Combination Truck suitable for the conveyance of stock and merchandise, and also combining 'an ingenious method' of end-loading with 'the system of side-loading' at present in use.

"7. That the improved end-loading system designed and patented by Mr. Wilkinson is, according to the 'sworn' testimony of stockowners, dealers, agents, and practical men, 'far' preferable to any system at present in use in the colony of New South Wales, as applied to the loading and unloading of 'sheep, and superior to the method which has been adopted and carried out in the Colonies of South Australia and Queensland with very satisfactory results.'

"8. That several 'competitive' trials have taken place between the 'Evans' and the 'Wilkinson' trucks, in which the conditions were 'so' nearly equal 'that no advantage could be claimed for the one over the other; but as a comparison of the weights of the respective stock waggons may be of value they are here given.' The weights of the ordinary sheep waggons range from 6 tons 9 cwt. to 6 tons 15 cwt.; cattle waggons from 6 tons 15 cwt. to 7 tons 13 cwt.; whilst the 'Wilkinson' weighs 7 tons 15 cwt. as against the 'Evans' 6 tons 13 cwt., the cost of construction being also about £25 in favour of the latter.

"9. That the principle of end-loading would 'doubtless' prove of 'inestimable' value if brought into general use for the conveyance of 'sheep,' and your committee 'are therefore of opinion that it would be advisable to secure from Mr. Wilkinson the Patent Rights attached to his invention,' which would 'doubtless' lead to the construction of an improved Combination Truck, combining all the excellencies and advantages of both the 'Evans' and the 'Wilkinson,' and prove superior to anything at present in use throughout the Australian Colonies."

Motion made (*Mr. Kethel*) and question, "That Draft Report be considered paragraph by paragraph," put and passed.

Paragraph 1 read and agreed to.

Paragraph 2 read and considered.

Amendments proposed (*Mr. Bruncker*), line 17, omit "to the present time"; line 18, omit "during which period," and insert "and."

Amendments put and agreed to.

Paragraph, as amended, agreed to.

Paragraph 3 read and considered.

Amendments proposed (*Mr. Bruncker*), line 20, omit "very great," and insert "considerable"; line 21, after "for" insert "the"; line 22, omit "and"; line 22, omit "to a great extent," and insert "materially."

Amendments put and agreed to.

Paragraph, as amended, agreed to.

Paragraph 4 read and considered.

Amendments proposed (*Mr. Carruthers*), line 24, omit "agreed to," and insert "been in treaty for the"; line 24, omit "from the patentee the legal," and insert "of the patent rights."

Amendments put and agreed to.

Paragraph, as amended, agreed to.

Paragraph 5 read and considered.

Amendment proposed (*Mr. Kethel*), lines 25 and 26 omit "great" twice occurring.

Amendment put and agreed to.

Amendment proposed (*Mr. Lyne*), line 27, omit "the sum of"; line 27, omit "seems a large amount," and insert "is an excessive sum"; lines 27 and 28, omit "although at the same time freely admitting," and insert "but"; lines 28 to 30, omit "for having overcome the difficulty of providing a waggon equally suitable for the conveyance of stock or merchandise without materially increasing the weight over that of the ordinary stock trucks in general use."

Amendments put and agreed to.

Paragraph as amended *agreed to*.
 Paragraph 6 read and considered.
 Amendments proposed (*Mr. Brunker*), line 33, *omit* "an ingenious method," and *insert* "the system";
 line 33, *omit* "the system of side-loading," and *insert* "that."
 Amendments put and *agreed to*.
 Paragraph as amended *agreed to*.
 Paragraph 7 read and considered.
 Amendments proposed (*Mr. Carruthers*), line 36, *omit* "sworn"; line 36, *omit* "far."
 Amendments put and *agreed to*.
 Amendment proposed (*Mr. Brunker*), lines 37 to 39, *omit* "sheep, and superior to the method
 which has been adopted and carried out in the Colonies of South Australia and Queensland with very
 satisfactory results," and *insert* "stock."
 Amendment put and *agreed to*.
 Paragraph as amended *agreed to*.
 Paragraph 8 read and considered.
 Amendment proposed (*Mr. Brunker*), line 40, *omit* "competitive."
 Amendment put and *agreed to*.
 Amendments proposed (*Mr. Lyne*), line 41, *omit* "so"; lines 41 to 43, *omit* "that no advantage could
 be claimed for the one over the other, but as a comparison of the weights of the respective stock waggons
 may be of value they are here given," and *insert* "except that in converting from sheep to cattle and *vice*
versa the 'Wilkinson' had the advantage."
 Amendments put and *agreed to*.
 Paragraph as amended *agreed to*.
 Paragraph 9 read and considered.
 Amendments proposed (*Mr. Lyne*), line 45, *omit* "doubtless"; line 45, *omit* "inestimable" and
insert "considerable."
 Amendments put and *agreed to*.
 Amendments proposed (*Mr. Brunker*), line 46, *omit* "sheep" and *insert* "stock"; lines 46 and 47, *omit*
 "are therefore of opinion that it would be advisable to secure from Mr. Wilkinson the Patent Rights
 attached to his invention," and *insert* "recommend the Patent Rights referred to to the consideration of
 your Honorable House if such rights can be obtained by payment of a royalty or a reasonable sum";
 line 47, *omit* "which" and *insert* "The adoption of this course."
 Amendments put and *agreed to*.
 Paragraph as amended *agreed to*.
 Motion made (*Mr. Lyne*) and question,—That the draft report as amended be the report of the
 Committee.
 Put and passed.
 Chairman to report to the House.

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1887.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

MINUTES OF EVIDENCE

TAKEN BEFORE

THE SELECT COMMITTEE

ON

COMBINATION TRUCKS.

THURSDAY, 17 NOVEMBER, 1887.

Present:—

MR. BRUNKER,	|	MR. CARRUTHERS,
MR. CHANTER,	|	MR. HASSALL,
		MR. LYNE.

T. H. HASSALL, Esq., IN THE CHAIR.

Bruce Smith, Esq., Barrister, instructed by John McLaughlin, Esq., Solicitor, appeared for the proprietors of the Evans Australian Combination Truck.

W. B. Wilkinson, Esq., appeared in person.

William Vero Read, Esq., called in, sworn, and examined:—

1. *Chairman.*] You are the Traffic Manager of the Southern and Western Railway? Yes.
2. You have had some little experience of what is termed the Evans combination truck, since it came into use? Yes; I have watched its working.
3. When were these trucks first put on the line? They were finished in May, and commenced running in June, 1885.
4. Your experience of the trucks is that they would effect a great saving in the working expenses of the Department? A good combination truck would effect a saving in the working of the traffic of the Railway Department at certain periods of the year.
5. Will you give us your opinion on the working of the Evans combination truck? The truck has been used principally for sheep on the up journey, and for goods on the down journey. The experience of the working of it in this manner has been favourable to it.
6. Have you had any other combination truck running on the lines on which you could form an opinion? No; we have not.
7. The only truck which you have had on the line on which you can form a really practical opinion, is the Evans combination truck? Yes.
8. Would it be possible to convert the trucks at present in use for the conveyance of stock into combination trucks on the Evans pattern? I would not recommend the conversion of the old trucks, but some of the new ones might be converted into combination trucks.
9. Have you seen any other designs of combination trucks? I have seen Mr. Wilkinson's design.
10. What is your opinion about that? I think the design is very good, but I do not think it equal to the last design of the Evans truck.
11. What is the difference between the last and the former design of the Evans truck? The former one had four compartments for sheep. The last one has two compartments for sheep, and it makes one open truck for cattle.
12. That means taking away part of the division? Yes; doing away with the division in the first design.
13. Without the support that this division afforded, do you think that the Evans combination truck can

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be perfectly safe for the carriage of stock. I see by the papers that an accident happened through the centre bar breaking, and the top deck falling upon the sheep. Is that likely to occur in the construction of the trucks on the latest principle? I believe that by strengthening the bar as it has been strengthened, it can be made to hold with safety the weight of a tier of sheep.

14. Have you had any experience of the trucking of stock? I have seen a great deal of it at stations in years gone by.

15. What is your opinion with regard to the loading of stock in the Evans truck. Do you think it would be an advantage if the trucks could be loaded by one truck being backed up to the race, and the stock run in, and then run through the train, if such an idea could be carried out? My opinion is that side loading is the best, although I hear that in South Australia they have adopted end loading, but with yards for loading a number of trucks at a time. I am of opinion that side loading is the best.

16. If I understand you aright, you would have yards to hold the number of stock. Then you would put your truck on, and load it at the side, and after it was loaded move it away for another truck? I mean having races sufficient to load a number of trucks without shifting them at the time, the same as we have at Hay, and as they have at Echuca on the Victorian line.

17. Can you give us any idea of the cost of altering your new trucks into combination trucks? I believe it would be about £90 a truck, but you could get a better answer on that point from the branch which has the carrying out of the alterations.

18. That is with regard to the Evans truck? Yes.

19. Have you taken sufficient notice of any other models to enable you to form an opinion as to the cost of altering the trucks to those models? I should say that the cost of adapting the trucks to the Wilkinson design would be quite as much, if it could be done.

20. Have you seen the Perry model? I have seen it, but I have not examined it.

21. Is there any truck built on the model submitted by Mr. Perry? I do not think so.

22. Can you express an opinion about that model? From the cursory examination which I have made of it, I am not in a position to give a decided opinion. It appears to me that to raise the floor by a compensating weight would be a mistake. It would be so much dead weight to be carried.

23. That would be a strong objection to the truck? Anything which increases the weight would be an objection.

24. *Mr. Brunker.*] The only new truck, I suppose, which you have tried on the lines is the Evans combination truck? It is.

25. You have had no experience of what the others will do, beyond the Wilkinson truck? It has never been used.

26. You say that your experience is favourable with regard to the Evans truck. What is the nature of that experience so far as the difference is concerned of carrying stock by the Evans truck and by the old style of truck? The great object in a combination truck is to get a centre deck, which will work for sheep, or may be removed for goods or cattle. So far, this centre deck has answered very well.

27. Is the ventilation good? It is.

28. Have the losses of stock been considerably lighter since you have been using the combination truck than under the old system? I do not think that there has been any difference with regard to the losses in the carrying of stock—no remarkable difference, as the number of combination trucks is fourteen against 200 or 300 sheep trucks.

29. With regard to time and labour saving conveniences—what are they? The Evans truck is not as easily loaded with sheep as our own trucks are, on account of the upper door being exactly over the lower one.

30. I understand that the Evans truck carries about the same number of stock as your old trucks? The Evans truck is slightly larger than our trucks at present in use, but any new trucks would be made to the size of the Evans truck.

31. So far as the traffic is concerned, what saving would it be to the Department to use the Evans combination truck compared with the old trucks, taking the fourteen that you have in use as a basis? That would be a most difficult question to answer, as the state of the traffic in the interior would affect the working of these trucks. It is only when there is a flow of live stock from the interior, and a small quantity of produce coming into Sydney that the benefit of the truck can be seen.

32. Would not the bulk of the advantage to be derived from the combination truck be in the carrying of merchandise into the interior and bringing stock back, not in the quantity of goods coming from the interior to Sydney? Yes; but when there is a quantity of produce coming from the interior, you would have to send ordinary trucks to bring it down; therefore it is better to load them than the combination trucks.

33. Have you not made an estimate with reference to the earnings of the combination truck and the old truck used for live stock? There is a statement published in the papers laid before Parliament, which shows the earnings of each kind of truck, not the actual saving. The actual saving can only be approximated, and that, with the greatest care, in fact it would be an immense labour to take out the saving.

34. Can you say who furnished this data to the Department; I find in one of the papers it is stated:—“The saving which has accrued to the Department from the use of the combination trucks, as an earnest of what may be expected in the future, is set forth in a return which was laid upon the Table of the House and ordered to be printed, 21st September, 1887. In commenting upon that return the Commissioner minuted that it would be seen that in the six months work the fourteen combination trucks had earned nearly 9d. a mile on the full and empty runnings, while the sheep and cattle trucks had earned something less than 3½d. a mile, and that if the latter had earned as much per mile travelled as the combination trucks the revenue would have been £145,089 more than it actually was”—Who supplied that information? That is written by the Commissioner.

35. That is a correct statement in your judgment, as far as you can get it approximately? This statement is correct.

36. That actually means then, that if you had been using the combination trucks instead of the old cattle and sheep trucks that the earnings altogether would have been £145,089 more than they actually were? No, because the fact of their being combination trucks did not result in any increase of traffic.

37. *Chairman.*] What I understand from that is that there would have been less money paid away as working expenses? That would be it. It does not follow that the traffic would be increased.

38. I understand that the saving would be in the wear and tear, and the doing away with the running of empty

- empty trucks; I take it that no truck would have brought more traffic to the railway? No. The saving would have been in the working expenses. W. V. Read,
Esq.
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39. With regard to the Board who were appointed to inquire into the merits of the different trucks submitted, in making their examination they really only had the Evans combination truck before them? Yes. The Wilkinson truck was only just completed before they left.
40. Then actually, when examining the rival designs, they were confined to a great extent to the Evans combination truck? They must have been.
41. Did they have the same opportunity of examining the other designs as they had of examining the Evans trucks? I do not think they had.
42. It appears that the desire has been to get a truck with smooth sides for cattle which could be converted into a sheep truck. I take it that the floor of the top deck of the Evans truck is a smooth surface, and that it would have flaps which would hang down the sides of the truck when it was not in use. Would it not be far better, especially for sheep, if there were battens nailed to the floor to enable sheep to keep their feet in long journeys? These floors are corrugated to a certain extent, and it has never been found a disadvantage as they are.
43. *Mr. Brunker.*] You say that you have seen Wilkinson's design, and you think it good, but not equal to the last design of the Evans truck; now what is the difference? I think there are too many parts to the Wilkinson truck, doors, &c. I do not think that the middle deck is as good as the Evans truck.
44. *Chairman.*] In what way? I do not think that it will be found to work in practice.
45. Do you mean as to bearing the weight? To bear the weight, and to be shifted up and down.
46. From what you have seen of the working of the two trucks is there any difference in the time it takes to put up the top deck in the Evans and the Wilkinson truck? I think they take about the same time. I may observe that I have only seen the Wilkinson truck moved about twice.
47. *Mr. Brunker.*] With regard to the cleaning, I suppose one truck is as easily cleaned as another? I am of opinion that one can be cleaned as easily as the other.
48. *Chairman.*] Can one man remove the top deck in either truck? Yes; I have seen one man do it in each case.
49. *Mr. Brunker.*] You have said with regard to the loading of the trucks that in your opinion side loading is the best; why do you think that? End loading has never been tried to any large extent. We have had all our loading hitherto on the side, and it has been found to answer very well, especially at Hay, where we have had races for loading several trucks at once. In consultation with other railway men—Victorian officers, for instance—I have ascertained that they are of opinion that side loading is the best.
50. The difference is that you now shut off as many sheep as can be conveyed in one truck, whereas if you had end loading, you would have to shut off the sheep as they were running? That would be one of the great difficulties of end loading, shutting off the proper number for each truck.
51. *Chairman.*] Do you not think that that could be obviated by having the trucks loaded from end to end. It is well known that, as a rule, sheep, when they once get stringing, will run along. That difficulty could be got over by having a man stationed at the far truck, to shut off the number coming in. The race would not be too wide to prevent one man dealing with the sheep, if the doors were fixed so that they could be closed without trouble? It appears to me that you would require a man for each truck.
52. I do not think so, because the moment the door is closed, you stop the stream of sheep into the end truck, still they would crowd into the second one, and a man coming over the top could close the door? I think the tendency would be for the whole of the sheep to rush into the end truck, and if a man were at the end truck, and he allowed the proper number of sheep into that truck, then, in practice, I am afraid it would be found that there was a greater number than there should be in the last truck but one. That would be unless you had a man at each truck to count the number of sheep as they went in.
53. *Mr. Brunker.*] I understood you to say that the cost of altering the old trucks to the Evans pattern would be about £90, and that the cost of altering them to the Wilkinson design would be as much, if it could be done—what did you mean by saying "if it could be done?" If our trucks could be altered into Wilkinson trucks. That is a mechanical question which has to be settled. I do not profess to be able to give an opinion on that mechanical question, and, therefore, I put in that proviso.
54. You have not had as much experience of the Wilkinson truck—as it has not been practically tried—as you have had of the Evans truck. From what experience you have had, which truck do you consider the most economical and the most suitable for the conveyance of stock and merchandise? I should say the last design of the Evans truck, with the top door altered.
55. *Mr. Smith.*] You were asked if some accident had not occurred to the bar which supports the upper deck of the Evans truck, is not that the only accident which has ever happened to these trucks since they have been in use? Yes, that is the only accident.
56. How long have the fourteen trucks been in use? Since June, 1885; but I should remark that the truck to which the accident happened had only been in use a few times.
57. These fourteen trucks had been in use since the time you mention, and that is the only accident that has happened? Yes.
58. They have been practically tested all over the lines? Yes.
59. Is it not a fact that when that accident was inquired into, the bar which runs fore and aft in the truck had a latent flaw in the timber? I believe it had.
60. In your opinion was that the fault of the construction, or the fault of the timber used? I think it was the fault of the timber, and the bar was too light.
61. So that, with this exception, and with one or two alterations, the trucks have answered the purposes for which they were put forward? They have answered the purpose very well for merchandise and sheep traffic, for which they have been principally used.
62. *Mr. Lyne.*] What about cattle? They have not been used very much for cattle.
63. *Mr. Smith.*] But they have never failed as cattle-trucks? No.
64. For the purposes for which they were put forward, and for which they have been used, they have proved a success? Yes, as far as I have already explained.
65. Since the accident happened, the bar which then broke, has been strengthened, has it not? It has.
66. *Mr. Wilkinson.*] I want to know the reason why the Evans trucks have not been used for cattle? There is a disinclination to use them for cattle, with a partition in the centre.

- W. V. Read, Esq.
17 Nov., 1887.
67. The only accident which has taken place in the Evans truck was in the improved truck, which you recommended? Yes; that is the one in which the accident took place.
68. It had been running only a few times when the accident took place? It had.
69. You have had no experience of end loading yourself? I might say no experience.
70. Have you seen a letter from Mr. Valentine, the Chief Inspector of Stock in South Australia? Yes.
71. If you refer to the papers you will see a letter from Mr. Valentine, dated 9th June, 1886, in which it is stated that the end-loading system had been in use in South Australia for some time, and has been found of great advantage. Is that so? It was this letter to which I referred in my evidence.
72. If you refer to the same paper you will find a letter from Mr. Bruce, the Chief Inspector of Stock in this Colony, dated 10th September, 1887. In the second paragraph of that letter he refers to end loading; I suppose you know from that that in his opinion end loading is much the best? I know that it is Mr. Bruce's opinion that end loading is the best?
73. Do you know anything of the mortality of sheep on the top decks of the Evans truck? I do not know that it is more than in any other trucks.
74. You do not know that it has been larger than in the other trucks? No.
75. You know that the Evans trucks have been constructed at the cost of the Government? Yes, they were constructed by the Department.
76. And that the alterations, the knocking out of the partitions, was done at the expense of the Government? I believe that the Government paid for the altering of a cattle waggon to a combination truck.
77. If cleats were put on Evans top deck, which hangs against the wall when used as a cattle truck, if there were wooden cleats to keep the sheep from slipping, would they not act as a sort of currycomb, and thus injure the cattle? I think they would be injurious to cattle if they project from the side.
78. You say that my middle deck is not so good as Evans'—can you explain that? I do not think that in practice it will work.
79. Were you speaking of the working of the deck, or of the deck itself, when you said it was not so good? The working of the deck.
80. Do you mean that it will not come to the roof? I think that it will strain, and that the machinery for hoisting it will jamb.
81. Which part do you think will get out of order? I think that the chains will jamb, and that the deck will strain, that it will come out of the square, and not work up and down.
82. The Evans improved truck cannot be divided into four parts? It cannot.*
83. Do you not think it is an advantage to relieve the pressure from smothering sheep to have a truck in four compartments instead of two? Only for the difficulty in loading it would be a slight advantage to have it in four compartments instead of two.
84. Therefore, if the difficulty of loading were overcome, in your opinion it would be an advantage to have a truck in four compartments instead of two? A slight advantage.
85. On looking at my partition doors, have you noticed that they may be used or not, as the party loading thinks fit? Yes; I believe that the doors can be pinned across if necessary.
86. And need not be used when the truck is loaded with cattle? No. Of course they could be pinned back when they were used for cattle.
87. Do you know that in my truck you could carry two classes of stock, or three classes of stock, in one truck? I know that you can divide it into three or four compartments.
88. Has your attention been drawn to the fact that in my truck you may carry half a truck of horses or cattle and half a truck of sheep? You can divide the truck off into two, three, or four compartments, and of course use them as you consider necessary.
89. What is the protection for goods in the Evans truck, is it not a canvas curtain? Yes.
90. Do you know how my truck is protected from the weather? By a sheet iron shutter.
91. *Mr. Smith.*] That sheet iron shutter is of some weight, is it not? Yes.
92. Is it not a fact that the tarpaulin in the Evans truck winds up on a roller in the roof, and comes down the side and fixes permanently in the corners? The Evans truck for carrying goods is protected by a tarpaulin, which is rolled up in the roof when the truck is intended for carrying live stock.
93. It is completely out of sight and out of way, but when it is down is it not as complete a protection to the goods as an iron sheet? The tarpaulin has been found an effective protection.
94. *Mr. Wilkinson.*] That is, as long as it lasts? Of course.
95. *Mr. Lyne.*] How long does it last? I understand that half the tarpaulins have been renewed since the trucks were built.
96. *Mr. Smith.*] What is the weight of the Evans truck? The first one, I believe, weighed 7 ton 7 cwt.
97. And the latter? About 6 ton 14 cwt.
98. What is the weight of the Wilkinson truck? 7 ton 14 cwt.
99. Therefore, there is about a ton greater weight in every one of Wilkinson's trucks? There is about a ton weight difference between the Wilkinson truck and the last truck supplied by Evans.
100. I presume that a ton extra to every truck is a matter of great moment when you come to calculate the traffic at the end of the year? Of course, all increase in the dead weight is a disadvantage.
101. How many doors do you think there are in the Wilkinson truck? I think there are about eighteen; but I cannot speak positively.
102. How many doors are there in the Evans improved truck? I think six or eight.
103. *Mr. Brunker.*] Is there any difference in the floor area? I think they are about the same. There is very little difference, if any, between them.
104. *Mr. Wilkinson.*] If the weight of my truck could be reduced to that of the Evans truck, that objection would fade? Of course.
105. *Mr. Lyne.*] With reference to the returns which have been published, and about which you have been questioned, respecting the Evans truck, I should like to ask you have these trucks been taken in the ordinary way, or have they in any way been specially attended to on their journey? These trucks have been specially looked after.
106. Some one has been sent with them? No.
107. In what way have they been specially looked after then? In being washed out and brought into Sydney to be loaded with goods.

* NOTE (on revision) :—I have since examined the truck, and find that provision is made for subdividing it by means of moveable wooden bars.

108. What I mean is this. If the trucks had been put on the line in the way that ordinary trucks are, without any special attention, would the returns from these fourteen trucks have been as good? No; because they had to be specially washed out and brought into Sydney, and loading was always found for them. W. V. Read,
Esq.
17 Nov., 1887.
109. Is there any trouble in the cleaning? No particular trouble.
110. The same would apply to all combination trucks? It would, because the hose has to be used on them, whereas the other trucks are simply scraped out.
111. With reference to the Hay trucking yards, am I right in supposing that there are ten yards to load ten trucks at once? Yes; there is a race which holds enough opposite the truck for each truck, and ten trucks have been loaded there in thirty minutes.
112. There is a yard opposite each truck? Yes.
113. If side loading is to be continued, and that principle is carried out generally, would not all our yards have to be altered in the same way? It would be desirable to make the alteration where any large quantity of loading would have to be done.
114. In loading at the side in the ordinary way, is it not compulsory, if you wish to load quickly, to have an engine in the yard to move the trucks where there is only one race? Yes; an engine or a horse, if there is not a fall in the siding.
115. If you have a fall then it must be done by manual labour? The trucks will move by lifting the brakes. It is done at Goulburn.
116. Where there is only one race, as is ordinarily the case at small stations, it takes a long time, does it not, unless you have an engine to move the trucks? There is great difficulty in moving them by hand labour, unless you have a fall.
117. Do you not think that there are a great many sheep killed by side loading in the trucks that are fairly filled, by pushing and squeezing them to get the doors closed? It may be so, but I have never noticed it.
118. You said that the alteration to the Evans truck would cost about £90, while I notice, in a return called for by the Commissioner, that Mr. Braid estimates the cost of converting the ordinary trucks into the Evans truck at £196 8s.? I formed my opinion from what was paid for the alteration of a cattle truck to a combination truck.
119. Was not that done by Mr. Evans himself? He got it done, I believe.
120. Is there not a great advantage in the combination trucks, no matter whose patent may be adopted, in having them distributed over the railway lines, so that persons could get them at short notice for sending stock down after goods had been taken up? It would be an advantage if there was regular traffic; but if there was no regular traffic and these trucks stood idle for a time it would be a disadvantage, as it would not be profitable to use them on the down traffic for carrying goods, on account of their weight over the ordinary trucks.
121. How much heavier are they than the ordinary trucks? The old ordinary D trucks weigh only about 4 tons 15 cwt. and carry 6 tons. The new ones weigh about 5 tons 5 cwt. and carry 8 tons. The improved Evans truck weighs 6 tons 4 cwt., and carries 6 tons.
122. According to the weights which you have given, one combination truck is 2½ tons and the other 1½ tons heavier than the ordinary truck? Yes.
123. Were you not present at an experiment which I once had at Homebush with end-loading trucks? I was.
124. Did not the sheep run in without any difficulty on that occasion. They ran through very well, but they were not partitioned off or counted?
125. The only objection you see to end loading is the difficulty in counting? That is one of the difficulties.
126. Is there any other objection? I think there would be a difficulty in getting the proper number in, and if you got the end trucks overloaded in getting the sheep out.
127. The difficulty which you raise is with regard to counting them and eventually dividing them? Yes, that is the main difficulty.
128. In connection with the Wilkinson truck, which I have not seen, I am told that the top of the truck can be lifted up? Yes.
129. Do you think that that would be an advantage in loading sheep? It would be.
130. *Mr. Smith.*] When you spoke of the difficulty of loading sheep from the end of the truck, the difficulty to which you refer is an equal distribution of the sheep among all the trucks? Yes; if the end truck were supposed to carry fifty sheep, and you find fifty-five in, you would have great difficulty in getting the five out.
131. Supposing you were loading five trucks in a line with the Wilkinson truck, how many doors would you have to open before the sheep could be run in? Thirty-two.
132. *Mr. Lyne.*] They are simply folding-doors? Yes.
133. I suppose that four of them would only be about the same size as the large door at the side of the Evans truck? About the same size.
134. How many doors would have to be opened in the Evans truck? There would be four to each truck, but you would only have to open two at one end, unless the truck were in four compartments. If there were four compartments you would have to open four at the side of each truck.
135. *Mr. Smith.*] As to the washing of the trucks, is it not a fact that if you had sheep in the upper and lower decks of one of the Evans trucks that, when the sheep were out, the upper floor would fall down to the side, when it could be hosed out, the dirt running to the bottom floor? Yes.
136. In the case of the Wilkinson truck, the doors would have to be lifted up. How could they be hosed; would not the stuff run out at the sides? The top deck of the Wilkinson truck can be hosed; but, while it is being done, the stuff will run out at the side.
137. But, in the other case, the dirt from the upper floor would fall on the ground floor, and could be swept out? Yes; but I do not think that there is anything material in that.
138. *Mr. Wilkinson.*] As to distributing the sheep through the trucks, if the Board have reported that by an arrangement of the doors, I had overcome the difficulty of distributing the sheep by end loading, your chief objection would fade? No; because I think you would still require a man on each truck to divide them off.
139. Have you read the supplementary report of the Board? I have only formed my own opinion.
140. You have not tried end loading yourself? I have seen very little of it. 141.

- W. V. Read, Esq.
17 Nov., 1887
141. If the Board had tried it, you would be prepared to take their evidence? It might influence me; but I should like to see it demonstrated myself.
142. *Mr. Brunker.*] Is there the same amount of ventilation in Wilkinson's truck as in the latest design of the Evans truck? I think there is ample ventilation in both.
143. As far as cattle are concerned, are the surfaces smooth in both trucks? No; I think the surface is rather better in the Evans truck than in the Wilkinson truck; but no doubt some angles in the latter could be taken off.
144. Take them as they are now? As they are now, I think the surface of the Evans truck is the best.

FRIDAY, 18 NOVEMBER, 1887.

Present:—

MR. SUTHERLAND,	|	MR. CHANTER,
MR. LYNE,	|	MR. KETHEL.

T. H. HASSALL, Esq., IN THE CHAIR.

Bruce Smith, Esq., Barrister, instructed by John McLaughlin, Esq., Solicitor, appeared on behalf of the proprietors of Evans Australian Patent Combination Truck.

Mr. W. B. Wilkinson appeared in person.

THE Committee proceeded to the Redfern Railway Station, and inspected the Evans and the Wilkinson Patent Combination Trucks.

The first truck inspected was an Evans patent, which the patentee stated had been in use for two years and half. The truck is in two compartments, the partition having been put in on the suggestion of the Railway Department. The truck was arranged as a cattle or goods truck, and at the request of the Committee the patentee had it converted into a sheep truck. The work was done by one man, and the time occupied was six minutes forty-five seconds.

The second truck inspected was the Evans Improved Patent, which had been recommended by a Board appointed to report on the question. This was formerly a cattle truck, such as are in use on the Government Railways. The truck is of one compartment, and was arranged as a sheep truck. It was converted into a cattle or goods waggon, one man doing the work in six minutes fifteen seconds.

The next truck we inspected was Wilkinson's patent, which was converted from a cattle or goods truck to a sheep truck, by one man, in two minutes twenty-five seconds. The truck was then reconverted to a cattle or goods truck in three minutes fifteen seconds. The patentee further demonstrated the patent by converting one half of the truck into a compartment for sheep, and the other half into a cattle or goods truck. He also explained how the truck could be used either for end or side loading, and illustrated how a train load of trucks could be loaded from one yard without moving the trucks, by an arrangement of platforms extending from one truck to another.

This concluded the inspection.

TUESDAY, 22 NOVEMBER, 1887.

Present:

MR. DAWSON,	|	MR. LYNE,
	|	MR. SUTHERLAND.

T. H. HASSALL, Esq., IN THE CHAIR.

Bruce Smith, Esq., Barrister, instructed by John McLaughlin, Esq., Solicitor, appeared on behalf of the proprietors of the Evans Australian Combination Truck.

W. B. Wilkinson, Esq., appeared in person.

Richard Hodnett, Esq., called in, sworn, and examined;—

- R. Hodnett, Esq.
22 Nov., 1887.
145. *Chairman.*] Where do you reside? At Bourke.
146. What is your avocation? I am a grazier and a dealer in stock.
147. Have you had any experience in loading stock into cattle or sheep trucks at Bourke or other places? Yes; I send stock down to market very often.
148. Have you had any experience of the Evans Combination Truck? I have used what are called combination trucks. I suppose they are Evans.
149. Will you kindly give us your experience in loading and in dealing with stock in loading those trucks? I consider that the combination truck is superior to the ordinary sheep van. It holds more, and the sheep are divided into compartments, which is safer.
150. Is it easier to load the combination truck than the ordinary truck? It is more difficult; you have to shift them from one compartment to another. After you have filled one compartment you have to slide the trucks on. It is about eight or nine months ago since I used one.
151. Do I understand you to refer to the truck with the division in the centre? Yes; I do not mean the long American cars, I mean the combination truck with the division in the centre.
152. After loading one compartment you have to move the truck along to bring the other door in front of the race to load the other compartment? Yes.
153. Have you seen any other combination truck in use, or have you seen the model of any other truck? I have seen a long American Car, known as the Humanity Car. The Department once sent me two of these cars, and they charged me at the rate of five ordinary sheep vans. I lost seven sheep out of a mob of 500, and I applied to the Commissioner for compensation. I have received only £4 for one lot, and I am going to him again for another lot. The trucks were not equal in capacity to five ordinary sheep vans. I refused to take the second lot of these trucks, but the stationmaster at Bourke said that I would have to take them, and I did so under protest.
- 154.

154. Then your opinion of that car is not favourable? The two trucks were not of equal dimensions; one was seven feet longer than the other; no one seemed to know the capacity of them, and you had to fill them according to your own judgment; they carry a great many sheep together, and this is likely to lead to smothering. As I told you, I lost seven, and I estimate that I have lost one shilling a head from crushing up in loading 450 or 500 sheep. R. Hodnett,
Esq.
22 Nov., 1887.
155. With regard to the Wilkinson truck, which you say you have seen, if it were in use on the railways the same as the truck of which you have had experience, do you think that that truck would be as good as the truck at present in use? I think so; I am certain it is as good. My object in seeing Mr. Wilkinson's truck was this: as we are a long distance from the market we have for a long time been looking out for a combination truck which would take goods up country and bring stock down; we want to get the cheapest and best truck that we can, so that the cost of sending stock to market will be smaller than it is at present; at present it costs from 2s. 6d. to 3s. to send a sheep to market on account of the back haulage.
156. Did you notice any difference in principle between the combination truck now in use and the Wilkinson truck? Yes, a very great deal of difference.
157. What was the point which struck you most? The facilities for loading are better in the Wilkinson truck; for end-loading purposes I think it would be a great advantage. There are also other advantages; a compartment can be fitted for horses or cattle and small lots of sheep. If you were sending a small lot of stud sheep from Sydney you could load part of the truck with goods, and the other part with sheep; this would be cheaper than having to hire a whole sheep van to take up a few sheep; sometimes there are only three stud sheep to be sent up country, and often enough you have to hire a whole van to carry three or four rams.
158. Do you think a train load of Wilkinson's trucks could be loaded with less trouble and with the expenditure of less labour than the Evans truck at present in use? I am of that opinion; if I had anything to do with them, and I were sending a quantity of stock away I should try to load on the end principle; I believe that they are fitted for that as far as sheep are concerned. I see nothing to prevent its being done; the trucks being all together, and there being sufficient space to walk up and down, you could load sheep just as if you were running them through a yard; after the bottom decks were loaded you could lower the top decks and raise the roofs, and then you could proceed to load the top decks in the same way as you had loaded the bottom ones.
159. From your experience in loading sheep, what is the most difficult part; is it not to get the sheep to go into the truck to commence with; do you find any difficulty in getting them in after they have once begun to string along? In the combination cars, as I have used them, the great difficulty has been in getting them in, and in getting them to stay in, more so than in the ordinary sheep van. When I have been loading, I have had to follow them in, and poke them along; then, when you have half a compartment loaded, you have to go and do the same thing in the other compartment. In the ordinary sheep van you will fill it at one loading; there is no removing. In the Wilkinson truck, as far as I can see, loading can be made a lot easier, and with less labour.
160. Your opinion is that greater facilities would be afforded in loading the Wilkinson trucks, and that there would be a saving in labour, as compared with the Evans truck at present in use? That is my opinion from what I have seen.
161. *Mr. Smith.*] Did I understand you to contend just now that an advantage would arise from loading goods at the end? No, I did not; what I said was that, in the Wilkinson truck, you could load one part of it with goods, and another part with sheep, if necessary.
162. When you speak of less labour in loading at the end, are you speaking of any particular class of yards; do you know anything about the Hay yards? I do not; I have not been at Hay for some years.
163. Are you aware that they are so constructed that there is no necessity to remove the trucks at all? No.
164. If you saw that they were so constructed that ten Evans trucks could be loaded without removing them, that would alter your conclusions? I do not think it would, because it could only be done by having a double set of races, and you would require a double set of men, or you would require to go from one race to another to do it.
165. If it could be done without removing the trucks, would that alter your conclusion? It would require more labour then; you would require two sets of men to load at the same time, or you would have to load at one yard and then go on to the next.
166. But you say you have not seen the Hay yards? I have not seen them, but I can understand the only way by which it can be done.
167. You have spoken about the ends of the trucks being thrown open so as to allow sheep to run through? The Wilkinson truck can be used for end loading. I said that I should try it.
168. Are you prepared to say that it would be a success? I am not prepared to say that; but I should try it, and I believe that it would be a success.
169. You express that opinion, although you have never tried the truck? I think that as a practical man I can express an opinion.
170. Do you think that such an opinion is worth much? I am certain that it would be a success.
171. Have you ever seen sheep run through a narrow passage such as would be constituted if five, six, or ten trucks were put in a line? Yes.
172. Where in? In an ordinary sheep yard.
173. How would you divide them off? By walking through them.
174. Do you know Mr. Read, the Traffic Manager of the Railways? Yes.
175. Do you consider him an authority on the matter? I do not know that I consider him an authority on the matter of loading stock.
176. If he said that it would require a man at each truck to divide off the sheep in order to get an equal number into each truck, what would you think of that? If you had a man at each truck the sheep would not run through.
177. Suppose it were necessary to have a man at each truck, you could not load? My idea is that it would be like a long yard along which the sheep would run, and when you got the sheep pretty well in you would commence at the top and count them, and having got the right number in you would close the door. In this way you could walk from one compartment to another.
178. *Mr. Dawson.*] It would be something like working in an ordinary yard when sheep are boxed? Yes.
179. *Mr. Smith.*] You say that you would have to move the Evans trucks along to load them, and it is, I suppose, because you would have to do this that you say that the working of one truck would be more economical than the other? Yes; I had to do it myself. 180.

- R. Hodnett, Esq.
22 Nov., 1887.
180. Have you studied the two trucks, or have you only looked at them? I have worked the Evans truck.
181. The one sold to the Government? I do not know that.
182. *Chairman.*] Have you worked the Evans truck with the partition in the centre? That is the one that I am talking about. I may say that I have no interest in the trucks.
183. *Mr. Smith.*] Have you observed the two trucks closely? I have worked the Evans truck, and I have seen Wilkinson's.
184. Did you observe any difference in the facilities for cleaning the upper decks in the two trucks? I took the trouble to notice the facilities for lowering the decks in the Wilkinson truck contrasted with the Evans truck. When I examined the truck I had no idea that I should have to give evidence here.
185. Did you see the trucks tried together? I have seen Evans truck worked, and I have seen Mr. Wilkinson lower his top deck in no time.
186. How would you propose to clean the upper deck of Wilkinson's truck, which is always on the horizontal? I have never considered that. I have only looked at the truck from my own point of view for sheep.
187. How do you propose to clean that upper deck so as to have no droppings on goods below, which you are taking up? I examined the deck. It seemed to me to be perfectly water-tight. I pointed out to Mr. Wilkinson the advisability of having a groove running along to carry away any water. As for droppings, I did not take them into consideration. Sheep generally clean that away themselves in kicking about.
188. Did you take any trouble to observe how the upper deck of Wilkinson's truck can be cleaned so as to prevent the dropping of urine on the goods below? I have told you so.
189. How can it be cleaned then? You asked me if I had noticed how it could be cleaned so as to prevent the dropping of urine. I said that the deck seemed to be perfectly water-tight; in that case the urine could not go through.
190. But you said at first that you had not observed it? I observed that right enough.
191. Did you observe that in the Evans truck the upper deck drops down to the side, so that anything on it would fall to the floor, and would not be near any goods? I know that.
192. Is it not in your experience a matter of great importance that there should be no possibility of cattle putting their feet through the sides of the truck? I do not understand you.
193. If you had a truck with nothing but iron bars, I presume that a bullock could get his foot through; would not that be a drawback? Yes.
194. Have you noticed that in the Evans truck by the upper deck falling down, the sides are closed up? Yes.
195. Do you know what is the case in the Wilkinson truck? He has a sliding door outside.
196. How far does that go along the truck—is it not a fact that the space is left open between the bars? I did not observe that.
197. I suppose that you have not considered the question from the Department's point of view? Most certainly I have.
198. Have you any idea what is the difference in the weight of the two trucks? No; beyond that I believe that the trucks could be lightened considerably—that Wilkinson's truck can be lightened considerably.
199. What would be the difference in having one truck over a ton heavier than the other? I have not considered that.
200. Do you consider that the ventilation of Wilkinson's truck is equal to that of Evans'? I think so, that is with trains passing along.
201. Have you examined the trucks sufficiently to be able to say so? I consider that there is sufficient air for anything in the world, especially when a train is moving. There are open bars. Surely to goodness there is plenty of space for air.
202. I suppose you do not offer any opinion as to the relative strength of the two trucks? No.
203. *Mr. Dawson.*] How many years have you been dealing in stock? Ten or twelve years continuously.
204. You have done a great deal of trucking? Yes.
205. As a practical man, which truck of the two do you prefer? I prefer Wilkinson's truck.
206. *Mr. Wilkinson.*] You said that it is a benefit to have the sheep trucks divided into compartments? Yes.
207. Have you seen Evans' improved truck, the one with the partition out? I have seen it at the yards, but I have never used it; it was pointed out to me.
208. Therefore the compartments would not be there for sheep? No.
209. In loading sheep at the side have you found that the great difficulty is in getting in the last four or five sheep? Most certainly.
210. Is it true that in loading sheep at the side they go in at the door and hang round the door; the decks being fixtures can a man walk in and distribute them over the deck; is it not necessary to prod them with sticks in order to get them in? I gave you my description before. I said that a man had to follow them into the compartment and poke them up.
211. Is it a fact that the difficulty is in getting in the last four or five sheep? Yes.
212. That is what occupies a great part of the time? Yes.
213. If you had a truck which a person could walk upright in, would this difficulty occur in a side or an end loading truck? No.
214. Presuming that my truck was a side-loading one, what would be the case? I consider that any man using your truck would go into it just as he would into the pens at a woolshed; he would load up exactly the same. It appears to me to be just exactly like that.
215. In the Evans improved truck, can you remember if the existing doors would tally with the existing truck-yards? No.
216. Is it a fact that the trucking yards are half a truck apart? Yes.
217. If you bring the truck up to the gangway, and one door is opposite the lower gangway, where would the next door in the truck have to be to be opposite the higher gangway? There are two races in the trucking-yard, one for the bottom and one for the top.
218. How far are they apart? I cannot say for certain, although I use them often enough; but I should say that they are nearly the length of a truck apart.

219. They are not made over one another? No; they are a considerable distance apart, because there are separate yards leading to them.
220. If the door of Evans' lower deck was opposite the lower gangway would you have to move the truck further on when you wanted to load the top deck? I always had to do that.
221. With regard to the yards at Hay, do you understand that there are separate yards or gangways, which will face each individual truck? There must be, to load a truck without shifting; there must be four races.
222. With reference to end loading in my trucks, would it be necessary to expend any further money in altering the present yards? None.
223. If I wanted to load fifty trucks on the end-loading principle, could I load my first truck on the side, with the present side-loading yards, without altering the gangways? Yes; my opinion is that I could load five hundred trucks from the present yards.
224. You know Mr. Badgery, I presume? Yes.
225. He is a man of a certain amount of experience? A good deal of experience.
226. Will you be kind enough to read what he states in this report, in page 3 of the papers. [*Question objected to by Mr. Smith. Objection sustained.*]
227. Do you believe that end loading would be a success with my system? I do.
228. You were asked about urine dropping upon the goods from the top deck in my truck. Do you think it likely that goods would be put in the trucks before the decks were cleaned; and after they were cleaned do you think there would be any urine? It would be a simple thing to wash them if you had water.
229. Would there be any urine left on the decks if they were washed properly? No; you could lower the deck down, and with a hose you could wash it instantly, and then you would clean the lower deck afterwards.
230. With reference to cattle getting their feet through the trucks, is it not a fact that besides the doors and besides the shutters outside my truck there are bars as well? I did not take particular notice.
231. As to the ventilation of my trucks, are they not ventilated at the end? Yes.
232. *Mr. Smith.*] When you say that you prefer the Wilkinson to Evans truck—you know that Evans truck has been running for two and a half years, and you have never seen Wilkinson's used? That is so.
233. *Mr. Lyne.*] Can you give any idea as to how long it would take with ordinary side-loading trucks to load a train of fourteen trucks of sheep with the present yards? It all depends how the sheep run in; sometimes they go in better than at other times.
234. But how long would it take on the average? If I have to load fourteen trucks I generally begin a couple of hours before the train starts; but I have never timed it, and I cannot speak for certain.
235. *Mr. Smith.*] If ten trucks, holding 1,000 sheep, could be loaded at Hay yards in half-an-hour would you not consider that a good result? It would be a fair result; but it would depend on the number of men you have. I am certain that as far as the Wilkinson truck is concerned, with end loading I could run them in in a third of the time, because I could run them in in a body.
236. *Mr. Wilkinson.*] Leaving end loading out of the question altogether, taking my truck as a side-loading one, as a man is able to stand upright in the truck, can it be loaded quicker than the present side-loading trucks? Yes; in loading the lower deck in Evans trucks you have to crawl in between the decks.

R. Hodnett,
Esq.
22 Nov., 1887.

THURSDAY, 1 DECEMBER, 1887.

Present:—

MR. BRUNKER, | MR. LYNE.
T. H. HASSALL, ESQ., IN THE CHAIR.

Mr. Bruce Smith, instructed by Mr. McLaughlin, appeared on behalf of the proprietors of the Evans Australian Combination Truck.

William Boyce Wilkinson, Esq., called in, sworn, and examined:—

237. *Chairman.*] What are you? I am a stock and station agent at Dubbo.
238. You are, I believe, the inventor of a combination truck? A combination end and side door loading truck.
239. Will you be good enough to state the advantages which you consider your truck possesses over the ordinary cattle and sheep trucks—I do not mean over any other combination trucks? The advantages which it has over the present sheep and cattle trucks (not including Evans combination truck), are that it can be used for sheep and cattle or goods—half sheep and half cattle, or half stock of any description, and the remaining half goods.
240. Thus, in the event of your having to take a few stud sheep up the country you could take half a load of goods with them? I could take three tons of wire, for instance, or ironmongery, or case goods. I would not propose to take sugar, or goods which could be tainted by the smell from stock. My truck has the further advantage of being a side or an end loading truck. As a side-loading truck it has a great advantage over other trucks in that the person loading may load the lower deck first with sheep, and walk into the truck and distribute them evenly over the bottom of the floor, which he could not do in the existing sheep trucks without going on his hands and knees. The great difficulty which we find we have to contend with in the side-loading trucks is that of getting the last four or five sheep into the truck; they hang round the door, they never go to the opposite side of the truck at all, and we have no means of removing them from the doorways, except by prodding them unmercifully with sticks through the bars. The last four or five sheep are generally forced in by the person trucking them holding the top bars of the upper deck with his hands and forcing them in with his feet, and the person assisting him draws the sliding door over them, and very often the last two or three sheep are left lying at the doorway, and they never get up, at any rate they are always huddled about the doorway which they have just entered, and into which they have been forced. In my system of loading the lower deck I would walk right into the truck, and so distribute the sheep evenly over the whole surface of the bottom floor. The existing trucks are not divided

W. B.
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Esq.
1 Dec., 1887.

W. B.
Wilkinson,
Esq.
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divided in the centre. My truck may be either divided in the centre or not, as the party loading think best. In my opinion it is a great convenience, also a great service in hindering stock from being smothered by undue pressure to have the truck divided into compartments for sheep. This does not apply to cattle. If I were loading cattle I should not use the partition doors. In loading the top deck with sheep, I have the same means of walking about. The lower deck being loaded my top deck is lowered from the roof almost instantaneously by throwing the winding wheels out of gear. I then open the centre of the roof so that a person may walk about on the top deck without having to go on his hands and knees, as he would have to do on the existing trucks. For loading cattle, as side-loading trucks my doors have a great advantage over the existing cattle truck doors in that they are at the end of the side and not at the centre of the side as in the existing trucks. In loading the existing cattle trucks with the doors in the centre it very often happens that as one bullock is going in and is going towards the end of the truck, another bullock turns round and comes back from the opposite end, therefore they meet each other at the doorway, and this bullock then forces his way out, and forces the whole of the cattle outside in the race right back to the larger yard. Through my doors being at the corner of the truck the cattle can only turn back from one way. [Witness explained by a rough diagram the action of loading cattle in his truck and in existing trucks.] For cattle there is a further great advantage in my truck, that is, that they cannot see out of the truck. I have sliding doors on the outside made of steel plates which close up the sides of the truck so that the cattle cannot see outside. A great deal of the harm which is done to cattle is done at the shunting yards, not so much from people looking at them as from engines passing up and down. At a place like Bathurst, for instance, where stock trains are kept for an hour or two in a large shunting yard, engines are continually running backwards and forwards past these cattle trains. Very often an engine pulls up immediately opposite a cattle train on an adjoining line a few feet apart. They whistle and snort, start on, and come back to the same place. There is more injury done to the cattle through this shunting business than there is through people looking in. Another great advantage in my truck is that even the higher portion of the side of the truck is hidden from view. The cattle cannot even see the engines passing when they are being shunted up and down. My truck is walled all the way up. With regard to ventilation I have a great advantage over existing trucks in that the ends of my trucks are all louvred, and further, that my sliding shutters are some 3 inches away from the side of the truck itself, so that this creates a current of air, which comes through the ends of the truck and passes down between the shutters and the sides of the trucks. In addition to that my top side doors are also louvred. The great advantage in louvring the ends of the trucks is that when the train is in motion all the air that goes in goes through the ends, and makes its own draught. In the inside of my truck when it is used for cattle the partition doors which are used for sheep fold up within the folds of the side doors, thus presenting an even surface on the inside. From about 3 ft. 6 in. in other portions of the truck on the side to about 5 ft. 2 in. (I cannot state the exact measurement from memory) I have what are called rubbing-bars, so that the sides are of dead wood and smooth. These parts of the truck, against which the cattle always rub, have a smooth surface, extending from about the hips and tails of the cattle pretty well down to the hocks. My truck is 6 in. higher than the existing sheep trucks. As an end-loading truck, my truck has advantages over any other trucks on the line, as by being a side and end loading truck it can be used without its being necessary to spend a shilling in the alteration of any existing trucking yards. All the existing trucking yards have two gangways or races, which are half a truck apart, and my side doors are half a truck apart, so by loading the first truck on the side, and opening its end and the end doors of the other trucks I can get communication through the whole train; it does not matter whether there are fifty or a hundred trucks. Thus, practically, there will be no expense required for altering existing trucking yards, but an alteration might be made which would quicken the loading of my trucks three times. The sheep races in the existing trucking yards are only one sheep wide, for the reason that the sheep being put into one truck hang about the doors, and the sheep in the race often want to turn back. The race is made wide enough only for one sheep, otherwise the sheep might turn round and go into the yards. Not only are the present races only one sheep wide, but most of them are only 30 ft. long, and it is necessary to put a door in them in order to still further prevent the sheep from turning back.

241. *Mr. Bruncker.*] But the races are not the same width right through? Yes; they are for the 30 ft., with the exception of about 4 ft., where there is a little receiving wing.

242. Then these races contain only about twenty sheep? Yes; and as I have said, it is necessary to have a door in them to keep the sheep from turning back. In my truck the doors are something like 4 ft. wide, and instead of having the races one sheep wide they could be made wide enough for three sheep. The great advantage of end loading is, that no shifting of trucks is required. The sheep themselves travel quickly from one truck to another. The numbers are regulated by partition doors, so that really the counting is more accurate than under the existing trucking system.

243. The existing counting system is not always accurate? The reason that under existing circumstances the counting is inaccurate is this, the existing trucks are of different sizes, and before the sheep are brought into the race they are counted off to (say) fifty for each floor. But sometimes a small truck comes up to a race instead of a large one, and it is found that the truck will not hold all the sheep run into the yard. If there is one sheep over it has to be turned back, and has to be passed along through the whole of the sheep, and very often the count is lost, and in most instances the mistake made from the trucking station is that they give the number at two or three more than it actually is. In proof of my statement that with my truck you can regulate the number of sheep going in, I may state that the late Board, which was appointed to inquire into the merits of the various trucks, tested my truck with sheep at Homebush. Prior to this the Board had seen my truck, but it was in an unfinished state. They had arranged to try the truck with some end-loading trucks which had been converted by the Department on the suggestion of Mr. Lyne. On these trucks the decks were fixtures. The Board was sitting at the time when these end-loading trucks were at the Homebush yards. An order was sent to the Traffic Superintendent to have them in readiness the next day, in order to try them with the sheep. The next morning on my going to the board-room I was informed that Mr. Harper, the Traffic Superintendent, had stated that the end-loading trucks had been sent on to Albury, and that, therefore, my truck could not be tried. I then went up to Homebush, and I found that the end loading trucks were there, and I wired back to the Board stating this fact, but nevertheless these trucks were sent to Albury that afternoon. They could not be returned within three days, and Mr. Thallon, one of the members of the Board, had been called home to Queensland on account of the heavy floods, and that was the reason why my truck was not tried

by

by the Board. Three days subsequently, at the request of Mr. Thallon, the remaining members of the Board went to Homebush, and tried my truck with sheep, Mr. Thallon then being away. The trial was most successful, as per report. In addition to the report, I called upon Mr. Badgery the next morning, and asked him for a memo., and he handed me the following copy of a memo., which he had sent to the Department:—

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In consequence of the contractors not having Wilkinson's combination truck completed in time for the Board of Inquiry to have a trial of the end-loading system before the conclusion of their labors and the departure of Mr. Thallon, the two remaining members, for their own information, visited Homebush on Monday morning last, when several of the trucks, which had been opened at the ends by the Department, were placed at each end of Wilkinson's, and a number of sheep were run through. The patentee entered the truck, and showed that by loading the lower floor while fixed as a cattle truck, with doors to regulate the sheep, there was no difficulty in arranging the proper number in each compartment. The members of the late Commission were so pleased with the satisfactory trial that they have forwarded a statement to Mr. Goodchap, setting forth that, while they consider the end loading with our present trucks could not be carried out, Mr. Wilkinson has overcome the difficulty. The great advantage in end loading is that any number may be loaded without moving any of the trucks.

2/2/87.

HENRY BADGERY.

Since then I have been urging on the Department to construct from three to five of my trucks, in order to give them a fair trial, but up to the present time the only answers I have received have been similar to this:—

Sir,

Department of Public Works, Railway Branch, Sydney, 24th October, 1887.
Subject: *Re* Combination Truck.

I am directed to acknowledge the receipt of your letter of 19th instant on the subject noted above, and to inform you that it will receive due attention.

W. B. Wilkinson, Esq.,

"Aaron's Exchange Hotel," City.

I have, &c.,

A. RICHARDSON,

Assistant Secretary.

This is the sort of reply I have been accustomed to get during the last eighteen months. I have made offers to the Government with respect to my truck, as will be seen from the papers which have been referred to the Committee. A further advantage of my end-loading sheep truck is that the commonest trucking yard on the railway is as good to me as the best trucking yard in the world for loading sheep, provided it has two gangways, upper and lower, and a small race and receiving yard. The Hay yards have been constructed so that eight or ten trucks may be loaded from eight or ten yards, consequently if ten trucks were loaded there would have to be twenty races and twenty gangways, and to load them simultaneously you would want the same number of men for each yard. This arrangement certainly saves shunting, and that is all. The first cost of the Hay yards was something about £1,198, and to improve them up to eight or ten yards the additional cost has been £1,428, or thereabout.

244. *Mr. Smith.*] How do you know that? I am giving it as my evidence.

245. Is it hearsay evidence? No; I know it as a fact, I know it of my own knowledge.

246. How do you know? I object to say.

247. Do you know of your own knowledge that the cost of improving the yards has been £1,428? I do. There are something like seventy-five trucking yards in the southern and western parts of the Colony, and from twenty to twenty-five in the northern part, or about 100 altogether. At the same rate of improvement it would cost £140,000 to adapt these yards to the existing trucks. The following is a list of the trucking yards in the southern and western districts:—

CATTLE:—Albury, Bathurst, Bethungra, Binalong, Blayney, Bomen, Bourke, Bowning, Bowral, Breadalbane, Brewongle, Bungendore, Byrock, Capertree, Carrathool, Colombo, Coolabah, Coolac, Coolaman, Cootamundra, Culcairn, Darlington, Devlin's Siding, Dubbo, Ettamogah, George's Plains, Gerogery, Girilambone, Goulburn, Grong Grong, Gundagai, Gunning, Harden, Hay, Ironbarks, Jerilderie, Junee Junction, Kelso, Marulan, Mittagong, Moss Vale, Mount Victoria, Mudgee, Narrandera, Nevertire, Newbridge, Nyngan, Old Junee, Orange, Picton, Raglan, Rylstone, South Wagga, Tarago, Tarana, The Rock, Trangie, Wallendbeen, Wallerawang, Waradgery, Warne, Wellington, Whitton, Yambla, Yanco, Yass, Young.

SHEEP:—Albury, Bathurst, Benereambah, Bethungra, Binalong, Blayney, Bomen, Bourke, Bowning, Bowral, Breadalbane, Brewongle, Bungendore, Byrock, Capertree, Carrathool, Colombo, Coolabah, Coolac, Coolaman, Cootamundra, Culcairn, Darlington, Devlin's Siding, Dubbo, Ettamogah, George's Plains, Gerogery, Girilambone, Goulburn, Grong Grong, Groongal, Gundagai, Gunning, Harden, Hay, Ironbarks, Jerilderie, Junee Junction, Kelso, Lue, Marulan, Mittagong, Molong, Moss Vale, Mount Victoria, Mudgee, Narramine, Narrandera, Nevertire, Newbridge, Nyngan, Old Junee, Orange, Perth, Picton, Raglan, Rylstone, South Wagga, Tarago, Tarana, The Rock, Trangie, Wallendbeen, Wallengundgery, Wallerawang, Waradgery, Warne, Wellington, Whitton, Yambla, Yanco, Yass, Yerong Creek, Young.

With reference to the weight of my truck, on reference to the papers before the Committee, you will find a statement from me as to how the weight of my truck may be reduced. What is called the Evans improved truck is running on the old departmental under-carriage. It is something like 5 cwt. lighter than the under-carriage the Department will allow you to use now. Then the connecting gear in Evans improved truck does not go right through from end to end of the truck, but the connecting gear now used by the Department must go from end to end of the truck as mine does. The under-carriage of my truck is that which the Department will only allow to be used now, and 5 cwt. heavier than Evans'. The upright rods on the side of my truck are of solid iron, and they run through from the lower beam the main beam of the truck to the main beam of the roof. Evans' do not, and they are pipes, not solid iron. My truck is braced with hardwood from roof to floor, and Evans' is not. The arrangement of Evans' truck necessitates shifting them twice to load them, even with the improved truck. This would be necessary even if the gangways were built directly over one another to suit the Evans truck, for the reason that as the lower door is one long flap it would not come down on to the platform of the existing yards, therefore you have to drop the gangways and lower the door before you bring the truck up to the platform, and you cannot shut the doors again until you move the truck away from the platform.

248. *Mr. Brunker.*] How do you manage with cattle then? This does not apply to cattle. Referring to the loading of sheep again, you have also to open the top door before you bring the truck up to the platform, for the reason that the top door reaches about a foot below the level of the top deck—about 6 inches or a foot. If you did not open the door before you brought the truck to the gangway you could not open it at all, and the deck inside the truck itself is 6 inches higher than the bottom of the door. To get over this evil it will be necessary to have another set of doors in the bottom deck. Objection has been taken to my having so many side doors in the bottom deck. The reason that I have to have these doors is, that in order that they will suit the existing trucking yards. I divided my doors into folds, and all my doors are on a level with the decks of the existing gangways. It will take any ordinary man, unless he has had great experience in the working of Evans truck, twenty minutes to alter that truck from a cattle

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cattle to a sheep truck. In my truck, now that I have thrown out of gear the other wheel which I pointed out to the Committee the other day, I can alter it from a cattle to a sheep truck, and close all the doors in less than a minute. From my experience of the Evans truck, these flaps get out of gear. They swell with the weather, and often have to be trimmed down before they can be put into position. In one instance I know that a carpenter was at work all night in the Dubbo yard before they could bring up the trucks to work them. In the top deck of Evans' truck there are flaps which fall down against the side of the truck, and he is not able to put cleats on them to prevent sheep from falling down. He confines himself to narrow grooves in the board which really are grooves to prevent the sheep from slipping down. He cannot put cleats in for the reason that when the flaps hang down against the side of the truck they would act as a sort of a currycomb against the sides of the cattle; therefore, in the top deck of Evans' truck the sheep have great difficulty in keeping on their feet. What is called the Evans improved truck, has only been improved in this way, by taking a partition out of the truck. The partition has been a great advantage for sheep, but not for cattle. Evans' truck has been built and altered at the expense of the Department, and my truck has been built and altered at my own expense; therefore there may be small matters of detail not quite perfect in my truck, but they do not affect the principle of it. When the Committee inspected the trucks I pointed out some alterations which might be made in my trucks, and these improvements I am now having made. I have asked the Commissioner to allow me to take my truck to Dubbo next week, loading it with goods at Redfern, and coming back with (say) fifty sheep, and four or five head of cattle. I wish to have this done to give the Committee an opportunity to see how the truck does its work.

249. *Chairman.*] How long have you been loading and trucking stock? About seven years. When I started at Dubbo there were no other agents there who did any trucking with the exception of the firm of Hill, Clark, & Company.

250. It was in consequence of the difficulty which you experienced in loading stock that you set your wits to work to discover a better truck? It was. For twelve months I did the whole trucking of Sydney firms with the exception of Hill, Clark, & Company's business. That was when Dubbo was the terminus.

251. Do you claim for your truck that it saves time and avoids cruelty in loading? Yes; it saves time and avoids injury to the stock, be they sheep or cattle.

252. Would you have to move your truck in loading sheep from the side in the present yards and races? No. My truck is a side loading truck as well as an end-loading one, and it corresponds with the existing trucking yards, so that it has not to be moved at all.

253. Did the Board appointed to enquire into the matter have any opportunity of seeing your truck at work so as to enable them to form a judgment from practical demonstration? The only opportunity which they had is explained in Mr. Badgery's letter, which I have read. That was subsequent to the Board concluding its sittings.

254. Would any alteration have to be made in the existing side-loading yards, or any additional expense be incurred to arrange for trucking stock into your trucks? No. With regard to the moving of the trucks I have heard it said here that the moving has been done by horses or engines. Dubbo is a very large trucking place, and we have always had to move the trucks ourselves, and very often there is not even a shunter to help us. In moving Evans' truck there is an indirect brake, which does not come into direct contact with the wheels, and in trying to stop the truck it generally passes the gangway before the brake acts, which is a great drawback.

255. Is the truck which we inspected at Redfern the first and only one built according to your model? The only one; but I never had a model.

256. If that truck had been built on the old under carriages it would be 5 cwt. lighter? Yes.

257. If pipe rods were used instead of solid iron rods how much lighter would the truck be? I intend to call an expert to prove that.

258. What timber is your truck built of? It is hard wood, except the decks and doors, which are always made of soft wood.

259. Can you improve your truck by making it lighter without reducing the strength? Yes. I shall bring evidence as to that. In building the truck to my order Hudson Brothers have used hinges which they had in hand. I could not afford to get new hinges made. If I were getting a number of trucks made of course the hinges would all be made to pattern. The hinges which are on now are unusually heavy, and they do not quite suit the doors.

260. How long does it take to convert your truck from a sheep to a cattle truck and *vice versa*? I can do one in one minute and the other in two.

261. Have you offered the patent right in your truck to the Railway Department for any particular sum? Yes; for £5,000, and I gave them twelve months to pay it in, but after taking a number of stock agents and people interested in the trucking of stock to see the truck and hearing them speak so highly of it I thought it would be unjust to leave the offer open for twelve months, and then I offered it for £5,000. There was a question about the trial of my truck at Homebush, and I think it only fair to state that I was under great disadvantages when my truck was tried. The trucks which I had to use were end-loading trucks, the decks of which were fixtures, consequently there was no means for getting in at the sheep. My truck was placed in the centre of these trucks, and I was sent into my truck as the sheep were passing through to close the doors and to count off the number. They were stopped, and the sheep started back again the other way, and as they were passing through my truck again I entered the truck and shut the doors and counted off the numbers. This I did in a few seconds, and as Mr. Badgery says, the result was very satisfactory. I would point out that this would not be an usual thing to do. It is an unfair test for a man to have to go into the centre of the train and shut all the doors and count all the sheep off. It would be far easier to do it at the last truck.

262. *Mr. Lyne.*] What means have you for making the opening at the top of your truck water tight? I pointed out to the Committee when they saw my truck that the folding door was not as it ought to be. It hinges now six inches lower down on the roof on each side than the opening is, and it gives about an inch and a half for ventilation between the top flap and the roof. It meets in the centre of a sharp angle and is capped, so that it is perfectly water tight. I may say that with the old flaps the truck was out in the rain for something like a fortnight, and it remained watertight.

263. *Mr. Brunker.*] What has been the actual cost of your truck? Hudson Brothers told me that they would build the truck for about £170, not counting the under carriage, which I believe the Government would supply for about £40.

264. How many woolled sheep would it carry? The existing trucks carry ninety, and my truck would carry, I daresay, 100. It would carry from 110 to 115 shorn sheep.

265. What would be the average all round of woolled and shorn sheep? About 100.

266. How many cattle? From eight to ten according to size. The truck is as large as the Department will allow you to make it. The Department have a rule that you cannot make a truck more than 17 feet 6 inches long—I forget the width—unless you run it on bogie wheels; then you can make it any length you like.

267. You said just now that you noticed that in the Evans combination truck the doors swelled? What I said was that the flaps got out of gear.

268. Does that arise from the use of bad timber, or any fault in the construction? It is a little of both. The joints are too neatly made, the least thing will throw them out.

269. That would not be a defect in the truck or in the workmanship, but in the timber? I think that good timber would not warp.

270. Then virtually the defect is from the effect of the timber? Yes.

271. Then you said that there was an indirect brake on the Evans truck? Yes.

272. I suppose that applies to all brakes? They put a particular brake on this truck. The old lever brake is a far better one.

273. In running the trucks up to the platform in loading or unloading you could not run them evenly? With lever brakes you could stop them at any moment unless they were going at a great speed.

274. With reference to the cost of the yards which are being used at Hay, do you know whether there are any other yards on the same principle which have been constructed at the same cost? I do not think that there are any other. I spoke of the Hay yards because Mr. Read spoke of them as being well adapted for certain trucks.

275. Is it not a fact that there are no other yards in the colony which have been so costly as those erected at Hay? Exactly so; there are no other yards built like those. The reason why I referred to these was that Mr. Read referred to those yards as being adapted for certain trucks, and further than that for end-loading trucks any yard would do.

276. In your experience you consider that there would be a great saving of time and labour in end loading as compared with side loading? There is no comparison as to labour, time, and usage of stock. You have never to poke the sheep with sticks or anything of that sort.

277. I have not had an opportunity of seeing your truck, but I understand that it is adapted for carrying sheep, cattle, or goods? Yes.

278. Is the Evans truck equally adapted? I do not think it is as well adapted as my own. The Evans truck has been running for the last two and a half years, and it has only been used for cattle a few times.

279. With reference to the doors you were speaking about, how do your doors act in comparison with those of Evans? You say that the doors of Evans' have to be dropped before the truck goes to the platform, and that they cannot be closed again until the truck is moved from the platform? My doors are on a level with the existing platforms.

280. In loading the Evans truck with cattle what arrangements would be made for keeping the cattle in the truck until it was run to the end of the platform? It does not apply to the gangways for cattle, only to sheep.

281. How do you keep the sheep in until you get the door closed with the Evans truck? You stand in the passage and hold the top of the doors until the truck passes the platform, and then you shut the door. Then there is a space, because the top flap does not go right up to the top deck.

282. Do not the sheep frequently break out? They might if you did not stand there. There is a long depth from the truck to the ground, and the sheep themselves would be frightened of that. I may say that I was the first person to load the Evans truck. I loaded the whole fourteen.

283. Your truck has not been used by the Government? No. I have asked the Government over and over again to allow me to use it.

284. How long has it been constructed? It was not finished when the Board sat, still it could have gone to work.

285. How long has the Evans truck been working? I am not quite sure, but I think it first worked in June, 1885.

286. Do you find it any great advantage in using the Evans truck over the ordinary trucks? They are rather harder to load. I think that they are an advantage over the other trucks when loaded, because they are divided into compartments for sheep.

287. But some of the old trucks were divided into compartments? They were an advantage, but they had the same fault, that there was no communication between the compartments. They were divided with rods, which is not a good thing.

288. What is the size of the opening which you speak of in the roof of your truck? The width of it is about 3 feet.

289. What is the width of the truck? About 8 feet.

290. The fact is, that a person can only move about within that 3 feet in distributing the sheep upon the top deck. Of course.

291. *Mr. Smith.*] Will you tell me what are the particular features about your truck which you have patented? The system of end loading, the roofs, partition doors. I do not think it right that I should be asked to answer such a question. It does not seem to me to affect the matter in any way as far as the Committee are concerned.

292. What are the features of your truck that you wish the Government to buy from you? If there is anything in my patent which infringes the right of any other patentee he has his remedy.

293. Can you state in a general way what you have patented? I will wait until the patent is here.

294. What have you offered to sell to the Government? When I produce my patent I will show you. I have offered to sell the patent, which I will produce, and in which the claims are stated.

295. Is end loading a feature of your patent? I decline to give any answer to such questions until the patent is here.

[Committee deliberated, and decided that questions relating to the patents would not be admissible until the patents were produced.]

296. You say first of all that to your knowledge the Evans truck has been in use for two and a half years? I think about that.

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297. And your truck was constructed in February of this year? Yes; it was nearly finished then.
298. Then I understand that your truck was not completed until after February, 1887? No; it is barely completed yet.
299. During the two years and a half the Evans truck has been used for goods and for sheep? Yes.
300. And for cattle in a few instances? Yes.
301. There are fourteen of them, are there not? I suppose there are. I know that fourteen were built.
302. With the exception of that accident which was reported upon do you know of a single accident which has ever happened to these trucks? That accident was not in these trucks at all; it was in the Evans improved truck. It was not in any of the fourteen trucks to which you are alluding.
303. With the exception of that accident which happened to the bar do you know of any other accident which has ever happened in any Evans truck? The only accident that I know of was in the improved truck.
304. Do you know that with regard to that accident, it was inquired into? I know by the papers.
305. And you know that the result was that it was reported to have been a flaw in the timber? I think that the beam was not strong enough. That was one of the reasons, only one of them.
306. Do you know that since that a strip of iron has been placed along these beams? I saw one the other day. There is only one truck like that, and I do not know that that truck has been used.
307. You do not know that it has not been used? No.
308. Your own truck was constructed nearly two years after you first began to use the Evans truck? No; I think it was something like twelve months in being built.
309. You say that you were the first to load the Evans trucks? Yes.
310. How long after that was it before you began to construct your own truck? I could not say without reference to the papers.
311. Within a year or eighteen months? Within a year. On December 9, 1885, I wrote to the Department:—"Re Evans trucks, I see you are thinking of utilising them for carrying out your idea of loading stock continuously; if so, I hope the above will be improved upon first. Some time since, upon the first trip these trucks made, when I loaded, I pointed out the defects, and how they could be very much improved upon. If requisite, I will lay my suggestions before the Department, but with the understanding if my plan is approved of, that I will be allowed a premium for the idea, for notwithstanding all has been said in their favour, the trucks are most unworkable at present. I would not ask anything for contributing to the success of the Evans truck, but as report is so busy with the matter of the large royalty that Hudson Brothers or Mr. Evans gets for their invention, and knowing, practically, how unworkable the trucks are, I do not see why my suggestions, if successful, should not command some return."
312. I want to know when you first began to construct your truck? It must have been some day later than this. I could not tell the date, exactly, without going to Hudson Brothers.
313. You did not begin to construct your truck until after the Evans truck had been constructed and used? No.
314. Who constructed your truck? Hudson Brothers.
315. When did you first give them the order and the plans on which to construct it? I could not tell without the papers.
316. Can you tell within six months? I think it was about eighteen months being built.
317. Will you swear that you did it before twelve months after the Evans truck was run? I think so.
318. But will you swear it? No.
319. You have referred to a Board which dealt with this question in 1887—How came it to be appointed? I am sure I do not know.
320. Do you know who appointed it? No.
321. Do you know the three men who sat on the Board? Yes; I saw them.
322. Do you know them by name? Of course I do.
323. Mr. Badgery has had immense experience of stock, has he not? I do not know about the immense. He has had experience.
324. Has he not had great experience? Not to my knowledge, but I saw it stated that through three generations his family had been engaged in stock dealing.
325. Do you know whom Mr. Thallon was? Yes; I know that he was in the Department here before he went to Brisbane, and he was in a subordinate position to Mr. Evans.
326. Do you know what position he holds in Queensland? I think he is Traffic Manager.
327. Do you know that Mr. Gill is foreman of waggon construction in Victoria? I know that he occupies a good practical position in Victoria.
328. Do you know that these three gentlemen had nine meetings? I do not know it.
329. You appeared before that Board? Yes.
330. And you gave all the information you could about your own truck? Yes.
331. And Evans gave all the information he could about his truck? Yes; but our evidence was confined solely to our own trucks. We were not allowed to say anything in disparagement of the other trucks.
332. You speak of the opinion of that Committee upon your trucks for end loading? Yes.
333. Is it a fact that out of a possible fifty marks they gave you five marks for end loading? Yes; they gave five points for a thing which they themselves condemn as unworkable. Mr. Badgery's minute to the Commissioner for Railways says that in the opinion of the Board end loading would not be a success.
334. You have impugned that report? No.
335. You say that the Commission gave five points for a thing which they condemn, and you thus practically impute either stupidity or ignorance? I object to motives being imputed to my evidence.
336. The Board gave no marks to other trucks for end loading? They were not end-loading trucks.
337. Allowing these five marks for end loading, is it not a fact that the Board gave only thirty-eight points out of fifty for the whole of the parts of your truck? That is so.
338. Is it not a fact that the Evans truck got forty-five points irrespective of end loading? Yes.
339. Have you any objection to the experience of the three men who sat on the Board? None whatever.
340. Do you take any objection to the honesty of purpose of that Board? I do not think that is a fair question.
341. Your objection is that a supplementary report overrides their finding? Yes. It was not their fault, as my truck was not finished.
342. Did you not assure that Board that your truck, which then weighed 7 tons 15 cwt. 2 lbs., could be considerably reduced in weight? I did.

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343. Since that time about ten months have elapsed? Yes.
344. During which you have been at work on your truck? No; I have been at work at my business.
345. But your truck has been going on? It has been at a standstill waiting an answer from the Department.
346. When your truck was inspected by this Committee a few days ago what did it weigh? I am sure I do not know. About 7 tons 15 cwt. I have not taken anything off the weight. It is only in new trucks that I would take any weight off.
347. You say that you do not know who appointed that Board? No; I got a notice from the Commissioner that the Board was appointed. That is all that I know about it.
348. Is it a fact that the Board found that the Evans truck was the most economical and suitable in every way for the conveyance of cattle, sheep, and merchandise? Yes; but I think that the Board had no evidence as to the cost of my truck.
349. But you had every opportunity of putting evidence before them? No; my truck was not finished at the time.
350. You had given evidence before them? Yes; some evidence.
351. You have spoken of the end-loading trials at Homebush? Yes.
352. Is it not a fact that some of the end-loading trucks were constructed by the Government? Yes.
353. When were they constructed? I could not say.
354. Before or after you had your truck patented? I do not know. They have been using end loading trucks for years in Adelaide. I stated so in my correspondence with the Minister. I enclosed a letter from Mr. Valentine, Inspector of Stock there on the subject.
355. Do you know that some months ago, when Mr. Lyne was Minister for Works the Government had some trucks altered for end loading? Yes.
356. Is it not a fact that these trucks had never been used by the Department? I should think it is very likely. In my correspondence I say that end loading with decks that are fixtures cannot be a success.
357. When you give the amount of £140,000 which you said would be required to adapt all the existing yards to the Hay principle, you multiplied the original cost of the yards and the cost of all subsequent improvements by the number of yards in the Colony? I did not multiply the original cost of the yards. I did not include the first cost of the yards.
358. Did you not arrive at that £140,000 by multiplying the expenditure on the alterations of the Hay yards by the full number of yards in the Colony? Exactly so; by multiplying the cost of the alterations.
359. And in that you assumed that all the yards in the Colony would cost the same amount to alter? I presume so, if they were altered.
360. How many doors are there in your truck, actual distinct parts on hinges? I cannot recollect.
361. How many are there at the ends? All my doors are only half doors.
362. I call half doors doors? I do not.
363. Well, how many half doors are there in each end? Four.
364. Is there not part of the door dropping down? No.
365. How many half-doors are there on the sides? There are eight in each side. These eight doors close two doorways.
366. That would give twenty-four of these doors for each truck, each distinct part on a hinge? Yes.
367. You said just now that the Evans trucks were altered at the expense of the Government? That is correct.
368. Do you not know that the Government have had the use of these trucks for two and a half years without any payment? I do not.
369. Have you ever heard of the Government paying Evans anything for the use of his trucks? No; not quite, but very nearly.
370. What do you mean by "very nearly?" There was some talk about £16,000.
371. Has your truck ever been used for practical purposes on any line in the Colony? No; it has been refused.
372. Has it ever carried sheep, or cattle, or goods? I never got an opportunity.
373. It has never been tested in any way? No. I have been denied the opportunity.
374. When this Committee examined the trucks did not the present Minister for Works offer to give you a chance of using your trucks? Yes; since the Committee sat.
375. Did you not afterwards take the truck away? Yes.
376. How long afterwards? A few days afterwards, with the consent of the Chairman of the Committee, to put in some alterations which I pointed out to the Committee when they were inspecting the truck.
377. What is the roof of your truck made of, is it of soft wood? I would not be sure what it is.
378. Did you not tell the Committee just now that your truck was of hard wood except the decks and doors? Anything that ought to be hard wood is of hard wood.
379. Is it not a fact that the roof is made of soft wood? It is very likely that it is.
380. Is it not a fact that the shutters are made of soft wood? They are made of steel.
381. Is there any wood inside them? There is a wooden frame.
382. Is that hard or soft wood? I would not be sure.
383. Are the hinges on your trucks now the hinges that were on originally? I do not know.
384. Do you not know for a fact that there were larger hinges on, and that they were taken off and the present small ones put on to reduce the weight? Nothing has been done to reduce the weight except the alteration of the deck.
385. Will you swear that the heavy hinges were not taken off and lighter ones put on? They are all heavy hinges which are now on.
386. Will you swear that the hinges which were on the truck when the Committee saw it were the original hinges? No; but I know that the hinges which are on now are not adapted to the truck.
387. You have spoken about an inch and a half of ventilation in the roof in connection with the opening flaps—is there anything to prevent sparks which fall on the roof being blown inside? There is a ledge.
388. Where is it? Running inside the flap.
389. You say that end-loading trucks have been in use in South Australia for years? Yes.
390. You are not prepared to say that the Government end-loading trucks were not constructed before yours were patented? End-loading trucks were in existence years ago.

- W. B. Wilkinson, Esq.
1 Dec., 1887.
391. Then end loading is not a new thing? It is a new thing on my principle.
 392. It is no new thing of itself? It is if you speak of my truck.
 393. Is it not a fact that end loading is a very old principle? I say that it has been in use in Adelaide for years. The combination truck is an old principle; Mr. Downes made one years ago.
 394. In the division in your truck when you propose to carry half cattle and half sheep, what is the partition made of? Inch and a half boards I think.
 395. Will you swear that the boards were not three quarters of an inch, as shown to the Committee the other day? I will not swear what they are.
 396. Are they not soft wood? The man who constructed these trucks will give you evidence on these points.
 397. Is it not a fact that if the truck were divided so as to carry half cattle and half sheep the only partition would be two soft wood doors on hinges secured by wire? No.
 398. What are they secured by? By a steel rod, which goes through the deck into the floor. The bands or hinges, as you call them, go from one side of the truck to the other, and are connected with a steel rod.
 399. Is it not a fact that the partition consists of soft wood, and that the doors are hinged on the side of the trucks. Yes.
 400. You do not seem to know anything about the construction of your truck? I do not say that. I will produce the foreman of Hudson Brothers, who made my trucks, and who makes all the trucks which the Government order, and he can give evidence as to the stability of my truck.
 401. Did he design your truck? No. It is his province to put the right sort of timber in.
 402. Did he design the division in your truck? No.
 403. Who did? I did.
 404. Apart from the nature of the wood, I ask is it not a fact that the partition for cattle and sheep consists of two doors hinged on the sides? I told you that long ago.
 405. Is it not a fact that since the truck was originally constructed you had a large part of the hard wood taken out and soft wood substituted? It is not a fact. If it has been done it has been done without my knowledge or consent.
 406. Do you know of any parts in which, with your knowledge or by your order, soft wood has been substituted for hard wood? None.
 407. When is your truck to be tried? I have asked the Commissioner to allow me to try it some day next week, but I have not yet received an answer.
 408. You propose to put four cattle in one half-truck? Yes.
 409. You say that the truck will hold from eight to ten cattle? Yes.
 410. Then why do you propose to limit the number of cattle to four in the half? It all depends upon the size of the cattle. When I see them I can tell.
 411. *Chairman.*] Do you intend to load the truck to its full carrying capacity? I have asked the Commissioner to allow me to do that. I want the Committee to see it loaded, and the state of the stock when it is unloaded.
 412. *Mr. Smith.*] Do you claim to be the first to have used what is called the horizontal floor for the upper deck? That affects the patent, and I shall make no answer as to what I claim until the papers are produced.
 413. Do you not know that it is a common thing in America to have a floor like this going up to the roof? I shall not answer that. I have not patented my truck in America.
 414. Have you patented it anywhere but in this country? I have patented it in Queensland, Victoria, and South Australia.
 415. Not in England? No.
 416. *Mr. Brunker.*] When you made your arrangement with Hudson Brothers at the outset did you arrange the price? No.
 417. What is the size of the steel rod to which you refer? I think it must be three quarters of an inch.

THURSDAY, 8 DECEMBER, 1887.

Present:—

MR. BRUNKER, | MR. LYNE.
T. H. HASSALL, Esq., IN THE CHAIR.

Mr. Bruce Smith, instructed by Mr. John McLaughlin, appeared on behalf of the proprietors of the Evans Australian Combination Truck.

Mr. Wilkinson appeared in person.

Allan Yeomans called in, sworn, and examined:—

- A. Yeomans.
8 Dec., 1887.
418. *Chairman.*] You are a grazier? Yes.
 419. Have you seen any combination trucks at work? I have.
 420. Will you be good enough to give what information you can to the Committee? I have trucked four lots of sheep in these trucks, and it seemed to me an extraordinary thing that you had to crawl about on your belly to load the sheep. I wondered why some arrangement could not be made by which a man could stand up and do the work. Another thing that struck me was why we should have to load at the side and not at the end. I once witnessed a trial of an end-loading truck at Homebush. I saw the man who was loading stand up in the truck as though he were working in a drafting yard, and the sheep were trucked just as though they were running through ordinary races. I consider that when a man can stand up to do the work he can do it properly. He cannot do so when he is crawling about on his belly.
 421. You consider that the principle of loading which you saw was like working in drafting yards at stations? Just so.
 422. Is it your opinion that that truck in which you could stand up and do the work necessary in filling a truck and arranging the sheep for transit was superior to anything that you had seen before? It was.

I remember that with one truck I had to load I had to shift it four times to get the requisite number of A. Ycomans. sheep into it, and it was necessary to have the assistance of two shunters. There were four compartments, and to fill each of these we had to shift the truck. 8 Dec., 1887.

423. What truck was that? I could not say.

424. In your opinion a truck that would combine the necessary appliances for taking goods up country and bringing stock back, and work on the principle which you have stated, where a man could stand erect and arrange the loading, would be superior to anything you have seen in use yet? Most undoubtedly I think so. The mystery to me is why this principle was not adopted long ago.

425. As a practical man who has had great experience in loading stock you consider that the fact of the person loading having to crawl about is a great drawback? Yes.

426. And involves a waste of time? A waste of time and of energy.

427. And incurs a certain amount of risk? Yes; there is a lot of risk as far as your health is concerned.

428. In loading the combination truck with four compartments with the top deck put into position before you could load the bottom one, did you not find some trouble in getting the last few head of sheep into the truck; do you not think that there was much more difficulty than there would be on the principle of end-loading, where a man could walk about at his ease? With the last lot of sheep that I trucked three could not get in. I said I would give them away to some one; I would not be bothered trying to force them in. A man there said that he would get them in, and he did so by brute strength, and in no other way. Let me say that I come here quite unprejudiced. I speak feelingly on the subject of stock trucking. I say that any man who invents a truck which will save all the swearing and cursing and the hard work involved in loading stock now will be a public benefactor. His name will be stuck up in all the trees about the district. I have not come here to advocate anyone's truck.

429. *Mr. Brunker.*] You have had long experience in connection with stock? I have had seventeen years practical experience.

430. From what you have seen, as a practical man, you think that end loading is preferable to side loading? Most undoubtedly.

431. Do you think there would be any difficulty in blocking the sheep as they passed through one truck to the other? I do not think there would be the slightest difficulty. If you put five or six trucks together, I do not think that there would be any more difficulty than there would be in blocking them when going through a race.

432. With the combination trucks at present in use you say that you had to use the same means as you had to use in the old trucks to load them properly, that is, you have to crawl in to get the sheep up to one end? In the trucks which I first loaded I had to crawl in on my belly to get the sheep up to the other end.

433. You said that you had to force three sheep in. If it is necessary to do that, is it not likely that in putting those sheep in you might destroy ten or twelve other sheep in the truck? Yes; but in the instance I am speaking of there was plenty of room. The sheep would not crowd up to the other end.

434. You think that difficulty would be overcome by end loading? The natural tendency of sheep is to go straight ahead. I am decidedly in favour of end loading, and of a truck in which you can stand up to do your work.

435. In loading the combination trucks at present in use by the Government, have you noticed any difficulty with reference to the doors when alongside the platforms? Yes; from one truck four sheep got away through the opening.

436. It has been stated in evidence that it is impossible to close the doors until the truck has been moved past the platform, that you have to stand at the doors for the purpose of keeping the sheep in? You have to stand at the doors, or hang something there to keep them from getting out. As I tell you, on one occasion four sheep got out of the doors. If we have not a man standing there we hang up a bag.

437. You say you saw an end-loading truck tried at Homebush? Yes; I saw a Wilkinson truck loaded with fifty sheep.

438. *Mr. Lyne.*] When was that? I think it was about twelve months ago, I could not say exactly. I went out with Mr. Badgery. It took one-tenth part of the time to fill that truck that it took me to fill the other truck at Nyngan.

439. *Mr. Brunker.*] Without the same amount of labour? There was no labour whatever attached to it. When the sheep got a lead on they went. It is quite easy to block sheep. Any man who understands it can block them with his handkerchief.

440. In looking over the trucks did you notice any other advantages in connection with that truck over the other one? There is a truck which I was looking at which can be made to carry half sheep and half cattle. There is no doubt that has a great advantage over any other truck, especially to small holders.

441. How about ventilation? There is plenty of ventilation, there are louvred windows, then there is a current through the grating. I should think there was plenty of ventilation in the truck.

442. Have you had any experience of trucking cattle? No; I have not trucked any, and I hope never to have anything to do with trucking cattle under the present system.

443. You have seen cattle that have been trucked? Yes.

444. You know that cattle suffer considerably from rubbing in trucks? They get chafed.

445. Do you know if either of these trucks are so arranged as to prevent the loss from cattle rubbing, especially on their tails? In the truck I was looking at yesterday, Wilkinson's truck, all the surfaces are perfectly smooth. I saw it at Hudson Brothers. When I saw it at Homebush there were a lot of projections in it. Mr. Badgery was the first to notice that. I had that in my mind when I looked at the truck yesterday, and I saw that the surfaces had been made smooth.

446. So that cattle would not be likely to suffer very much in the truck? I should not think that they could be chafed at all.

447. In these trucks would the cattle be able to see the people on the platform—can they look out as they can in the present trucks? There are sliding doors on the outside which can be closed and make the truck dark on the inside. I cannot say whether that is an advantage or not.

448. Would you mind stating which would be the most advantageous in the interest of the public for the Government to use? I could not say that. A truck which would load at the end and in which you could stand up would be as far above any other truck as the sky is above us. As to making comparisons, it is rather a difficult matter, as there are so many trucks. There was one which we had to shift four times; it was a regular killer; they said it was the something combination truck; I suppose it was the Evans truck, if the truth were known.

- A. Yeomans. 449. *Mr. McLaughlin.*] Did you state that you have to crawl about on your belly in loading every truck with sheep? I say that you must crawl about on your belly if you want to get the sheep in without knocking them about. That has been done in every truck that I have ever seen loaded. I have trucked 6,000 sheep altogether.
- 8 Dec., 1887. 450. Supposing that you were loading at the side of the end of the truck, do you still say that the sheep would enter and remain on the opposite side of the truck instead of going away to the further end? I say that they would go straight ahead, and stop at the first obstruction.
451. *Mr. Lyne.*] Unless some one got in to hunt them along? Yes.
452. *Mr. Bruncker.*] Would there not be the same difficulty in getting them out? I do not know anything about that.
453. *Mr. McLaughlin.*] Is it not usual to have an object on the opposite side to prevent them going there? No.
454. But you always send someone in? A man went in every time to hunt them up.
455. Had he to hunt up more than one? He had to hunt up the whole lot.
456. If you sent in one sheep would not the others follow? No; they would not all go up to it. Some would, but some would not.
457. Where is your station? 40 miles above Brewarrina, on the Barwon.
458. Have you come down specially to give evidence? No.
459. Did you come down to Homebush specially to see the truck tried? No; I was invited there. I was in Sydney at the time.
460. You have never seen the truck used for sheep or cattle? I have simply seen it tried.
461. Was there the same difficulty in loading under the old system as there is in loading combination trucks? Just the same trouble with all side loading trucks which have two decks, and in which the space is so low that you have to crawl about.
462. *Mr. Wilkinson.*] At whose invitation did you go to Homebush to see the truck tried? I forget whether it was you or Mr. Badgery who asked me. I saw a paragraph in the paper stating that there was to be a public trial, but I do not know whether I spoke to you or to Mr. Badgery.
463. With whom did you go? Mr. Badgery.
464. Do you remember what position my truck was in. Were there other trucks at each end of it? I do not remember. All I know is that the work was quickly done.
465. Do you know who went into the truck to shut the sheep off to the required number? You did.
466. Was the trial a satisfactory one or not? I thought it was a perfect God-send to see sheep run in so easily.
467. Do you remember whether the sheep were shut off to the proper number when the doors were closed? It was done near enough. There were three or four people there, and someone said that you could block them off near enough.
468. Looking at the truck from a side loading point of view, would it be an advantage if the man loading the bottom floor could walk right through into the truck? Of course it would.
469. In loading sheep at the present rates, is there not a great trouble in getting in the last few sheep? Yes; it is an awful bother to get them in. If I could afford it I would sooner give them away than try to get them in.
470. So that if you have to put fifty sheep into the truck, and you have got forty-five in, it is necessary to go about on your hands and knees to get in the remaining five? Yes. You can poke at them until the cows come home and they will not shift.
471. It would be a great advantage from a side-loading point of view to walk into the truck and distribute the sheep evenly? I should rather think so.
472. Did you notice that the ends of my truck are louvred? Yes.
473. Does not that give further means of ventilation? There is a lot of louvreing all about the truck.
474. *Mr. McLaughlin.*] If you were loading five trucks from the end, how many men would you require to shut off the sheep? Only one. If you were loading fifty trucks you could block the number for each truck.
475. Would there not be a risk of there being more sheep in one truck than in another? What nonsense! If you knew anything about stock you would see that one man could do the lot.
476. The last truck would be shut off first, and when the required number were in that truck would there not be more than the required number crowded up in the next truck? No. I suppose you think that if we were loading 2,000 sheep they would all go into one truck. After the last truck was shut off you would find that the full number would not be in the next truck, and you would have to hunt them down, and so on with all the other trucks.
477. Would it not be possible to get 110 sheep in one truck? Sheep will not crush to that extent. You have always to hunt them along to fill the trucks. This is a sore subject with us, as we lose about two shillings a head on the sheep owing to the way in which they are knocked about in getting them into these trucks.
478. *Mr. Wilkinson.*] If Mr. Badgery says that by my arrangement of doors the sheep can be shut off at a proper number you believe him? I say that you can do so.
479. Did anyone besides myself go into the truck at Homebush? No one else touched the sheep. That was not a fair test, inasmuch as there was only one truck load. There ought to have been three or four trucks; then you could have shown the thing properly.
480. *Chairman.*] You mean it was not a fair test to the exhibitor of the truck? Yes.

David Kirkcaldie called in, sworn, and examined:—

- D. Kirkcaldie. 481. *Chairman.*] What are you? I am Assistant Traffic Manager of the railways.
- 8 Dec., 1887. 482. How long have you had experience of the Evans combination truck? Since June, 1885.
483. Do you think these trucks will stand wear and tear in carrying both cattle and sheep as well as the old stock trucks? They will require to be faithfully built to stand the strain caused by the swaying about of heavy bullocks. There is a great strain in the surging of heavy bullocks when rushing round the trucks. If they are faithfully built of course there will be no difficulty otherwise.
484. Do you think that the combination trucks would necessitate greater expense in the repairs than the old trucks? Yes.

485. Do you think that the expense would be much greater? The greater the number of working parts the greater must be the expense of maintaining the truck. D. Kirkcaldie.
486. Have you had any experience of loading stock into trucks? Yes, but not in the combination trucks. 8 Dec., 1887.
487. Have you used the combination truck for the carriage of goods and of stock? Yes.
488. Do you find it answers those purposes? Yes.
489. Have cattle been carried in these trucks to any great extent? No; they have been principally used for conveying sheep.
490. Do you think that the hinges of the flaps which form the upper deck floors would be liable to get rusted or out of order in carrying both sheep and cattle? I believe they are liable to get out of order from corrosion by urine from the sheep. I have only heard of that within the last few days.
491. *Mr. McLaughlin.*] Have you noticed that such is the case? I have not seen it, but the Locomotive Engineer has mentioned it to me.
492. *Chairman.*] Do you think there is any combination truck of any pattern useful for the carriage of good and stock? Yes, to a certain extent; but I do not think any combination truck will be an absolute advantage in the carriage of goods and stock as well, unless the number is largely increased. The exigencies of the stock traffic are such that the trucks must be sent back as quickly as they are unloaded. Therefore, if we loaded them to a large extent with goods we should necessarily have to increase the number, otherwise we could not overtake the live stock traffic.
493. *Mr. Lyne.*] What proportion of rolling stock do you consider should be combination trucks to make them of service to overcome the difficulty to which you refer? It is difficult to say; the traffic varies so much. For instance, during the wool season, say, from September to February, we have to send empty goods trucks to the west and south, as the case may be, to bring back wool, so that there would be no advantage in loading any of the stock trucks with merchandise. Combination trucks would be very good if you could load them with stock in both directions, or with goods one way and stock the other, not otherwise.
494. *Chairman.*] The idea which you wish to convey is that it is absolutely necessary to keep a supply of stock trucks at the depôts for ordinary trucking purposes? That is so.
495. And that it would not always be convenient to wait for goods loading for the trucks? It cannot be done.
496. Would these combination trucks be of any value if convertible from sheep into cattle trucks, leaving goods out of the question? Certainly.
497. Do you at present take any goods in cattle trucks? To a comparatively small extent. Cattle trucks are not largely availed of for the conveyance of goods, simply because we could not keep pace with the live-stock traffic, and then of course there is the other reason that we are sending goods trucks down to bring back the wool, so that there is no advantage in loading stock trucks to the country during the wool season.
498. Do the combination trucks possess any advantage over the ordinary cattle trucks when they are converted for the carriage of goods? No special advantage. Of course there are the tarpaulins which are drawn down the sides of the combination truck, which to utilise the cattle trucks for goods we have to put tarpaulins over them. Otherwise we carry goods very well in the cattle trucks.
499. Do you anticipate any reduction in the live stock traffic in future in consequence of the establishment of abattoirs at various points on the railway line, and a corresponding increase in the dead meat trade? If abattoirs and chilling establishments are established in the country there must necessarily be a decrease of the live stock traffic.
500. I suppose you have noticed, through the medium of the Press, that there is great objection to the abattoirs at Glebe Island? Yes; and I observe that meetings have been held at Bourke on the subject of establishing abattoirs and chilling rooms there.
501. If these abattoirs are done away with it will be necessary to establish abattoirs along the railway lines? Yes.
502. In that case you would anticipate a large increase in the dead meat trade? Yes.
503. Would that change be beneficial to the public and to the Department, in your estimation? I think it would be beneficial to everyone.
504. Why would it be beneficial to the Department? Because it would be a better paying traffic. We do not make much out of the live stock trade, particularly on long journeys.
505. *Mr. Lyne.*] Sometimes you lose by it? Yes.
506. *Chairman.*] If killing establishments were established at various points on the railway line the trucks which would be used to bring the dead meat to Sydney could be used for carrying goods back? Yes; but that is not so much, where I think the advantage would be as in this, if a truck can be constructed, I cannot say whether it can be or not, to carry, as I think it ought to carry, about eighteen or twenty bullocks in carcase, we could carry at a proportionately cheaper rate than we carry the same quantity in two trucks with nine or ten live bullocks in each. Suppose we charge £20 for two trucks of live stock, we might carry the same number of bullocks in carcase for about £15. That would be an advantage to the producer, and it would be an advantage to us, because we should have less working expenses.
507. *Mr. Lyne.*] Would it not be an advantage to consumers as well? Yes; because they would get good sound meat, which would be properly set before being used.
508. *Chairman.*] If slaughtering establishments were established in the country districts, would there be any necessity for combination trucks at all? I think we shall always have a considerable live stock traffic.
509. Do you think the Department would be justified in going to a very great expense in building a large number of combination trucks for the carriage of live stock? Not as things are now. I think it would be desirable to wait and see whether the dead meat trade is going to be developed. Still the stock throughout the country is increasing at such a rate since we have had the good seasons that it will be necessary for us to get more trucks, unless slaughtering establishments are started in the country. We are in this position, that we can get along very well at present with the trucks we have, but I feel that in another year we must expect a large increase in the stock traffic, and unless killing in the country districts is resorted to it will be necessary for us to have additional trucks with which to cope with the traffic.
510. You have seen the Evans truck? Yes.
511. Have you seen the Perry truck? No.
512. Have you seen the Wilkinson truck? Yes.

- D. Kirkcaldie. 513. Will you state in your opinion which is the better truck of the two for the purpose required? They both have very good points, and both have what I consider objectionable points. Apart from the principle of end loading, the only objection which I can see to the Evans truck is that the two doors are over each other, which necessitates shifting the truck when loading sheep. If the partition is taken out it is not necessary to shift the truck when loading cattle, but it will be necessary to do so when loading sheep. As regards end loading, I can hardly express an opinion about it, because I have no experience of it. I was always opposed to it until I ascertained that it has been successfully carried on in South Australia. Knowing as little as I do about end loading, I should not like to say just now which truck is the best. The Wilkinson truck has the objection that it is not boarded up well enough round the sides for cattle at present. I do not say anything as to what can be done with the truck in that direction. I was a member of a Board which inquired into the live stock traffic some years ago, and we made a recommendation that the boarding up of cattle trucks to a height of 6 feet or a little more from the floor which had been introduced some short time before should be generally adopted, so that the cattle could not see out. Before that there was a space between the bars through which bullocks often got their hoofs and could not get them back again. At other times they would get their horns through and eventually would come down, and sometimes get trampled to death by the others. Mr. Wilkinson has not got rid of that objection.
514. *Mr. Wilkinson.*] Are you sure of that? I have not seen your truck recently, but you had not when I saw it last. I do not know what it is like now.
515. *Chairman.*] Your opinion is that the nearer the approach you can get a cattle truck to a horse-box, provided that there is a proper ventilation, the more serviceable it would be? Yes. Mr. Wilkinson may be able to get over that difficulty, as Mr. Evans may be able to get over the difficulty of the doors being over one another.
516. *Mr. McLaughlin.*] You say that each of the trucks has only one objection? I think so. I am talking now of the principle; I am not saying anything about the strength of the trucks.
517. *Mr. Brunker.*] You referred to the surging of the cattle in the trucks, and said that it would be necessary that they should be faithfully constructed to prevent their being strained. Is not that necessary in any truck? It is necessary in any truck; but it is more necessary in trucks in which there are a number of working parts, to provide for converting them into trucks for other purposes. It is necessary for Mr. Evans' truck, because of the flaps, and of the bar which runs lengthways in the truck; and it is equally necessary for Mr. Wilkinson's truck, on account of the top deck being raised to the roof. There is a chance of these working parts getting out of order through the straining of the trucks.
518. I suppose you mean that the trucks are weakened by there being so many doors and other things? I refer particularly to the working parts of the upper deck. The question is whether the straining of the trucks would not interfere with these working parts. In Mr. Wilkinson's truck the upper deck comes from the roof. The question is to what extent that will, in time, become permanently impaired by the straining. I repeat that the trucks will require to be faithfully built to withstand this strain.
519. I understood, from your answer to the Chairman's question just now, that if combination trucks were used generally for the traffic, the expenditure would be very much greater than if you used trucks which are in use now for ordinary traffic? It must necessarily be greater.
520. For what reason? Because of the greater number of working parts. I do not attach much importance to the cost of maintenance, however, so long as the trucks remain convertible, because a truck which would carry goods and stock to any very large extent, the question of maintenance would be trifling as compared with the increased earnings.
521. Has the combination truck any advantage over the ordinary truck for carrying cattle? I do not think there is any special advantage; I do not know of any. The Evans truck when used for cattle is practically the same as our ordinary cattle truck. It is boarded up to a height of 6 feet, the same as our cattle trucks.
522. You said just now that in anticipation of the live stock traffic decreasing you considered that it would be unwise of the Department to increase the rolling stock? Unless the construction of abattoirs in the country is going to come about fairly soon.
523. Do you think that the present stock traffic is such as to justify the Department in limiting the supply of rolling stock? We have quite enough rolling stock at present, but it will not be enough for next season, I think. I fancy we shall have a large increase of live stock traffic next season. Of course there are times when we are rushed with our live stock trucks, and there are other times when we are comparatively slack.
524. You have had no experience in the Department in the working of Wilkinson's truck? No; it has never been loaded.
525. You have had experience of the Evans truck? Yes.
526. Will you state what advantages this truck would have, as far as the Department is concerned, over the trucks ordinarily used? It has the advantage of being convertible from a cattle to a sheep truck, and *vice versa*. I look upon it as a great advantage, apart altogether from the carriage of goods, that it can be converted at any moment into either a cattle or a sheep truck. I do not attach a great deal of importance to combination trucks as goods carrying trucks, because our cattle trucks are equally well suited for that.
527. As far as losses on the way by accident are concerned, do you think there will be any more safety in the combination trucks than in the ordinary trucks? I cannot see that there will be any difference.
528. You have used the Evans truck for a long time; what is the result of your experience as far as the mortality of sheep is concerned? I do not know that there is any difference between the trucks as regards mortality.
529. With regard to the saving of time and labour in loading and unloading? The Evans combination trucks is at a disadvantage. Our present trucks are so built and the races so fixed that both decks can be loaded at the same time. As the Evans truck is now, only one deck can be loaded at a time, and then it has to be moved to load the other deck.
530. Which incurs a loss of time? Necessarily so.
531. A greater amount of labour is involved? I do not know that, unless you refer to the partition, which has been removed in the improved truck.
532. *Mr. Lync.*] You said that you have had no experience in end loading, and that until you found that they had adopted it in South Australia you were opposed to it? I was, for the reason that I never could see how they could divide the sheep properly between the trucks.
- 533.

533. Do you not know that in the trucking yards in the interior where engines are not kept it is very hard work on the persons who have to load the stock to have to move each truck up the platform and then move it away? Yes.

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534. Does not that take up a great deal of time? Yes.

535. Suppose that the difficulty you speak of in dividing the sheep when loading them from the end is overcome, I presume you would acknowledge that the other difficulty would be overcome? Yes.

536. The difficulty and the heavy work of shifting the trucks would be overcome if you could bring a train load of trucks up to the race and load them all at once? Yes; that is done in South Australia.

537. By that means I presume you will admit that there would be a great saving of time and labour? Of course. Still, I am told that side loading is done very quickly at some of the Victorian stations. I know that at Hay it is done very quickly.

538. Will you describe the principle of the Hay yards? I can hardly describe them without having the plans before me.

539. Are there not a number of races? Yes.

540. It is like a number of separate trucking yards? Yes.

541. In loading there each side loading truck is placed beside a race? Yes.

542. Do you consider that it would involve a large expenditure to make all the trucking yards on that principle? It would.

543. *Mr. McLaughlin.*] The only objection which you see to the Evans truck is against the top door being above the bottom one? Yes; apart from the principle of end loading, whatever the advantage of that may be.

544. Could not that be got rid of in two ways, by removing the doors and putting them in the centre as they are in the ordinary trucks? Yes.

545. Or by altering the races? I do not know about that.

546. If all the races were like the Hay races would not that objection be overcome? I do not think so.*

547. Do not the Hay yards suit the Evans truck? I do not think so. I would not commit myself, as I have not seen the Hay yards for some time, but my opinion is that the races do not fit in with the decks of Evans' trucks without moving them.

548. How long is it since you have seen them? About four years.

549. I suppose you have noticed the floor of Wilkinson's truck, and that of Evans' truck—which do you prefer? Evans', undoubtedly?

550. Is there much oscillation in cattle trucks when full of cattle in crossing the mountains to Sydney? I do not know whether there is much oscillation; there is surging.

551. Would that be increased by having the top deck carried on the top of a truck? Undoubtedly; the higher you have the centre of gravity the greater the risk of oscillation.

552. Do you not think that carrying a heavy floor on top of the truck would considerably increase it? Yes; everything which tends to increase the weight on top must necessarily tend to increase oscillation.

553. If by oscillation or surging that top floor got out of order, a very serious accident might happen if the truck was loaded with cattle? The Locomotive Engineer has told me that some arrangement has been introduced into the truck whereby the top deck cannot come down, but I have not seen it.

554. When you saw the truck the top deck was suspended only by chains, and there was a risk of its getting out of order? I do not say that.

555. Do you think it would have been safe to use the truck for cattle with a top deck suspended by chains? I should unquestionably prefer greater safety in securing the upper deck.

556. Suppose the Glebe Island abattoirs were abolished, would there not still be a considerable live stock traffic? There always will be, but nothing to what it is now.

557. The traffic is not very heavy this year in consequence of the serious drought last year? It has been very heavy this year.

558. And you expect considerable increase next year? I do.

559. Is it not desirable that the Government should at once increase their rolling-stock? Not to a very large extent, but it will be necessary to have more rolling-stock unless something is done in the meantime to establish abattoirs in the country.

560. You think that no time should be lost in getting the trucks? Live stock trucks cost a lot of money, and if there were any early prospect of abattoirs being established in the country it would be a pity to spend many thousands of pounds on new stock trucks. If on the other hand, the live stock is still to come to Sydney, it will be necessary to have more trucks.

561. In that case the sooner they are supplied the better? Yes; they ought to be supplied before next season.

562. Even if abattoirs were established in the country I assume that there would always be use for cattle trucks? I imagine that the abattoirs would be established at central places, like Bourke, for example. The great bulk of our stock traffic is coming from Bourke now. I do not mean to say that there would not be cattle carried by train, but the traffic would be very much less. It would be less in proportion to the extent of the killing in the country.

563. Still, the combination trucks will always be useful for goods? Yes, but ordinary goods trucks, which are much lighter, and consequently more economical, are even more useful.

564. Do you know the difference between the weight of the Wilkinson and the Evans truck? I have been told that there is something like a ton difference.

565. The Evans truck has been used for two and a half years, and there has been only one accident? Yes; and that arose from a flaw in the wood.

566. You know that there are fewer doors in the Evans truck than there are in the Wilkinson? Yes.

567. And that the Evans truck is less complicated in that respect? Yes; but you have to take into consideration that the Wilkinson truck is an end loading as well as a side loading one.

568. *Mr. Brunker.*] Is that the only difference? No, it is not; I think that Wilkinson's truck has five doors where there are three in the other; but Wilkinson's truck is so constructed that it fits into our races, the upper deck fits the upper race, and the lower deck fits the lower race.

569. *Mr. McLaughlin.*] Would not all the openings in the side of Wilkinson's truck tend to weaken the truck considerably? I think so. Necessarily the greater number of doors I should say the weaker the truck

* NOTE (on revision).—Since giving my evidence I have satisfied myself that the opinion expressed is quite correct.

D. Kirkcaldie. truck will be, but I do not care to express an opinion about that. It is a question for a designer or builder to answer.

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570. Is simplicity of construction a matter of great importance? Yes.

571. Do you consider that the Evans truck is simpler than the other? In what way?

572. As far as the doors are concerned; in getting men to understand the working of the truck? I think you could get men to understand the working of both trucks very readily.

573. *Mr. Lyne.*] Do you recollect last year whether a large quantity of wire was carried in sheep and cattle trucks to Bourke at a cheap rate? Yes.

574. That was carried as back loading after stock had been brought down? Yes.

575. By taking it as back loading you were enabled to carry it at a cheap rate? Yes; but the consigners had to wait our convenience.

576. Would not the same principle apply to combination trucks with regard to back loading, chiefly of wire? Yes.

577. *Mr. McLaughlin.*] Do you think it would be possible to apply the end-loading principle to cattle trucks? I have never heard of its being done, nor have I heard of any proposal of the kind.

578. *Mr. Brunker.*] Which gives the Department the greater amount of profit, the carriage of dead meat or live stock? That is a question which I have not gone into very fully, but I should say that dead meat would give us considerably more profit than live stock. We have not had a great deal of experience, because we have never had properly constructed trucks for dead meat.

579. But do you not carry Richards' meat? Yes; but that is a very short journey. For long journeys, we require specially constructed vehicles. I believe one is being built now.

580. There would be nothing like the same wear and tear in the trucks if you carried carcasses instead of live stock? No.

581. *Mr. Wilkinson.*] Can you tell the Committee why it is that Evans' truck has been used so seldom for cattle during the two years and a half that it has been in use? Because of the centre partition. The stock agents would not load it.

582. You have seen what is called the improved truck? Yes.

583. That has no partition? It has two moveable bars.

584. Has that truck ever been loaded with cattle? No.

585. Do you know why? No.

586. How often has it been used for sheep? I could not say exactly, but not more than three or four times.

587. And once out of the three or four times the accident happened? Yes.

588. Is it not a fact that in the country trucking yards it often happens that there are a great number of sheep trucks and no cattle trucks, or a great number of cattle trucks and no sheep trucks, and that people come with one class of stock, and find that the trucks which are required are not there. Would it not be a great advantage if they found combination trucks there? In that way it would be.

589. Do you not know that it often happens that there may be forty sheep trucks at Dubbo for four or five days and not one cattle truck? That may be sometimes the case, but not very often.

590. It would be a great convenience to have combination trucks there? Undoubtedly, if you could construct a strong combination truck useful for cattle or sheep, leaving goods out of the question altogether.

591. I suppose you know that a large quantity of goods is sent by wholesale storekeepers on the various lines? Yes.

592. It would be a great advantage to them if they were to come to Dubbo, and there were no D trucks in which to carry their goods, to find there were combination trucks? Yes, no doubt.

593. Do you know that the dead meat trade has been tried for some time by the Orange Company? Yes.

594. Do you know that that company has failed, and that operations have been discontinued? I believe so.

595. Do you know that the dead meat trade is smaller now than it was three months ago? I do not.

596. *Mr. Brunker.*] Is not the dead meat trade very much larger in the winter than it is in the summer? Yes.

597. *Mr. Wilkinson.*] You know that if you have a dead meat trade, all the offal and that sort of thing will go to waste? I cannot say, but it ought not to.

598. You say that it is a great advantage if cattle trucks are boarded up, so that the cattle cannot see out? Yes.

599. Would it not be a great advantage if the trucks were closed in altogether? Certainly, if you could get plenty of ventilation.

600. I suppose that if my truck were boarded up that objection would be overcome? Yes; as far as cattle are concerned.

601. *Mr. Lyne.*] But would there be ventilation then? I think there would be plenty of ventilation at the top and at the ends.

602. *Mr. Wilkinson.*] Is there not a great deal more ventilation in my trucks than in other trucks, through having the openings at the end? Yes; but then comes the question of ventilation for sheep. Ventilation at the ends only is not sufficient for sheep.

603. Supposing that my truck is boarded up for cattle, and that there is plenty of ventilation for sheep, and also a smooth surface for cattle, what should you say? That my objection would be removed.

604. Which is the simplest truck to convert from a cattle into a sheep truck, Evans' or mine; which has the most parts in conversion? Evans' has the greater number of parts.

605. Is it a fact that to convert my truck from a cattle to a sheep truck, you have simply to turn a handle and it carries out its own operations? Yes.

606. As a matter of fact a blind man if he were told to turn the handle, could convert my truck from a cattle into a sheep truck? If you were to lead him to the handle.

607. You have suggested two more doors in the side of Evans' truck to make them correspond with the existing trucking yards? Yes.

608. The improved truck has not been running two and a half years? No.

609. Do you not think that it would be a great advantage to stop the pressure of sheep by having the truck divided into compartments? Yes.

610. *Mr. McLaughlin.*] The partition in Evans' truck was not in the original patent, was it? I do not think it was.

611. Was it put in on the suggestion of your Board? Yes; the Board suggested that a division should be put in the sheep vans. D. Kirkcaldie.
612. What is called the improved truck is simply the same truck with that partition removed? Yes. 8 Dec., 1887.
613. And the truck is as it was when originally handed over to the Government by Mr. Evans? Yes. It is like our present cattle truck when used as a cattle truck, and like our present sheep truck when used as a sheep truck, with the exception of the doors.
614. Would it not be possible to prevent cattle looking out and seeing the engines if the curtain of Evans' truck were lowered 2 feet? I think that would take too much ventilation away from them.
615. But I mean to do it only at stations? Yes; but you would have to consider whether it would not interfere with the ventilation too much, besides there is not time at stations to attend to them.
616. *Mr. Lyne.*] Would not the cattle put their horns through the curtain? I do not think that they could get at it.
617. *Mr. Wilkinson.*] Would not the wind blow the curtain about, and thus frighten the cattle? Yes. It is a thing which might be good enough in theory, but I am afraid it would not be carried out in practice.
618. You think that in removing that partition from Evans' truck they have lost an advantage as far as the carrying of sheep is concerned? Yes; the partition is certainly an advantage for sheep.
619. *Mr. McLaughlin.*] Are there not portable bars? Yes; but I do not know how far it would be practicable to work them. I do not know how they could be run through a lot of sheep after the truck was loaded.
620. *Mr. Brunker.*] Do you not think the cattle trucks would be better without the canvas curtains. What would be the effect if they were flapping about. They would have the effect of frightening the cattle.
621. *Mr. Wilkinson.*] Are you not sure that that would be the result? Anything moving about certainly does frighten cattle. If you could board up the trucks altogether, and still give plenty of ventilation it would be better than anything you could get, but it could only be done by louvres, and open spaces must be left to admit of drivers seeing and attending to the stock.
622. *Mr. Lyne.*] You were asked whether, if there was a dead meat trade, the offal would be wasted. Do you not think that the offal would be utilized where the stock was slaughtered? I should think so.
623. *Mr. Wilkinson.*] But still the heads and horns and other things would have to be carried twice over? I went into that question some time ago pretty fully.
624. *Mr. Lyne.*] How many extra doors are there in Wilkinson's truck, without reference to end loading? I think that there are seven on each side of Wilkinson's truck, and only three on Evans'; but there is a reason for Wilkinson's truck having so many doors; he has a flap which comes on to the platform. Then there are two doors on each side above that. That makes his flap shorter, and makes it fit in with the races at the loading stations. There is a flap and four doors in Wilkinson's, and a flap and two doors in Evans' truck.
625. They cover the same space? Yes.
626. *Mr. Wilkinson.*] Practically there are only two doorways in the side of my truck? Yes.

William Scott called in, sworn, and examined:—

627. *Chairman.*] What are you? I am Locomotive Superintendent. W. Scott.
628. How long have you been connected with the Railway Department? Over 30 years. 8 Dec., 1887.
629. During that time you have had a good deal of experience of cattle and sheep trucks? Yes.
630. How long have you had experience of combination trucks? Over 2 years.
631. What truck? We have only had one design of truck in work during that time.
632. Do you know of any other designs except that one? Yes; I have seen Wilkinson's.
633. But your experience of the working of combination trucks is confined to one? Yes; Evans'.
634. From your experience do you think that the combination trucks which have been in use stand the wear and tear of carrying cattle and sheep as well as the old stock trucks? No; I cannot say that they will. They will require more repairs. There are more parts to keep in repair.
635. Do you think that in carrying stock, cattle principally, in the combination trucks there will be a tendency for the working parts to get out of order as far as the decks are concerned. I refer specially to the hinges holding the flaps? There is no doubt that the carrying of cattle will have a tendency to damage the trucks.
636. To strain them? To a certain extent.
637. Do you think that the hinges and other parts of the top deck will be liable to rust and get out of order if they are in constant use? Unless they were made of brass, or some material which would not rust.
638. Do you think that the expense of keeping them in repair would be very great? Not very great; but still it would be more costly than ordinary trucks.
639. Do you think that if many combination trucks were in use and they were left in numbers at the various stock-loading stations the expense of repairing them would be heavy? They would deteriorate if left at stations for any time without being used. If constantly used they would last longer than they would if they were left standing at stations.
640. From what you have seen do you think that the Wilkinson truck would cost as much to keep in repair as the Evans truck? There are a good many working parts in that truck, but I do not think that there would be any difference as far as repairs go.
641. Can you tell us what the present cattle trucks cost? The cost of constructing them is £114, but with everything complete the cost is £169 8s. The contract price is £114, and the wheels, springs, &c., which the Government supply, cost £55 8s.
642. What is the cost of the present sheep trucks? The contract price is £119, and £55 8s. for the wheels, &c., makes the total £174 8s.
643. Can you give us any idea of what the cost would be of converting an old stock truck into a truck on the Evans or Wilkinson pattern? If you have new cattle trucks in good condition no doubt they can be altered for £110 to make a thoroughly good job of it.
644. That £110 would have to be added to the original cost? Yes, to convert the truck into a proper combination truck.

- W. Scott. 645. Have you any idea what the Evans truck cost? It cost £260, or, with wheels, &c., £300 odd; but if there was a pattern truck of proper drawing, I think that we could get them at much less than that. I should say that they would be built for £200, or, with the cost of wheels, &c., about £250.
- 8 Dec., 1887. 646. Have you any idea what the Wilkinson truck would cost? I think it would cost much about the same; there would not be many pounds difference. I think a builder would take the contract for one as soon as the other.
647. Have you had any experience in trucking stock? No.
648. Your experience is more confined to the construction and superintendence of rolling-stock? Yes.
649. Do you think that a combination truck would be an advantage? No doubt a limited number of them would be an advantage.
650. Do you think that these combination trucks would be of value to the Department for convertible purposes of carrying sheep and cattle, leaving goods out of the question? I believe they would.
651. Do you think that a combination truck, no matter what pattern may be adopted, would be more useful for the carriage of goods and stock than the trucks at present in use? No; I do not think they would be so useful for goods.
652. Taking that view, you do not think that it would be advisable to spend any great amount of money in building combination trucks of any pattern? Only a limited number.
653. *Mr. Lyne.*] You have not much to do with the traffic? None at all.
654. *Mr. Smith.*] You spoke of the hinges of the top deck of the Evans truck being liable to rust unless they were made of brass—would it not be advisable to galvanize the iron hinges? Yes; but I have no doubt that in time the acid would penetrate through the galvanizing; of course, if they were galvanized they would last longer.
655. Galvanizing is not costly? No.
656. Do you know what the difference in the weight of the Evans and Wilkinson truck is? The difference is a few hundred weight.
657. Is it not over a ton? No. The weight of the Evans combination truck is 7 tons 9 cwt., and of the Wilkinson truck 7 tons 14 cwt.
658. Are you quite sure? Those are the figures which I have in my book; all trucks, even the same class, do not always weigh alike.
659. Do not these figures apply to the truck in which a partition was put? I believe they do.
660. Do you not know that the fact of taking the division out has been to reduce the weight from 7 tons 7 cwt. 1 qr. to 6 tons 12 cwt.? I am not aware of that.
661. Do you not know that that was stated in the report of the Board? No; I have not noticed that.
662. You are not prepared to give evidence to the contrary that it would not make a difference of 15 cwt. by taking the division out? If the truck has been weighed without the division that must be correct.
663. I will read what the Board says,—“The weights of the trucks are—with the division, 7 tons 7 cwt. 1 qr.; without the division, 6 tons 12 cwt. 3 qr.” Can you contradict that? No.
664. If that be so, then the difference in the weight of the Evans truck and the Wilkinson truck is over a ton? 19 cwt.
665. I suppose you fully recognise the extra cost which would be involved to the Department in carrying that extra ton over the thousands of miles which a truck would have to travel in the year? Yes.
666. It would be an important item of expense? No doubt.
667. I suppose that your constant effort is to reduce the weight of your plant? As much as possible, keeping sufficient strength in view.
668. You regard a plan which would make a difference of a ton in one vehicle as a matter of great importance? Yes.
669. Can you tell us what the difference in the expense would be of constructing a truck without end loading and with end loading? Approximately about £20 a truck.
670. You are competent to speak of the relative strengths of the trucks as far as construction is concerned? Yes.
671. You know that the Wilkinson truck has a larger number of doors in the side than the Evans truck has? There are a larger number of openings.
672. Would not these have the effect of weakening the strength of the body of the truck? Yes.
673. In addition to that there are the end-loading openings, would not they also weaken the truck? The more openings there are the more the framework is weakened.
674. Then in Wilkinson's truck there is an opening at the top which almost divides the whole of the roof; would not that also have an additional weakening effect? To a certain extent. You cannot get the roof-sticks right across to tie the truck together as well as you could without that opening.
675. Suppose ten big bullocks are in a truck, is it not a fact that there is an enormous strain on the ends of the truck? Yes.
676. And that, with the oscillation, in addition to the cattle moving about, great strength is required in the construction of the trucks? Yes.
677. Taking the Wilkinson truck, with all these doors, with the end openings, with a roof open almost from end to end, would you undertake to say that the truck would be strong enough, as you have seen it, to hold ten cattle? I should not like to put ten wild cattle in it.
678. From what you know of the Evans truck, would you have any hesitation in putting ten wild cattle into it? They would have a tendency to damage the flaps I am afraid.
679. But, as far as the strength of the truck is concerned, would you have any hesitation? No.
680. Have you observed the proportions of hard and soft wood in the two trucks? Yes.
681. Is it not a fact that there is a much larger proportion of soft wood in the Wilkinson than in the Evans truck? I believe there is. I saw Wilkinson's truck yesterday morning, and I observed that some soft wood was being taken out and hard wood put in to replace it.
682. What do you suppose that would add to the weight? I do not think it would add many pounds to the weight.
683. What part of the truck was it in which hard wood was being substituted for soft wood? It was in the centre of the truck, in the pillar for guiding the trays or platforms.
684. Have you noticed the method of partition in Wilkinson truck, by which two doors with hinges come out with eyes, and then a steel rod which runs from the roof through these eyes into the floor? Yes.

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685. Did you notice that these doors were of soft wood? Yes.
686. Do you consider that these doors would be fit protection for sheep or cattle, supposing the trucks were loaded half with sheep and half with cattle? For wild cattle I should have some doubt about it.
687. Would you feel that there was safety in putting stud sheep in one half and cattle in the other half, with these soft wood doors between them? I should like to see a little improvement there.
688. And a little strength? Yes.
689. Would not that require more weight? It might add a little weight, but still the framework may be made with small bars.
690. From what you can see, would you not say that the weight has been studied as closely as possible in Wilkinson's truck as it is now? I believe so.
691. Are you aware that an offer was made by a Sydney firm (Glasson & Company) to construct Evans improved truck for £140 apiece? No.
692. Are they competent people? Yes. That would not include the cost of wheels, &c.
693. *Mr. Smith.*] What would the cost of those things be? The wheels, buffers, and other fittings would cost £55.
694. Do you not consider that the Wilkinson truck has a great many parts in it; that it has a rather complicated construction? Yes; but not unnecessarily so.
695. Are there not less parts in Evans' trucks? Yes; especially the last one which was converted from a cattle into an Evans truck. There are less parts in that truck than in the ordinary Evans truck.
696. You know that there are chains at the sides in Wilkinson's truck; is it not a very undesirable thing where sheep and cattle are carried to have chains hanging down the side of the truck? Yes, but this would only occur when loaded with sheep.
697. In the Wilkinson truck, have you noticed that in the partition doors there is an opening of 1 or 2 inches through which cattle might get their horns, that is when the doors are closed to make the partition? I have not noticed any opening there.
698. Suppose there is such an opening, would not cattle be likely to get their horns through, and then begin to work their heads about and pull the doors down? They would soon do that if they got their horns in.
699. *Chairman.*] Have you had any experience of stud cattle and sheep? No.
700. Therefore you could not express an opinion as to what would happen if a mixture took place? I can imagine what would happen.
701. *Mr. Brunker.*] I suppose, if the Department are going to construct a truck to carry both stud cattle and sheep, they will find it necessary to devise means to prevent them getting together? Yes.
702. *Mr. Smith.*] Does it often occur that you want a truck to carry half sheep and half cattle? I do not know.
703. *Mr. Wilkinson.*] Have you seen the undercarriage of the Evans improved truck? It is an ordinary cattle truck converted.
704. Do you know that the undercarriage is a great deal lighter than the undercarriage allowed by the Department at present? I am not aware of that. It was a cattle waggon taken out of a number for conversion.
705. *Mr. Evans.*] One built on the last design? Yes.
706. *Mr. Wilkinson.*] You do not know that it is lighter than the undercarriages which the Department allow the contractors to use now? I believe they are all the same, that is, the last improved cattle trucks.
707. Do you not know that the axle of this improved truck is far less in diameter than the axle of any other of the trucks built? There may be a difference of a quarter of an inch in the size. The axles imported during the last three years have been increased in size.
708. Therefore they are heavier than the old axles? Yes.
709. Are not the wheels on the new trucks heavier than on those which were in use a few years since? There is not much difference, only 3 cwt. per truck.
710. Does what is called the draw-gear in Evans' truck connect one end of the truck to the other? I believe it does in the new truck, but not in the converted one.
711. If the draw-gear does not go right through the truck it would be a great deal lighter than a truck which had the complete draw-gear? A little lighter. All the new gear has increased strength.
712. And goes right through from one end of the trucks to the other? Yes; we are replacing the whole of the trucks with continuous draw-gear as fast as we can possibly get it done.
713. Do you know that the improved gear is fitted into my truck? I noticed that yesterday.
714. Do you know that in the Evans improved trucks the brake blocks are made of wood, and that the brake blocks in my truck are made of iron? I know that the brake blocks in your truck are made of iron, but I cannot say what those on Evans' improved truck are made of.
715. Do you know anything about trucking stock? I do not.
716. Suppose I were to bring down fifty sheep and five head of cattle a long distance in my truck, would not that affect your opinion as to my truck? I have my doubts about carrying wild cattle in the truck. You might do it once, but it does not follow that you could do it regularly.
717. Can you tell me the reason why the Evans truck has been loaded with cattle so very seldom? I could not say.
718. Are you quite sure that you are right in saying that some soft wood was taken out of my truck and hard wood put in its place? There was a vertical framework in which that appeared to have been done.
719. But was it originally soft wood that had been used? That I could not say.
720. Have I not put in two posts where there was only one originally? Yes.
721. And they are both hard wood? Yes.
722. Have you noticed that in my truck the partitions go from the bottom of the truck into the roof? I believe they do.
723. Do you notice that the rods are made of solid iron and not of pipes? I believe they are solid iron.
724. And do not those rods come from the bottom of the floor to the roof? I believe they do.
725. Have you noticed that my truck is braced with hard wood? I have no doubt that it is.
726. Have you noticed that where it was suggested it would be naturally weak, where there is a longitudinal flap from one end of the truck in the roof, that it is tied across with an iron bar? Yes.
727. Did you notice that it was tied at the end with cross pieces in the middle? I did not notice that particularly, but I have no doubt that it is tied in the centre.

- W. Scott.
8 Dec., 1887.
728. If it is tied in the middle with a solid iron cross bar, would not that naturally make it strong? That strengthens it no doubt.
729. Do Evans' cross pieces or his partition, with the exception of the bars which are against the door, go from the bottom floor to the roof? That I could not say.
730. Are Evans' sides braced? No, I do not think they are; but there are hollow tubes carried right through from top to bottom.
731. Are you sure of that? I am not certain of that, but I am under the impression that they are.
732. Do you not know that they only go half way up? I could not say.
733. You know that there is a plate of iron about 4 feet from the body of the truck. Is it not a fact that these pipes are screwed into that bar of iron? I am aware that the pipes are screwed in, but I do not know whether they go right through or not.
734. If they only go half way up, and the truck is not braced, would not that necessarily weaken the truck? Unless they are screwed into that plate.
735. The plate would be the only thing supporting it, and if that gave way the whole side would come out? I do not know.
736. I suppose that Mr. Bourn can give us evidence as to the construction of the trucks? Yes.
737. Do you know what sort of wood the doors of all trucks are constructed of? I think that the greater part of the frames are of hard wood.
738. What are the doors? Soft wood.
739. And the roofs? Soft wood.
740. Then in making my doors and flaps of soft wood I have not departed in any way from what the Department expect me to do? No; with the exception of hard wood frame.
741. *Mr. Smith.*] What are Wilkinson's frames made of? The dividing doors are made merely of soft wood.
742. *Mr. Wilkinson.*] But there is no frame round the dividing doors? No.
743. Do you know what sort of hinges they are hung on? I did not notice.
744. *Mr. Smith.*] What difference would there be in the weight between the undercarriage now in Evans truck and the undercarriage which would have to be put in in any subsequent ones? I should say from 6 to 7 cwt; but I cannot say positively.
745. *Mr. Brunker.*] I understand that you prepare designs? Yes.
746. Do you think it desirable, in the interests of the public, that the Department should accept either of these designs which have been offered? We should prefer making our designs if we adopted either of them.
747. Do you think that in the interest of the Department you should accept either of the designs? I do not see any reason why we should not accept them.
748. Do you think it would be any benefit to the public to accept either of them? That I could not say. If it would be a benefit to the Railway Department it ought to be a benefit to the public.
749. You said just now that some alterations were being made in the Wilkinson truck, by substituting soft for hard wood. What is the necessity for these alterations? They are considered an improvement.
750. Are they being made by the Department? No; we have nothing whatever to do with the truck.

WEDNESDAY, 29 FEBRUARY, 1888.

Present:—

MR. BRUNKER,	MR. LYNE,
MR. HAYES,	MR. SUTHERLAND.

T. H. HASSALL, ESQ., IN THE CHAIR.

Mr. Wilkinson appeared in person.

George Downe, Esq., called in, sworn, and examined:—

- Geo. Downe,
Esq.
29 Feb., 1888.
751. *Chairman.*] What are you? Assistant Locomotive Engineer.
752. I suppose that during your term of office you have had a good deal of experience of the rolling-stock of the Railway Department? I have had to do with rolling-stock.
753. Have you lately had brought under your notice some new trucks for the carriage of stock and goods? I have seen two combination trucks—the Evans and the Wilkinson.
754. Have you seen any other combination truck? I saw one several years ago.
755. Have you formed any opinion as to the relative merits of these two trucks? I have not been called upon to do so.
756. But have you not formed an opinion as to the merits of the two trucks for the purposes for which they are designed? In what way do you mean—as to the benefits of end-loading or side-loading, &c.
757. As to the benefits which would be derived by adopting one or other of these trucks in place of trucks already in use? As to a combination truck which will carry sheep and cattle one way and goods the other, there can be no question as to its advantages, provided that you have the traffic. The question of side-loading as against end-loading is one on which there is a division of opinion. Evans truck, as it is now constructed, does not provide for end-loading, therefore any opinion I may have as to the benefits of end or side loading would be valueless for comparison.
758. What is your opinion of the construction of the trucks—do you think they will do all that the inventors claim for them, that is, carry goods up country and bring stock down? I think both will.
759. Do you think that the use of these trucks would necessitate larger expenditure in repairs than is necessary to keep the present trucks in repair? I think that the combination trucks would be a little more costly in maintenance, but that is a question which would have to be tested by experience.
760. Having seen the two trucks, will you give the Committee your idea as to which you think it would be better for the Department to have? I do not think that I could form a sufficient opinion on that point without further consideration.

G. Downe,
Esq.

29 Feb., 1888.

761. Do you think that either of the trucks possess any advantage over the other? The only advantage which I see the Wilkinson possesses over the Evans truck, is that you can load it from the end, and divide it so as to make it half cattle and half sheep.

762. Has it not also a further advantage that, when loading it, you can stand erect and move the stock about? With sheep, when you are loading the bottom floor the top deck is up at the roof, so that you have room to move about. Then when the bottom floor is loaded, you lower the top deck to its place, and an opening in the roof gives you room to move about. There is no such opening in the Evans truck, but that can be arranged, if that is the only objection.

763. Can you not express an opinion as to which of the trucks possesses the greater advantage? I should require to give the subject further consideration.

764. A number of Evans trucks have been working for some time, have they not? Yes, for some years.

765. The Wilkinson truck has had no such test? No; it has only been running a few trips.

766. Do you know anything about the trials which were made between the two trucks? Nothing more than I saw in the newspapers.

767. *Mr. Brunker.*] You have had no opportunity to form an opinion as to the relative merits of the two trucks? I have not travelled with them. All that I know of them is from what I have seen in the yards.

768. Do you think there would be any difference in the cost of keeping the two trucks in repair? That could only be ascertained by experience.

769. *Mr. Lyne.*] Did you ever invent a combination truck? Yes.

770. Have you a model of the truck? I have a tracing of it at home.

771. What sort of an invention was it? It was a truck in which the intermediate floor was lifted from the bottom with screws, with sliding doors on the outside.

772. How long is it since you invented that truck? As far as I remember the Government ordered it in 1878.

773. Was it submitted to the Department? The Department ordered it.

774. In what way? The design was submitted to the Commissioner, and he ordered the truck to be built.

775. Was the invention patented? No.

776. Did you ever make any application that your invention should be considered still further? No.

777. Are either of these trucks under discussion now like yours, or anything like it? They are altogether different. The floor of my truck was framed in one, with the screws at each corner, and was worked by shafts and mitre wheels lifting the screws from underneath. There were no flaps, as in Evans truck, and no division, as in Wilkinson's truck; it was in one.

778. The reason why I asked the question was to show that you had some considerable insight into combination trucks? I do not know that you can call it considerable.

779. Having invented a truck you must have given the subject some thought? It is so many years ago, and not long afterwards I left the Railway Department and took a position in the Tramway Department, and my invention was not followed up. At the time that I speak of, Mr. Mason was Engineer for Existing Lines and Engineer for Rolling Stock.

780. You are no fool as far as combination trucks are concerned? I do not think I am.

781. Having examined the Evans and the Wilkinson truck what is your general opinion as to their relative merits? In what way would you have them compared.

782. Take them altogether—do not take any particular point, but take the whole truck—if you were going to take either of the trucks and use them on the railway, which, as a practical man, would you take? A great deal would depend upon whether we are to have end-loading or not, whether that is to be considered. If you do not consider that both will answer the purpose. It then becomes simply a matter of flaps as against lowered floors.

783. Which do you think the best? Both will equally answer the purpose.

784. Apart from end-loading, you think the trucks are about equal? I think the Evans truck as good as the Wilkinson, and the Wilkinson truck as good as the Evans.

785. You do not know anything about end-loading? It is not within my province to deal with that sort of thing. It belongs to traffic.

786. *Mr. Brunker.*] Was the truck which you made, the result of your own thought, or had you any plan furnished to you? I was furnished with no plan; I had a conversation with Mr. Mason, and out of that conversation I produced the tracing, and the Commissioner ordered a truck to be made from it. Hudson Brothers made the truck without any price being stipulated. The cost was very high. I think they charged £370 or £380 for it. Another thing was that it was considered heavy. I think it was heavier than either of these trucks, and of course the weight of a truck is always a consideration in haulage.

787. The wear and tear too? The greatest consideration is the haulage, because if you have a truck, 10 or 15 cwt. heavier than another, that is dead weight from which there is no return.

788. *Mr. Wilkinson.*] You were in the Government employ when you designed that truck? Yes.

789. Did you ask any consideration for it? I did not, in fact there was no reason to do so, it was not tried sufficiently.

790. Have you officially inspected both the trucks? If you mean by officially that I have received instructions to inspect the trucks I say "no," but I have inspected them personally.

791. Has your attention been called to something wrong in the deck of my truck through a bolt not running in the groove? I suppose you refer to the truck as it was after the last trial, when the deck was sagged. It came out of its groove.

792. What was the origin of that, and would the defect be easily remedied? There is a groove cut into the pillar for the guide to work up and down, and the cause of the sagging of the deck was that the guide came out of the groove. The guide is also the support of the deck at the bottom, so that when it came out that support was entirely gone.

793. The fact is that the guides were too short? Yes, for the side play of the truck.

794. Did you notice how they were fastened on the truck—just bolted on? They were fastened on to the deck, and worked in the groove to the side of the truck.

795. If the guides were an inch wider, or one of them, would they have come out of the groove? I do not whether there is an inch further clearance in it.

796. But it was because they were too short that they came out? That is the reason that they came out.

- G. Downe, Esq.
29 Feb., 1888.
797. What do you think would be the cost of putting in fresh guides? I do not think that your arrangement is a good one, because you cut away part of the pillar.
798. You think the groove ought to be in a different position? Yes.
799. You think that instead of taking the groove out of the pillar it should be taken out between the door and the pillar? Yes; you would keep the pillar stronger by that means.
800. Such an alteration as that would not affect the principle of the truck, it would be simply a matter of construction? Yes, you can call it a matter of construction.
801. If I were to build another truck and were to put the groove between the door and the pillar you think that would be an advantage? I think that would be an improvement.
802. Would that be a simple or a difficult matter? It is just a matter of detail of construction.
803. Would it affect the cost in any way? It would not affect the cost in any way in constructing the truck; but of course if you made the alteration now it would affect the cost of your truck.
804. *Mr. Brunker.*] The fact is that if there were defects found in either of the trucks, and the Department thought it would be an advantage to have these rectified it could be easily done? In all new things there are sure to be defects seen which science can generally rectify.
805. *Mr. Wilkinson.*] How long do you think it would take to convert my truck from a sheep into a cattle truck by raising the deck? I should think three or four minutes.
806. How long do you think it would take to convert it from a cattle into a sheep truck? Not quite so long, perhaps a minute less.
807. Have you noticed the side shutters on my truck to shelter the stock from the sun or weather and prevent them from looking out? I have seen them.
808. Are they attached to Evan's truck? No.
809. Do you think they are an advantage for goods or stock? It is a matter of opinion in travelling stock as to what excitement they get in being moved about at the stations.
810. Is there any difference in the undercarriage of my truck and that of Evans'? There is a little difference in the size of the timber.
811. And the wheels and axles? They are the same.
812. Are the axles the same diameter? Yes.
813. Are you sure of that? Yes; we are putting larger wheels and axles under Evans' truck now.
814. But I referred to the trucks as they were? The wheels and axles were lighter than yours.
815. Do you know that the draw-gear is not continuous in Evans' trucks? Yes.
816. Is it continuous in my truck? Yes.
817. Would not that make some difference in the weight of the two trucks? A little difference.
818. Do you know that the rods in my truck are all solid iron, and that those in Evans's are pipes? Yes; but do you claim an advantage on that score?
819. Would not the pipes be lighter than my rods? They would be very little lighter, because they are larger. If anything the advantage is in favour of hollow pipes as far as strength is concerned.
820. Have you noticed that my truck is braced with wood on each side from floor to top? Yes.

Henry William Larance, Esq., called in, sworn, and examined:—

- H. W. Larance, Esq.
29 Feb., 1888.
821. *Chairman.*] Where do you reside? At Orange.
822. What is your occupation? Carcase butcher and cattle dealer, combined with farming.
823. Have you had any experience in trucking stock? I have had a great deal of experience.
824. Have you trucked much in the old trucks? I have trucked in the oldest trucks of all, as well as in the new trucks.
825. Have you had any experience of what is called Evans' combination truck in trucking stock? I have trucked sheep in them, but not cattle.
826. What is your experience of the Evans combination truck? I found it very inconvenient. I could not get on with it at all.
827. What is your objection to it? You have to shift it so many times to load it. I think that you have to shift it three times, and while the shunters are moving it, you have to stand at the doorway to prevent the sheep getting out, because the doors cannot be raised until the truck has passed the platform.
828. Are there any objections as to the loading of them? I never could load them as well as I could the old sheep trucks. I had a great job with the trucks at Narromine, and I lost one or two sheep by it, they got out of the doorway while the truck was being shunted.
829. Did you not find it inconvenient to load them through the top decks being lowered—was not the space very limited? Very cramped.
830. You had to crawl about in them? You cannot get in. The only way you have is to employ a small boy or a dog. A dog is right enough for unloading sheep, but no good for loading.
831. Have you seen the Wilkinson truck? I have, but I have not loaded it; I inspected it at the Agricultural Show.
832. You overhauled it thoroughly and saw the working of it? Yes.
833. Did anything in connection with it strike you as being contrary to any other truck you had experience of? I fancy it is a great improvement on others I have seen.
834. In what does the improvement consist? For one thing you have loading sheep at the end. If you get sheep running there is no trouble to keep them going. It is sometimes very awkward to get sheep to start when you are loading half a truck, and then it is very difficult to get the last sheep in.
835. Do you think that with trucks built on the Wilkinson principle and placed in line, you would be able to save a good deal of time and trouble in loading sheep, as compared with the present system? I fancy that you could load two to one, and you would not knock the sheep about.
836. Do you think there would be any difficulty in loading up, and cutting off the requisite number in each truck? Not in the least, I think.
837. How many men would it take to do that? I think it would only take one smart man to keep count.
838. Do you think one man would be able to load each truck and shut off the sheep as required? I think so.
839. Having had a good deal of experience with stock, which truck would you prefer to deal with? I should prefer the Wilkinson.

840. It is claimed for the truck that you can carry sheep and cattle in the same truck—do you think there would be any risk of sending a consignment of valuable sheep and cattle in the one truck? Not the least. Of course, you would not think of putting many valuable cattle in half a truck. I have never trucked stud stock, but I have had a lot of experience with other stock.

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841. You know that, as a rule, stud stock are quiet, and are easily handled? Yes.

842. And that when they are put into a truck they keep pretty quiet until the end of the journey? Yes; you can put this sort of stock into almost any truck.

843. You would not hesitate about sending such a consignment? No, provided that there were not too many cattle. Three in a half truck would be quite sufficient, particularly if they were any size.

844. You think there would be no danger in conveying quiet stud sheep and cattle in close proximity to each other? Not the least.

845. Do you think if the abattoirs at Glebe Island are abolished it will be necessary to establish killing places in the country? I think it will.

846. Would not that cause a great reduction in the live stock traffic. Yes, and the meat would be far superior too. I have been sending large consignments of beef to Sydney market every winter.

847. Do you think it would increase the dead meat trade to a great extent if the Glebe Island abattoirs were abolished? Yes.

848. Do you think it would be a beneficial change in the interests of the public in their getting better meat, and in the interests of the Department in their having dead meat to carry instead of live stock? I do, because there is no comparison between the two classes of meat. If you bought a lot of cattle and killed some of them up country, and sent the meat down, and sent the other by truck to Homebush, and had them killed at Glebe Island abattoirs, when you saw the meat hanging up, you would not think the cattle had come off the same country.

849. Cannot you store more dead meat in a car than you can carry in live stock? Yes, but with dead meat you are limited to weight. You are only allowed to put 4 tons in a dead meat car, whereas a truck of cattle would weigh over 6 tons. You can put ten or twelve carcasses in one of the meat vans, and they are smaller than the cattle trucks.

850. Do you not know that stock is knocked about a good deal through being conveyed from the country to Homebush? At odd times I have run short of cattle, and I have had a few truck loads sent up from Dubbo, and it has not been like the same meat; in fact, it would not sell nearly as well as the meat from cattle which had not been trucked.

851. Have you noticed whether there is any difference between the stock conveyed by the ordinary stock trucks and those conveyed in the Evans trucks? I do not think that there is any difference in that between the Evans truck and the latest improved truck. You may get an extra bullock in the latter.

852. Have you seen cattle conveyed by the Evans truck? I have unloaded cattle from the Evans truck, but have never loaded cattle into it.

853. Do you not think there is a great inconvenience as well as danger in loading sheep under the present system, where you have to crawl about in such a limited area to get the sheep in? For my own part, I would sooner drive sheep than truck them under the present system. The latest Evans truck is an improvement on the first one I saw, which was divided, and which you had to shift five or six times to fill. In the latest truck the partition has been taken out, so that you have only to shift it half the number of times that you had to shift the other one.

854. *Mr. Hayes.*] Is there any difference in loading an ordinary sheep truck and Evans's or Wilkinson's? I have never loaded Wilkinson's truck.

855. Taking the two which you have loaded, which is the easier to load? The ordinary sheep truck, two to one over Evans's.

856. *Mr. Brunker.*] You refer to the ordinary trucks with open decks above and below? Yes, they are so constructed that you can keep two races going at once, one for the top and one for the bottom deck.

857. *Mr. Hayes.*] As far as safety in carrying sheep is concerned is there any difference? I do not think there is, but you knock the sheep about a good deal more in getting them into the Evans truck.

858. *Mr. Brunker.*] I suppose the safety depends upon the manner in which you truck the sheep, the number you put in? Yes; if you fill a truck fairly well, not crowd it too much, the sheep are a good deal safer than if you put them in pretty slack, because they get knocked down in shunting. Under loading is as great a fault as over loading.

859. How long have you been engaged in trucking stock? I have been in the butchering line 15 years, and it is about 8 years since I commenced dealing in stock.

860. The inconvenience to which you refer in loading the Evans truck arises from the door dropping between the platform and the truck? Yes; you cannot raise the door at the platform, and after you have loaded the truck you have to sit in the doorway while it is being shunted past the platform.

861. You say that you have had no experience of end-loading? None.

862. From the experience you have had in trucking stock, and from what you have seen of the two trucks you think it would be a saving in time and labour to introduce end-loading in place of side-loading? From what I can see of the Wilkinson truck you can load it from the present races almost as well. You can open the side door of one truck and open the end doors of other trucks, and then when you get the sheep on the run you can fill them all from one race. That is where I think that the Wilkinson truck is a great improvement on the Evans truck. Of course, you could load the Wilkinson truck better from the end if you had the races so constructed.

863. What I mean is that if conveniences were provided [for end-loading instead of side-loading there would be a saving of time and labour? I think so.

864. If you can carry ordinary cattle in a truck of course there can be no danger in carrying valuable stock, which are generally quiet, in a similar truck? Not in the least; if I had valuable bulls or sheep I think I should certainly have a truck to myself.

865. *Mr. Wilkinson.*] Leaving the end-loading out and considering the side-loading, do you not think that my truck has advantages over the other for the reason that you can walk about while loading the bottom deck and distribute the sheep, and that with the opening in the roof you can walk about to distribute the sheep over the top deck? I have noticed that there is much more room in your truck than in Evans's.

866. In loading sheep in the old trucks have you not found a great deal of trouble in getting in the last four or five,—have you not sometimes to force the sheep in with your foot and pull the door to; and are not

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- not some sheep often left lying there? The first and last are always the worst to get in; you sometimes have to carry them in; but I do not know that you might not have to carry them into your truck.
867. The sheep do not distribute themselves evenly all over the truck? No.
868. The only way to remove them from the door is to prod them? Yes.
869. Would not that be done away with by being able to walk through the sheep? Yes; because you could scatter them about.
870. Is it not an advantage to be able to shut out stock from view if necessary? Cattle particularly. I do not think it matters much with sheep.
871. Do you not think that the shutters on the outside of my truck are an advantage for protecting stock from the weather, and keeping them from looking out? No doubt the shutters would keep the rain and wind out.
872. Would it not be an advantage during hot weather to have the shutters closed on the sunny side and left open on the shady side? It would be an advantage if you were going in one direction, but our railways wind about, so that the position would always be shifting.
873. Take the line from Bourke to Dubbo, which is straight, would it not be an advantage there? Of course it would make it much cooler for the stock.
874. Have you seen any other truck, which has these sliding-shutters, which you can open or close at will? I fancy that the Evans truck has a blind.
875. What is it made of? Canvas.
876. *Mr. Evans.*] I suppose that if that is lowered it will answer the same purpose? Yes.
877. Would you not want a man to each truck, to lower it if wanted? When you are sending consignments of stock you usually send a man with them, and it would be his place to regulate the blinds. It is his duty to attend to the cattle, and to get them up if they are down.
878. *Mr. Wilkinson.*] Is it not an advantage to have the sides of the truck open, so that if a beast is down you can get him up? The great objection to some of the existing trucks is that there is no open space through which you can get the cattle up when they are down.
879. Have you noticed that by removing the sliding shutters in my truck you can get at the cattle anywhere? I have noticed that there is more opening in your truck, more chance of getting at the cattle.
880. *Mr. Brunker.*] You referred just now to the difficulty of loading trucks, and said that it was necessary to put in a boy or a dog. Would that occur in the Wilkinson trucks? I fancy there is much more room in that truck. You would have to go in the top deck at any rate; but I do not think it would be so inconvenient, because I fancy the truck is much higher than the Evans truck.
881. *Mr. Lyne.*] Are you not aware that the roof of Wilkinson's truck opens, so that in loading the top deck you can walk about? I have not seen it open.

THURSDAY, 8 MARCH, 1888.

Present:—

MR. BRUNKER, | MR. LYNE,
MR. HAYES.

T. H. HASSALL, ESQ., IN THE CHAIR.

Mr. Wilkinson appeared in person.

Mr. Bruce Smith appeared on behalf of Mr. Evans.

George Trotter Evans, Esq., called in, sworn, and examined:—

G. T.
Evans, Esq.
8 Mar., 1888.

882. *Mr. Smith.*] What are you? Stores Superintendent of the Railway Department.
883. How long have you been in that position? Fifteen months.
884. What were you before that? Goods Superintendent.
885. How long were you in that position? Eight years.
886. How long have you been in the service of the Railway Department altogether? About twenty-one years and two months.
887. Your experience has been very varied, has it not? Yes.
888. What did you begin at? As porter on the line.
889. You have worked your way up through different grades until you have reached your present position? I have held every position, I think.
890. Among your experience you spent some years at Sutton Forest? Yes.
891. How many? Three and a half years.
892. What were your duties there? I was first porter, and afterwards head porter.
893. As porter, what work had you to do in connection with stock? I had to assist in loading.
894. Any particular class of stock? No, cattle and sheep. Sutton Forest was then a terminus. I think I commenced there in 1866.
895. You also occupied the position of live stock superintendent? Yes.
896. For how many years? That was in conjunction with the goods superintendence—for about eight years.
897. Among your duties was that of arranging for the conveyance of live stock? Yes.
898. You had some experience of the old system of carrying stock? Yes.
899. And you had opportunities to observe its inconveniences? Yes.
900. In consequence of that experience, I believe, you set your mind to work upon establishing some improvement in the method of carriage of stock? Yes.
901. How long is it since you first began your experiments? I think about six or seven years.
902. I think that there had been other experiments before that in this Colony? I believe so.
903. Is it not a fact that the Government built a truck some twelve years ago? Yes.
904. What was it for? The conveyance of cattle, sheep, and merchandise.
905. On any new principle? Yes, as a combination truck.

906.

G. T.
Evans, Esq.
8 Mar., 1888.

906. Do you remember what that truck weighed? I am not certain, but I think about 11 tons.
907. It was very heavy, and was condemned and abandoned? Yes, after the first time that it was tried.
908. Since six or seven years ago, when you commenced making your experiments, you have been working at your truck? Yes, off and on.
909. You have a workshop of your own? Yes; I spend all my spare time there.
910. How many models did you make before you made the one which you are about to show the Committee? Three.
911. I believe that in your first model the flap went up to the roof? Yes. That was the first idea.
912. You abandoned that? Yes.
913. What was your second model like? That had a door in the centre of the side of the truck instead of at the end of the side of the truck.
914. I believe that was very heavy? Yes. [*Truck exhibited.*]
915. I believe your third model was like the one you have just produced, without the partition? Yes.
916. At whose suggestion was that partition put into the truck, making the fourth model? The Live Stock Board which was appointed.
917. The object of that was to divide the sheep or the cattle into two lots? Yes.
918. I believe that that division requires great strength? Yes.
919. The model which you have produced is your own work? Entirely; I made every bit of it with my own hands. I have done everything in the way of inventing it. I never had an idea from anyone.
920. Up to the time you constructed the model from which the trucks now in use were made, did you ever hear of Wilkinson's truck, or of Mr. Wilkinson in connection with the question of trucks? No.
921. Did you ever hear of Mulholland's truck, or of Mr. Mulholland in connection with the question of trucks? No.
922. Did you ever hear of Mr. Perry in connection with combination trucks? No.
923. The model which you have produced is a model of trucks now in use by the Railway Department with one or two exceptions? Yes.
924. The trucks of which that is the model, with one or two exceptions, have been in use by the Railway Department for how long? Two years and ten months, I think.
925. How many of them? Fourteen.
926. *Mr. Brunker.*] Have the whole fourteen been in use during that time? Yes.
927. *Mr. Smith.*] They were all ordered and started at the same time? Yes.
928. They were made by Hudson Brothers? Yes.
929. In accordance with your instructions? I superintended the construction of them.
930. Have you ever received any money whatever or any consideration whatever from the Railway Department for the use of these trucks for two years and ten months? Not a single shilling from anyone.
931. No consideration of any kind? Not from anyone.
932. I believe that an estimate has been made as to the amount per mile saved by carrying sheep and cattle in that truck as compared with the old-fashioned trucks? Yes.
933. What is the difference for each truck? I could not say from memory.
934. During the two years and ten months has anything ever happened in any way to mar the complete success of your truck as a cattle truck? No.
935. Did you ever hear of any mishap of any kind, as a cattle truck, to the truck itself or to the cattle? I have heard of a case recently where a beast got down, or something of that sort.
936. Is that the only case that you have heard of? Yes. I would not say that during the whole time there has not been a sheep or two dead in them. I do not know whether there has or has not been, but I do not think that there has been.
937. As far as cattle are concerned, with the exception of that one beast being down, you do not remember hearing of any other accidents in the fourteen trucks during the two years and ten months? No.
938. I believe that an accident did happen to one of the trucks on one occasion as a sheep truck? Yes.
939. What was that? The centre bar broke.
940. That was examined afterwards, was it not? Yes.
941. What was discovered? That it was a very faulty piece of timber.
942. That fact was duly reported? Yes.
943. What have you done to prevent a recurrence of that? I have strapped the bar with iron.
944. The bar which goes the whole length of the truck which on that occasion broke is now strapped with iron in every case? Yes.
945. With the exception of that instance which you mention, has there been any other mishap to the truck as a sheep truck? Not that I know of; I never heard of any.
946. You mentioned that there were some exceptions between your truck as now in use and the model before the Committee. What are those exceptions? There is no fixed partition or division in the model, but in the trucks there is a fixed division.
947. Which you say was placed there at the request of or on the recommendation of a Board? Yes, and at the request of the Commissioner for Railways.
948. What other exception is there? In the model there is only one door, at the end of the side of the truck, but in the truck now in use there is a door at each end of each side of the truck.
949. There was no necessity for a door at each end of each side when there was no partition? No; the extra doors are necessary because of the division of the truck.
950. Are there any other exceptions? I think those are all.
951. How many doors are there altogether in each of the fourteen trucks that are now running? Twelve.
952. Does not a part of the door when it opens form a stage from the truck to the platform? Yes, the bottom part of the door.
953. And it is corrugated for the feet of cattle? Yes, to prevent cattle slipping.
954. Does that door drop on the platform, or down to the side of the platform? It is the lower half of the door which forms the stage. But I may explain that our sheep yards are not all built alike, in fact, it is hard to find two alike.

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955. *Chairman.*] I understand that the lower half of the door forms the floor of the landing stage? Yes. At some of the sheep yards there is a flap fixed to the platform. This is necessary, because the doors of our sheep vans slide along. This flap attached to the platform is used as a stage between the platform and the truck. At no two yards, or hardly any two, is that stage the same distance from the truck. Some times it is placed within five or six inches, in some cases closer than that, in others it is a foot and a half.
956. *Mr. Smith.*] How does that bear on your truck? In this way. It is impossible to make a truck, I do not care how you design it, which would fit all the stages, because there are not two of them alike. Where the stage is very near to the trucks, and the posts of the races are consequently close to it, there has not been room for my door to drop down with the truck at the platform, and consequently it would have to be lowered before the truck was brought to the platform. At the very next station probably it would fit all right. At some of the stations I know that it has been necessary for parties trying the truck to drop the door away from the platform and use the false door attached to the platform for the purpose of loading the sheep-vans.
957. *Mr. Brunker.*] Is it not a fact that at some of the stations there are no races for loading, but simply places for unloading? I do not think we have any on the southern and western lines.
958. *Mr. Lyne.*] It has been stated by one or two witnesses that when you drop the door down there has been great inconvenience in having to run the truck beyond the platform before you can put the door up? Where the stage has been close to the truck and the posts consequently close, the door would not fall down to the stage, therefore it has to be opened before it comes to the stage, when the truck would be pushed up. When the sheep are loaded of course the truck had to be pushed past the stage to get the door up.
959. *Mr. Brunker.*] Is it not a fact that the party loading is compelled to stand in the doorway to keep the sheep in? The truck is pushed along about 3 feet.
960. *Mr. Smith.*] With your truck these flaps on the platforms would be quite unnecessary? Yes.
961. You always carry with the truck a platform, which forms part of the door? Yes.
962. *Mr. Brunker.*] But suppose it falls against the race? It may be only a matter of moving the two posts back 6 or 8 inches.
963. *Mr. Smith.*] Otherwise there would have to be hundreds of flaps all over the country instead of their being carried with the trucks? Yes. To show how absurdly some of the yards are constructed, I may mention that the flap at Dubbo, which has to convey only one sheep at a time over a space of 18 inches, weighed 190 lb., hinges and flap. I took it off for a curiosity. A flap of half-inch boards would have answered all purposes. A man would have to lower and lift that every time a truck had to be loaded.
964. How many of these flaps would there be at each station? There would be only one at each station.
965. Then each truck would have to be moved up to it? Yes.
966. You have seen Wilkinson's truck since some modern alterations were made in it, and is it not a fact that he has adopted your floor? Yes.
967. Will you explain to the Committee what that floor is and how it is constructed? I had better explain the difference between the old cattle waggons and my truck. The floor of the old cattle waggons was simply composed of big thick battens nailed or screwed to the floor of the truck, and about an inch and a half square. Of course it was impossible for a big heavy bullock to stand with anything like comfort on such a floor. He would be bound to get one trotter or other on to the cleat of wood. This floor was a great deal the cause of cattle not standing steady in the trucks. I had seen this from practical experience of many years, and was determined to make a better floor if I could.
968. What effect had that floor on the hoofs? Very frequently it made the cattle bleed between the trotters. If you looked at an old cattle waggon loaded with ten cattle you would see every beast with one or other of its feet or half a hoof resting on one of the battens, spreading the hoof out.
969. How have you obviated that? My floor is constructed of planks 3 inches wide, with half an inch space between each one to allow urine and manure, to get away as much as possible, with iron cleats longitudinally from end to end of the trucks. There is no projection above the floor of more than half an inch.
970. What is the advantage of allowing that free drainage? It permits of the urine running away and prevents the floor from becoming wet and slippery. It is a very strong floor as well as an everlasting floor. The iron cleats prevent the hoofs of the cattle from wearing the boards out. I may mention that one of the greatest difficulties to overcome was a first-class floor, and I devoted a great deal of thought to it.
971. Have you ever seen a floor of that kind before? Never in my life.
972. Everyone who has seen it has approved of it? Yes.
973. Even Mr. Wilkinson? Yes.
974. *Mr. Brunker.*] The most essential point in connection with the floor is to provide for carrying the stock safely? Yes. I devoted a great deal of time to the point, and I tried a great many plans before I hit on the one which has proved so successful.
975. *Mr. Smith.*] Do the cattle ever bleed in the hoofs now? No.
976. Have you ever known a case in your trucks in which they were bleeding? No.
977. *Mr. Brunker.*] I suppose you know from experience that if one beast had its foot injured and got down it would affect the conveyance of the whole truck-load? Yes.
978. There is likely to be a smash all through? Yes.
979. *Mr. Smith.*] Will you explain the method of the ventilation at the end of your trucks? It is by hollow ends with an opening for each deck, and there is a current of air going right through the truck at all times.
980. Is it possible for sparks to get in? Quite impossible.
981. Is it possible for rain to get in? Quite impossible.
982. And yet your method produces a splendid draught? Yes.
983. Have you ever seen that method before? Never.
984. What was the method before that in the trucks used by the Department? Some years ago we tried louvres, but we had to abandon them for sheep trucks, as there was great danger of the wool being set on fire. Wool is one of the easiest things to set on fire when the yolk is in it. When it starts to burn it burns quickly.
985. Have you ever known a case of fire in the fourteen trucks during the three years? No.
986. Have you had any reason to desire an alteration of your method? Not the slightest. It is giving the greatest satisfaction.

987. I believe that, under the old method, the ventilation was almost *nil*? Yes; the ends were completely blocked up.
988. Will you explain to the Committee what the internal sides of the truck are like when it is a cattle truck? The sides are perfectly smooth all the way round. The great point in the truck is that it is impossible for cattle to get their horns or legs fastened. The top deck comes down as it is in use at all times.
989. What is the necessity for smooth surface in a cattle truck? That is a most important thing. All the old cattle waggons were designed with bars at the bottom and right through, but we found it absolutely necessary to board them up on the inside to prevent the cattle from getting their legs and horns fastened and being thrown down. I suppose there are more cattle killed through that than through anything else. It was a common thing to have cattle killed in the trucks until we had the sides boarded down.
990. In your truck as a cattle truck, the boarding at the sides is the top deck when it is used as a sheep truck? Yes.
991. The necessity for the smooth surface is on account of the rubbing? Yes.
992. What happens if there is not a smooth surface? The cattle get fearfully bruised. It is impossible for a bullock to get fast in my truck in any way whatever. He cannot get his legs through. If he got his legs through on the diagonal braces in the old trucks it was impossible to get him out.
993. Did that often occur in the old trucks? Very frequently; so much so that we had all the trucks boarded down to prevent the possibility of it. That was done on the recommendation of the Live-stock Board.
994. Have you ever known a case during the two years and ten months your truck has been in use in which a bullock has got his feet through? No.
995. You never heard of such a case? No.
996. Will you explain to the Committee the advantage of the board above the bars at the top of the truck? That is the rubbing rump board. It is put there to have a perfectly smooth surface where the rumps of the cattle are.
997. Without such a board they would get bruised? Yes.
998. What other advantage is there about that board? It prevents the cattle looking out of the trucks.
999. What was the result of the cattle looking out of the old trucks? When cattle look out of the trucks they get frightened and knock each other about, and get fearfully bruised.
1000. Can they look out of your truck with that board there? Unless they are very big cattle they cannot.
1001. *Mr. Bruncker.*] But that board will not prevent people looking in? They can look in, but I forgot to say that I propose raising the board a little higher, not more than 6 inches. I think that would be an advantage. I should also like to point out whilst speaking about cattle waggons that there is a great advantage in having a door at the end of the side instead of having it at the centre. That was one thing which struck me when I first started.
1002. *Mr. Lyne.*] Is not that the case with the present cattle waggons? No; mine is the first truck run in New South Wales with the door at the end of the side.
1003. Have not the ordinary trucks which are being built now the doors at the ends of the sides? No, in the centre. The great difficulty with a door in the centre is that if you get a big bullock in he reaches almost across the truck, and you have to twist his tail and knock him about tremendously to get him to move to make room for others; but with a door at the end of the side the cattle rush in to the other end. They follow in in single file. There is no knocking about or jamming of the cattle.
1004. *Mr. Smith.*] I believe that with the trucks with the doors in the centre it is a common thing to twist the tails of the cattle? Yes, to break the tail of every bullock loaded, to treat them in a most brutal manner.
1005. *Mr. Bruncker.*] What is the effect of the door at the end of the side in unloading? It is a great improvement on the old system. Supposing you have one of the old trucks loaded with cattle there is always a bullock in front of the door, and directly you drop the door the cattle make a go for it, and often they get fearfully jammed against the posts. I have often seen them drop down after being jammed in unloading; they get more bruised in 2 or 3 minutes in unloading than they do during the whole journey in the trucks; sometimes half a dozen will jump over a bullock that has got down; it is remarkable to see the difference when you are unloading with the door at the end of the side; you drop the door, and the bullock opposite it comes out; the rest of the bullocks do not see the door until they begin to draw out; they remain perfectly still, and come out in single file as quietly as possible; I have never seen a beast jammed.
1006. *Mr. Smith.*] Have you seen a beast jammed in your trucks in unloading during the last three years? No; I do not believe that you could make them jam.
1007. *Mr. Bruncker.*] I suppose the reason of that is that the door is blocked by the end of the truck? Yes.
1008. *Mr. Smith.*] You say that this is the first truck constructed in that way in this Colony? Yes.
1009. Will you explain to the Committee about the strength of your truck? That is a very important thing. The centre piece and the bottom piece of my truck are made of angle iron; the sides of the present cattle and sheep trucks are all morticed and tenoned; therefore, the strength of the sides and the uprights is that of the weakest part, which is the tenon; the wood is all cut about, and there are mortices into the bottom framing, where water and urine get in and rot the wood; in my truck the angle-iron pieces run the full length of the truck; the bars are gas pipes, which are light, but still very strong; they are screwed into the angle-iron pieces, so that the side of the truck is like a solid girder; it is on the same principle as a girder bridge; you could put any weight on the top of that because it is all bound together; there is no need to have diagonal braces to prevent the truck joints from working loose, as has been proved by the three years running; there has never been a joint which has moved in all the trucks during that time. Another advantage of the side of my truck is that it gives such splendid ventilation to the sheep; you cannot beat it in that respect; it is impossible for the sheep to get their legs or horns fastened; the bars go right through, and down from top to floor; and each bar not only prevents the sheep from getting out, but it acts as a splendid brace for the truck.
1010. *Mr. Lyne.*] Is there not any difficulty about sheep's feet slipping between the bars? There is nothing to prevent them putting them back again. The advantage of my plan is that it enables me to

G. T. Evans, Esq., carry the posts the full thickness—3 by 4 inches—right through the trucks; there are no mortices or tenons, and there is no place for water to get in to rot the timber. The life of my truck must be ten times that of the present trucks.

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1011. *Mr. Brunker.*] Are the bars which are made of gas pipes supposed to carry as much weight as they would if they were solid? Yes, and even more; they give you lightness, which is a most important thing; splendid ventilation, and immense strength.

1012. *Mr. Smith.*] You have known cases of sides bursting out of a truck? Yes; I have known the sides to burst right out, where there is only an inch tenon; that is the strength of the truck, and when pressure comes there it must give way.

WEDNESDAY, 14 MARCH, 1888.

Present:—

MR. BRUNKER, | MR. HAYES.
T. H. HASSALL, ESQ., IN THE CHAIR.

Bruce Smith, Esq., Counsel, instructed by J. McLaughlin, Esq., appeared on behalf of the Proprietors of the Evans Australian Combination Truck. W. B. Wilkinson, Esq., appeared in person.

George Trotter Evans, Esq., recalled and further examined:—

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1013. *Mr. Smith.*] Suppose, in addition to the doors at the sides, you were to put doors at the ends of your truck,—what effect would that have on the strength of the truck? A very great deal. A solid end to the truck is of the greatest importance, so much so, that we have found in our present brake-vans that the weight of the vans and the oscillation shakes all the joints, and recently we have put in iron diagonal braces across the ends of the vans from each corner. These brake-vans have solid ends, morticed and tenoned, and braced together, but owing to the large surface and the oscillation, with trains going round curves, the joints have given way.

1014. By placing doors at the end of the truck, is it not a fact that you divide the truck the whole way up from top to bottom? Yes; and you must weaken it very much indeed.

1015. From your experience are you able to say whether the carrying of the stock is a strain to these trucks? A tremendous strain.

1016. In what way, apart from the crush? The weight of ten head of cattle is enormous, and when the train is going round a curve the oscillation of the trucks throws the whole weight of the cattle against the sides, first one side and then the other. This is something enormous, apart from the straining from the cattle moving about and crushing past each other. It requires a strong truck to stand this strain for any length of time.

1017. Do you consider it possible to construct a truck to carry ten heavy cattle, the truck having two doors at each side and end doors, and yet be strong enough to do the work? I do not think it possible to build such a truck which would last twelve months.

1018. You know of no such truck which has been subjected to a twelve months' trial? No.

1019. How high is your truck as compared with the ordinary cattle truck? It is a foot higher on the sides and 18 inches in the centre.

1020. If your upper deck, instead of being lowered down to form the rump boards or sides, were lifted up into the roof, what effect would that have on the height? It must take away 6 or 8 inches; that is if you have a floor strong enough to carry sheep.

1021. You know that in Mr. Wilkinson's truck the upper deck goes up into the roof,—what effect has that upon the height of the truck? It must reduce the height for cattle.

1022. Have you measured the height of his truck? No.

1023. In your truck the whole of the upper deck, instead of being in the roof, comes down to the side? Yes.

1024. What is the advantage of the great height? It prevents the cattle knocking their heads and breaking their horns; they can keep clear of one another.

1025. Is it not a fact that in a low truck, when cattle have struck their heads once or twice, and experienced a difficulty in getting their heads up, they get into the habit of keeping them down? Yes, and they get their horns mixed up and gore each other, and a lot of injury is done.

1026. Is there sufficient height in your trucks to enable the bullocks to hold their heads up to their full height? Yes; it is impossible for a bullock to strike its head against the roof in my truck.

1027. *Mr. Brunker.*] I suppose that the greater height increases the ventilation? Yes; the more space you have the greater ventilation you get. My truck is so constructed that the foul air rises and gets out at once. I purposely designed my truck with a high roof, because in the whole of our cattle waggons there is not an inch of space on the inside of the roof which is not indented with the horns. You can see that in every truck.

1028. *Mr. Smith.*] Your trucks have been running two years and ten months; are there any such marks on the roofs of them? Not a mark at all.

1029. I want you now to treat it as a sheep truck; will you point out to the Committee how the bottom floor is adapted for sheep? It is suitable for sheep in the same way as for cattle. It is impossible for the sheep to slip in any direction, and there is plenty of space between each board for the urine and a great deal of the manure to escape.

1030. If you had adopted the plan which was adopted in the old cattle trucks, where there was a drop of nearly three-quarters of an inch between one board and the other, would that have been suitable for sheep? Not nearly as suitable as my floor is.

1031. You claim to have secured a floor which, while being better for cattle than the floor of the old truck, is at the same time equally better for sheep? Yes.

1032. Now, I want you to explain how the top floor is constructed for sheep? The first thing to consider is that you cannot have too much ventilation for sheep, especially at particular times of the year. It does

not

not matter so much immediately after shearing them, when all the wool is off the sheep, but when they are in full fleece it is of the greatest importance that in wet weather they should have the best ventilation that it is possible to give them. The movable deck in every kind of combination truck which has ever been invented in the world has always been taken to the roof, and that has been the cause of failure to invent combination trucks which would stand the wear and tear and answer the purpose for which they were intended. If you put the dead weight in the roof, that is the worst place in the truck in which you can carry it. You make the truck top heavy. No matter how closely you make the top floor to fit—and the closer you make it to fit the harder it is to work, because the manure gets round it and prevents it working—the tremendous bumping and oscillation of the truck tends to knock it all to pieces. It is on the same principle as the battering ram. These loose floors swinging in the roof must knock against the top of the frame of the truck with every surge that the truck gives, and necessarily the strain must cause the joints to give way. Apart from that the top deck is never in use except when sheep are being carried in the top part of the truck. It is of no earthly use except for that purpose, and in every combination truck ever invented it has been so much dead weight when not used for carrying sheep.

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1033. You claim to have utilised the top deck? Yes; mine is quite an original idea. There is no other combination truck in the world in which the top deck is utilised for the purposes for which I utilise it. When it is not required for sheep it is used as a side board to the truck to prevent cattle getting their horns and their hoofs through the bars. When the truck is not required for cattle the top deck goes up out of the way, and thus you have the most perfect ventilation in the bottom as well as in the top of the truck. Another advantage is that the weight is always in the centre of the truck; it never goes beyond the centre.

1034. Will you explain to the Committee the construction of the top floor, and show how it is adapted for carrying sheep? The floor is made of inch pine underneath, with half-inch on top, with grooves cut into it, forming corrugations to prevent the sheep slipping in any direction, and at the same time when it is down it forms the sides which prevent the cattle hurting themselves.

1035. Is it not a fact that these corrugations run up and down, so that when the deck is lowered all the urine runs off? Yes.

1036. There is a little difference between the way in which you arrange things for lifting the upper deck in the model and in the truck itself; you have a little chain in the model which you have not in the truck? Of course that could be applied to the ordinary trucks, if necessary. It would save perhaps half a minute in the time of altering the truck, which is very little; but in the truck I have avoided in every particular the introduction of any unnecessary machinery, because machinery always requires attention. You cannot find any simpler way of closing the door than I provide in my truck of working it with your hands, or any simpler way of raising the deck than by raising it with your hands. In the model by a simple handle you can lift the whole of the deck without the slightest trouble, it is done in a few seconds. But to avoid increasing anything in the shape of machinery, to make the truck as simple as possible, I left that part out because it is better left out.

1037. The flaps which form the upper deck are very light? Yes; one man can lift them with one hand without the slightest trouble.

1038. *Chairman.*] But in the model the flaps run the whole length of the truck? If the flap is divided into two as in the truck one part overlaps the other, so that you could apply the chain in the same way. Two men can lift the flap for the whole length, but I have divided it into two so that one man can lift it with perfect ease.

1039. *Mr. Smith.*] In the truck you have hooks which go into the roof, and which come down and hold the decks in position until the centre bar is lowered? Yes. If the members of the Committee will look at the model with the upper deck fixed they will see that there is splendid ventilation for sheep. You cannot possibly conceive anything better than that. The sheep cannot get their horns or legs fast in any way.

1040. The top deck being suitable for sheep is at the same time smooth enough to be used as a side board for cattle? Yes. As to the division of the truck as a sheep-van I may say that there are some squatters who think that it is an advantage, and others who think that it is not an advantage. Our trucks used to be divided, but on the suggestion of people who used them the divisions were taken out. The ordinary sheep-vans have no divisions, but in case anyone wished to divide his sheep I have provided a simple means of doing it in my truck. It does not interfere with the good work of the truck in any way, and it does all that is necessary. I have a couple of division bars for each floor, which are so put in that it is impossible for them to work out unless they are taken out. The advantage of having these movable division bars is that you will always have plenty of space for ventilation. If you have a fixed boarded division the whole of the sheep against that division get no ventilation, and in summer time full fleeced sheep would be bound to smother against a fixed division.

1041. What are these division bars made of? Wood.

1042. How are they fastened into the upright? That is done very simply, as you will observe, and it is impossible to take them out until they are released. When not in use they are carried in the end of the truck without any fastenings at all. They only weigh a few pounds, and they are always ready for use.

1043. We have heard a great deal about end-loading; you have had some experience of it I suppose? I have.

1044. Will you state what it has been? Thirteen or fourteen years ago, at the instigation of York Brothers, we had about sixteen trucks built for end-loading. They were tried at Wallerawang Station and at Sutton Forest, and after a few trials they were abandoned as perfectly useless. It was found that there was no advantage to be gained by them owing to the time occupied in opening the doors, fastening them open, and then closing them. Then a great difficulty was experienced in getting the sheep into the different trucks in running them through all the trucks.

1045. How was that difficulty experienced? In distributing the sheep into each truck; you could not possibly count them, you had to go right through the trucks and drag one sheep along to get the rest to follow. You were bound to drag one sheep right through unless you had a trained sheep to lead. The least thing in life at the side of the truck—a dog running past, for example—would stop the sheep running, and you would have to go through the same process of dragging another sheep through to get the others to follow.

1046. Did those fourteen trucks have a fair trial? Yes.

1047. You say that of your own knowledge? Yes.

1048.

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1048. And you say that they were ultimately abandoned? Yes.
1049. What was done with the trucks? The people would not use them. They refused to load them, and all the end doors were closed up and made secure, and the waggons converted into side-loading waggons again.
1050. Do you know of any similar experiments being made later than that? Yes.
1051. How long ago was that? I suppose it must be eighteen months ago.
1052. What was done then? We had six trucks altered first, at a cost of about £50 each.
1053. Who instigated that experiment? Mr. Lyne, who was then Minister. They were tried at Homebush, and the trial was anything but satisfactory. It was stated that it required a train load of trucks to be altered to give the system a fair and proper trial.
1054. Was that ever done? Yes; Mr. Lyne asked me to superintend the alteration of eight other trucks which would make fourteen trucks in all. He thought the cost of altering the first trucks was exorbitant, and he instructed me to buy the material for the other trucks as cheaply as possible, and to save all unnecessary expense. I superintended the alteration of the trucks, and I think that they cost about £30 each. Of course it was more temporary work than was put into the other trucks.
1055. What was done with the fourteen trucks? They were tried at Homebush.
1056. Were you present? Yes; I cannot remember exactly what was done, but the trial was a miserable failure, as far as success is concerned.
1057. Do you remember in what respect the trial failed? In the first trial of the six trucks, I remember that they put 400 sheep into the bottom decks. The sheep could not be stopped when they started to run, and there were only 200 left for the top decks. The men occupied about 40 minutes in loading the six trucks, and then they never counted the sheep or closed the door after the trucks were loaded, and some of the sheep actually stood in the spaces between each truck. They were not divided or counted.
1058. Was Mr. Lyne present? Yes; I may mention that when the trial of the fourteen trucks took place, I got two of the smartest men that we had at Homebush, and I instructed them to open the doors and have the trucks ready for end-loading, and I told them that I wanted them to do it as quickly as they could. It took these two men 50 minutes to open the doors and to get the trucks ready for loading. You must understand that in each of the fourteen trucks there were eight doors and four flaps to open, thus you would have 112 doors to unfasten, to open, and then to fasten open.
1059. You say that it took two of the smartest men you could choose 50 minutes to open the doors preparatory to putting the sheep in? Yes; but perhaps it took them a little longer on account of the doors being new. I am sure that no men could do it, even if the doors opened easily, under half an hour at the very least.
1060. You have seen Mr. Wilkinson's plan of end-loading. I want to know whether the doors in the fourteen trucks to which you have referred were any more complicated than his doors are? They are exactly the same. If they were made from the same drawing they could not be more alike, the fastenings, and everything in connection with them.
1061. End loading is not a new idea? Not at all.
1062. Were the sheep run into the trucks after the doors were opened? They started to run the sheep in, but there were several blocks.
1063. Did they ultimately fill the trucks? Yes; upper and lower decks.
1064. Did they shut the doors? I do not think they did. I really forget.
1065. Do you know how long it took them to load? I did not take a note of it.
1066. Do you know if the sheep were counted in each particular truck? They were not counted.
1067. Would it have been possible to count them and divide them equally into the separate trucks in a reasonable time? Quite impossible.
1068. *Mr. Brunker.*] Could not it be done if you had a sufficient number of men? It might be done if you had a man to each truck.
1069. *Mr. Smith.*] What was done with the trucks? They were put into traffic, with instructions that they were to be sent to stations, and kept together as much as possible for end loading.
1070. Were these instructions followed? As far as they could be, but within a week the whole of the instructions were capsize because the trucks got mixed up. After the first trip, I think it was at Nyngan Station, the parties refused to use them again. They would not take the trouble to open the doors and load the trucks from the end.
1071. What has been done with them? They are used just as the ordinary trucks for side loading.
1072. The ends have been fastened up? No; they have been just closed up and not used.
1073. *Mr. Brunker.*] Was Wilkinson's truck invented then? No; I think it was being thought of about that time. I think that Mr. Wilkinson wrote to me, stating that he had an idea about end loading, and asking if I could offer him any suggestions.
1074. *Mr. Smith.*] I want you to sum up your opinion concerning end loading. Do you consider from all the experience which you have had that any scheme which has been proposed so far, including even Mr. Wilkinson's for end loading is practicable? I do not think so. I have had a good deal of experience, and I say that if all the trucks were made for end loading now they would seldom be used.
1075. Did Mr. Lyne ever make any other experiment that you know of? I fancy that he did with Mr. Wilkinson's truck, but I was not present. I fancy that Mr. Wilkinson's truck was placed between the fourteen trucks which were used on another occasion. I am not sure that this was done by Mr. Lyne, but it was while he was head of the Department that it was done.
1076. I want you to say something about the principle of dividing the truck so as to carry half sheep and half cattle? That is impossible in my truck.
1077. Will you tell the Committee about how often it happens that a truck can carry half sheep and half cattle? It would be impossible to tell how often, but very rarely.
1078. In your experience was it required once in three months? I am quite sure it was not.
1079. *Mr. Brunker.*] With regard to the traffic, if that principle were adopted it would make no difference in the charge; a person has the option of engaging half a truck for sheep or cattle, and he pays for half a truck? That is all.
1080. If you want to send half a truck of cattle or sheep from Bourke to Sydney you can send them? Yes.
1081. *Mr. Smith.*] Supposing you wanted to send half a truck of sheep and half a truck of cattle you would take a separate truck for each lot? Yes.
- 1082.

1082. *Mr. Hayes.*] Would it not be an advantage to the Department to have a truck in which you could carry half sheep and half cattle? It would be occasionally.
1083. *Mr. Smith.*] How often would it occur—once a month? No. The only advantage of it would be in short distances. Say a farmer at Picton wants to send half a dozen calves and a few lambs to Sydney, then it would be a little advantage to the Department; but that very seldom occurs.
1084. Suppose it were practicable, and you were directed by the Department to have the necessary number of trucks built, how many trucks would it be necessary to provide for the convenience of the public in that respect? I think that half a dozen would be plenty, if there is any advantage; but it so seldom occurs.
1085. Regarding the division, is it not absolutely necessary if you are going to carry cattle in one half and sheep in the other half, that the division between them should be extremely strong? Very strong. It must be as strong as any other part of the truck for cattle. For sheep, of course, anything will do.
1086. You say that six such trucks would be sufficient to serve all the purposes of the Colony? I think so.
1087. You would not think of constructing 300? No.
1088. What do you suppose the division would add to the weight when not being used? That would depend upon what it was like. In my truck it would amount to about a quarter of a ton.
1089. Unless the truck is being used for the combined purpose that weight is being carried for no purpose? It is perfectly useless.
1090. Would you, quite apart from your patent, advocate the Department building any trucks of that kind with this division? No; certainly not.
1091. Do you think that it would be possible to construct a movable partition, something with doors against the sides, which would be strong enough to stand the force of five cattle against it every time the train stopped? They would have to be quiet cattle.
1092. I am talking of the worst cattle you could have? It would be impossible to construct a door that would stand the weight.
1093. I want you to point out the advantages of your upper deck as far as cleaning is concerned, compared with a deck going up to the roof? My truck simplifies matters very much, for the reason that when a truck arrives at Homebush the sheep are unloaded, and then the top deck is lowered. The sides fall down, and thus a man can walk into the truck and hose the whole thing down the sides at one service, without having to crawl about on his hands and knees. If the deck were horizontal it would be impossible for it to get dry within a reasonable time. All the water runs through the openings in the floor, and the truck is washed in a few minutes, and then it is perfectly clean. As soon as it is washed out at Homebush, the truck is attached to a train, and is then run into Sydney, and the action of the air, while the train is being run to Sydney, dries the truck completely, and when it arrives in Sydney it is as clean as can be. In fact these trucks are picked out at the Sydney goods shed for the most delicate class of goods, because they are so much cleaner than trucks which carry wood, coal, or sand, or anything else, as most merchandise trucks do.
1094. In the case of a horizontal roof being hosed out and the deck being raised, would it dry whilst at Homebush? It would take a long time. The water would be always dripping through the joints until the deck was perfectly dry.
1095. If goods were put in after the upper decks had been cleaned and lifted to the roof, it is quite possible that goods might be put in before it was dry, and that the water would drip on to the goods? Yes.
1096. There is no such thing as the dripping of water in your trucks? No; the water runs down almost immediately, and the whole surface is exposed to the air as the truck proceeds afterwards.
1097. Will you tell the Committee how your truck is adapted for merchandise? First of all, owing to the doors being at the end of the side, you can put in anything that is the length of the truck, for instance, if you have a piece of timber 18 feet long you can get it in, but if you had the door in the centre you could only get in a piece of timber equal in length to the distance from the door to the opposite corner. In my truck you can load timber and bars of iron the whole length of the truck without the slightest trouble.
1098. How are the floors of your trucks adapted for running trollies over them for carrying merchandise? Very well indeed. The floor is not so rough as to prevent the easy movement of the wheels over it. That is one difficulty that I had to consider in designing my truck. Owing to the big cleats of the cattle waggons it is impossible to take trollies into them.
1099. Will you show the Committee how you manage the tarpaulins? When the truck is not in use as a cattle or a sheep van, the tarpaulin is taken up underneath the roof and preserved from the weather and rough usage. It works on a roller, and comes down and makes the truck perfectly weatherproof for merchandise. As a matter of fact, ever since the trucks have been running, and they have been carrying merchandise every trip, we have never had a single complaint, or paid a single claim for damages to goods carried in them. We never lost a package out of them, or ever had any damage done by fire or by water.
1100. *Mr. Hayes.*] What special advantage is there in your truck over ordinary trucks for carrying goods? The door being in the end it is so much easier to load the truck than it is to load an ordinary cattle waggon. Then, with an ordinary cattle waggon we have to have three tarpaulins to cover it, because you have to put them over the top of the truck. The tarpaulins cost £4 10s. each, and one journey to Bourke is quite sufficient to wear the tarpaulins through the corners. Another advantage is this. With an ordinary cattle waggon, we will say it is in Sydney to-day, and you may load it for Bourke; you may not have any orders for cattle waggons at Bourke; you may have to wait two or three days for an order, or after having loaded it for Bourke you may not have any orders at all, and the result would be that you would have to bring the truck back empty. With my truck, if we sent a load to any up-country stations, we always have cattle or sheep coming from there, and you always have a truck available to bring cattle, sheep, horses, merchandise, or anything which presents itself. The result is with the ordinary cattle trucks, that you keep a lot of loading for Bourke at Sydney, in anticipation of getting orders from Bourke to Sydney. If you send the trucks to Bourke, and do not get an order there, the trucks have to be brought back empty, or else they have to be loaded with sheep, which would be ruinous to the Department at the price which is paid, because cattle trucks only carry one deck of sheep.

The

G. T. Evans,
Esq.
14 Mar., 1888.

- G. T. Evans, Esq.
14 Mar., 1888.
- The advantage of my truck is that it cannot be in a wrong place, no matter where it is. It is in the proper place wherever there is loading of any kind. If you want to send away ten head of horses or 100 sheep, or ten head of cattle, or a lot of grain, there is a truck ready for you. It saves haulage of empty vehicles, which is a great item on our railways.
1101. But what I want to know is, is there any special advantage in loading your trucks over loading the ordinary cattle trucks? In that respect an advantage in my truck is that if you have to load a lot of grain you can put it on a sack cart and wheel that into the truck, and take it right up to the end. It is impossible to do that in the ordinary cattle waggon. You have to pitch the grain down at the door, and the men then pitch it into the truck.
1102. Is your floor a patented one? Yes; another advantage is with regard to the tarpaulin, because you carry it with you, and it is put into position without any difficulty.
1103. Mr. Smith.] With the means of ventilation that you have at the ends of your trucks it is impossible for fire to come in? Yes.
1104. With the tarpaulins down it is impossible for fire to get into your merchandise trucks? Yes; we have never heard of a single complaint, or had any loss in any way.
1105. These fourteen trucks of yours have been running for two years and ten months? Yes.
1106. Have you ever known during that time of a single claim being paid or being made for damage to merchandise carried in those trucks? No.
1107. They have been constantly at work for merchandise purposes? Yes.
1108. Is there not another advantage about locking the doors? Yes; if you have the truck loaded with merchandise or sheep, by one fastening you can make it perfectly secure.
1109. As many doors as you have so many locks are required? Yes; I should like to point out that another advantage in the top deck coming down to form the sides of the truck is that it enables me to reduce the weight of the truck and make it very nearly a ton lighter than any other combination truck invented—the lightest of them being nearly 1 ton heavier than mine.
1110. Mr. Brunker.] How do you account for that? Because the whole side of my truck is composed of gas pipes, which are very light. It is like having no side, as far as weight is concerned. When it is necessary to form a closed side the top deck comes down and forms it. These sides are always in use in one way or another. That is one of the principal advantages.
1111. You remember that about two meetings ago something was said about your truck being fitted with old drawing gear, and that it was stated that if the trucks were fitted with the new gear they would be much heavier. Is it not a fact that you have now fitted your trucks with the new drawing gear? The cattle truck, which weighed 6 tons 13 cwt. 2 qrs., which was altered to a combination truck was an old truck taken from the Department, and altered by me. I took it as it was with the wheels and axles running under it as a cattle waggon, and I thought it quite suitable for any other purpose, but something having been said about the wheels and axles being light as compared with those in the new trucks, I said that I would not take the slightest advantage, and I asked the Government to put in the new wheels and the new draw gear under the truck, to have the truck in this respect as strong as any truck running on the line.
1112. What does the truck weigh now? Six tons 18 cwt.
1113. Can you tell me what is the weight of the lightest of the other combination trucks? Seven tons 15 cwt.
1114. Whose is that? Mulholland's.
1115. Is Mulholland's the lightest of the three—Wilkinson's, Perry's, and Mulholland's? Perry has never built a truck, and I think if he did it would be heavier than any of the others.
1116. What does Wilkinson's weigh? Seven tons 15 cwt. 2 qrs.
1117. Is it not a fact that in 1887 20,000 trucks of live stock were carried, principally from distances of from 400 to 500 miles? Yes.
1118. What would be the effect, supposing that you had an additional ton upon every one of the trucks? Suppose you had to take a truck of stock 500 miles that truck would have to be hauled 1,000 miles; that means the haulage of an extra ton of dead weight 1,000 miles to enable you to carry a truck of stock 500 miles.
1119. Did you make this calculation: that in two years and a half at this rate 70,000 tons would be carried some hundreds of miles for nothing? Yes.
1120. Did you not lately make an application to the Accountant's branch of the Railway Department for some figures as to the difference which a ton weight would make? I sent a letter to the Commissioner, from whom I received a reply. (Mr. Wilkinson objected to this letter being produced.)
1121. Mr. Brunker.] What is the weight of an ordinary cattle truck? Six tons 9 cwt. Some weigh 6 tons 12 cwt.; some sheep vans weigh as high as 6 tons 18 cwt.; and one or two 7 tons.

THURSDAY, 12 APRIL, 1888.

Present:—

MR. KETHEL, | MR. LYNE.
T. H. HASSALL, Esq., IN THE CHAIR.

Bruce Smith, Esq., Counsel, instructed by J. McLaughlin, Esq., appeared on behalf of the proprietors of Evans Australian Combination Truck. W. B. Wilkinson, Esq., appeared in person.

George Trotter Evans, Esq., recalled and further examined:—

- G. T. Evans, Esq.
12 April, 1888.
1122. Mr. Smith.] What was the weight of your truck as it was seen by the Committee when they visited Redfern Station? Six tons 13 cwt. 2 qrs.
1123. You remember that some objection was taken to your truck then, on the ground that the draw-gear was of the old-fashioned pattern,—that the old-fashioned designs were lighter than those which are now used? Yes.
- 1124.

1124. What did you do in consequence of that? I did not wish to take any advantage from that as to weight, and I applied to have the newest and heaviest of everything put under my truck—new wheels, new draw-gear, and everything else, just as they are now being used on live-stock vehicles.
1125. Is it not a fact that the draw-gear which is now used by the Railway Department other than that which is not allowed to be used in new trucks is much heavier than the old-fashioned draw-gear? Yes.
1126. To how many of your trucks has the heavier gear been applied? Only to one since then. It was on all the rest before.
1127. What does the truck weigh now that the heavy draw-gear has been fixed to it? I have not seen it weighed, but I believe its weight is 6 tons 18 cwt. 2 qrs.
1128. You have no reason to doubt that? None.
1129. What is the weight of an ordinary cattle truck? No. 151, which is one of the latest new ones, weighs 6 tons 15 cwt. I have the weight of fifteen, and they go from 6 tons 10 cwt. to 6 tons 15 cwt.
1130. That is the ordinary cattle truck without any modern appliances? Without anything.
1131. What is the least weight that the Wilkinson truck has reached? Seven tons 15 cwt. 2 qrs.
1132. And it is upon the difference between the weight of your truck and that that the calculation which has been made as to the saving is based? Yes.
1133. What is the weight of the present sheep vans? There are some as high as 7 tons 13 cwt. They go down to 6 tons 15 cwt.
1134. Those are trucks for carrying sheep on two floors? Double decked sheep vans.
1135. When it was first contemplated to make fourteen of your trucks, what arrangements were made as to the cost? The Government gave an order for the trucks to Hudson Brothers, or to me, and I gave it to them.
1136. Had any arrangements been made as to the cost prior to that order being given? Yes. They saw the model and the plans of the truck, and I asked the principal of the firm to give me an estimate of what the cost would be to build the truck.
1137. Was that estimate given in writing or verbally? In writing.
1138. Have you the letter? Yes.
1139. Did you not lose that letter? I mislaid it and could not find it for some time.
1140. After you had lost it what steps were taken about making out the account for the cost of the fourteen trucks? Hudson Brothers sent in their account for the trucks.
1141. Do you know what they charged for each truck? I did not know for some days after they sent in their account. They charged £295 each.
1142. Was that amount paid? No. I believe it was reduced to £265 for each truck.
1143. Then £265 was the actual amount paid to Hudson Brothers for each truck? Yes.
1144. Did you see the accounts at all? No.
1145. Were they ever submitted to you? No.
1146. At the time you had not the letter referred to? I could not find it then, but I found it a few months afterwards.
1147. After the estimate was given to you in writing was there any alteration made in the form or construction of your truck which would have justified the increased charge? No.
1148. None whatever? No.
1149. Is this the letter which you received?—

Mr. George Evans,—

Dear Sir,

Redfern Works, Sydney, 3 December, 1883.

I have gone into the matter of cost of the combination waggon, and estimate it to be worth, complete, £174. This, of course, includes wheels and axles and bearing springs, which at present are supplied by the Government, deducting the value of these, say £40, the waggon will be worth £134; this is exclusive of royalty, which you must add.

Yours truly,

H. HUDSON.

Yes. The letter was written by Mr. Hudson, in my presence.

1150. And the Government paid £265 for each truck? Yes.

1151. Would it involve an extra expense to build a truck according to your present model—any expense beyond what would have been required when they gave you that price? No; it could be built for much less now.

1152. If £174 was a good price then, what would be a fair price now? £150.

1153. Have you not had a price from another firm for making these trucks? Yes.

1154. What is the name of the firm? Glasson & Co.

1155. Are they well-known people? Yes; they are large waggon builders.

1156. When did you obtain that price from them? Some twelve months ago, I suppose.

1157. What price did they offer to make them for? £145 or £150 each. I think it was £145.

1158. Was that offer made in writing? Yes.

1159. Have you the letter? No; I think the offer was made to the Government.

1160. When Glasson & Company gave you that price, what particulars had they to work upon? They had the trucks to look at.

1161. When the Board sat to inquire into the relative merits of your truck, Wilkinson's truck, and other trucks, how long had your fourteen trucks been running? Over two years.

1162. *Mr. Wilkinson.*] The improved truck without the partition? No; the partition was put in at the request of the Board.

1163. *Mr. Smith.*] You say that, with the exception of this division, your trucks had then been run for two years? Yes.

1164. Was that division put in at the request of the Board? A previous Board.

1165. I believe that the Board considered your own, Wilkinson's, Parry's, and Mulholland's trucks? I think that they took evidence on each.

1166. *Mr. Lyne.*] But Mr. Mulholland had not a truck built until the other day? He gave evidence before the Board, but I do not think the Board gave marks to it, because they had not sufficient evidence respecting it.

1167. *Mr. Smith.*] At all events they had evidence on the truck respecting which Mr. Mulholland is about to submit evidence to this Committee? Yes.

1168. Who were the members of the Board? Mr. Badgery, Mr. Thallon, and Mr. Gill.

1169.

- G. T. Evans, Esq.
12 April, 1888
1169. To your knowledge, Mr. Badgery has had great experience of stock? Yes, ever since I have been in the country.
1170. Who is Mr. Thallon? Traffic Manager of the Queensland railways. He was formerly Assistant Traffic Manager of one of the English railways.
1171. Was he not brought to Sydney for the express purpose of sitting on the Board? Yes; the Queensland Government allowed him to come.
1172. Who is Mr. Gill? He is the inspector of the waggon shop in the Victorian Railway Department.
1173. He was brought here for the same purpose? Yes, as an expert.
1174. Can you tell us how long that Board sat? Three or four weeks.
1175. They held something like nine meetings? I should think more; I am not sure.
1176. How many witnesses did they examine? I do not know, but there were a great many.
1177. What kind of witnesses were they? Everybody they could think of who would be likely to throw some light on the question as to which was the best truck for the conveyance of stock. I know that they had several people from Homebush to give evidence, loaders of stock.
1178. I believe that after all these sittings, and after examining all these witnesses, the few words in which they report their decision are that your truck is the most economical and suitable in every way for the conveyance of sheep, cattle, and merchandise? Yes.
1179. As to the steps which you have taken with the Government, I believe that the Government were approached regarding your truck through Mr. Halloran, as agent for the proprietors and patentees? Yes.
1180. I believe that after considerable correspondence between Mr. Halloran and the Commissioner a letter was drawn up, in which the Department agreed to purchase your rights for £16,000? Yes.
1181. In the printed papers there is the following letter:—

Sir, Department of Railways, Sydney, 8 September, 1887.

With reference to your letter of the 5th instant, stating that the proprietors of the Evans' Australian Combination Truck design will accept the sum of £16,000 for their legal right therein, I have the honor to inform you that the Secretary for Public Works has approved of the acceptance of the terms named in your communication; but, before final settlement is made, it is necessary that an agreement should be drawn up and executed, conferring upon the Government patent rights for the use of the invention.

Instructions will be at once given to the Crown Solicitor for the preparation of the necessary document.

I have, &c.,

CH. A. GOODCHAP,
Commissioner for Railways.

- Was that the last letter which you received? Yes.
1182. Since you received that letter have you received from the Government any document for signature, or have you been asked to go to the Government offices to sign any document? No.
1183. You have asked the Government to submit the necessary documents for your signature? Yes.
1184. You have received no satisfactory answer? No.
1185. *Chairman.*] Then the agreement has not been executed? No agreement subsequent to that letter.
1186. *Mr. Smith.*] I believe that some time ago you wrote a rather lengthy letter bearing on the subject? Yes. I went to the Crown Solicitor's Office, and they told me that the document would be ready on the following morning after I received that letter. I called the following morning, and then they told me that the papers had been returned to the Attorney-General.
1187. You contend that there is a complete legal contract? Yes.
1188. You have always been ready to execute the transfer of your rights? Yes.
1189. You have been unable to get any satisfaction? Yes.
1190. Did you not write to the Department asking for information as to the saving which would be effected by a difference of a ton weight in each truck? Yes, and I received a letter from the Commissioner.
- [Mr. Wilkinson objected to the letter being read, on the ground that it would be better to examine Mr. Goodchap respecting the calculation, and the objection was sustained.]
1191. I believe that, quite apart from the desire that you have that the Government should complete the contract, by paying the money you have other objects in taking a great deal of trouble about the evidence to be put before the Committee? Yes.
1192. Is it not a fact that you are now in negotiations with other colonies for the purchase of your rights? Yes.
1193. And these negotiations are in abeyance in consequence of the appointment of this Committee to inquire into the merits of the trucks? Yes.
1194. I believe that you have patented your truck in all the colonies, in England, and in America? Yes.
1195. And you have spent a great deal of money in doing so? Yes.
1196. I believe that you were in the country the other day, and that you had some conversation with Mr. Bishop Lyne about your truck? Yes.
1197. Who is he? I think that he is a brother of Mr. W. J. Lyne, M.L.A., and that he is a squatter.
1198. Did you approach him, or did you know him? No; he asked a friend of mine to introduce him.
1199. Did he enter into a conversation with you about your truck? Yes; but the conversation was private, and I would not care to repeat it.
1200. I believe that, subsequently to that, you unexpectedly received from Mr. Wilkinson a letter which Mr. Lyne had sent to him? Yes.
1201. Have you that letter here? Yes, and it is a mystery to me why that letter, being a confidential one, should be sent to me. I feel degraded that a private letter should be treated in that way. I asked Mr. Wilkinson why he sent it to me, and I got no answer.
- [Mr. Wilkinson objected to the production of the letter.]
1202. You remember that during some part of the evidence something was said as to the unsuitability of your doors to many of the present sheep-trucking yards? Yes.
1203. And you referred then to the Hay yards as being constructed upon a principle which was adapted to your trucks? Yes.
1204. I believe that you have a model of yards on the principle which has been adopted at Hay, with some improvements of your own? Yes.
- [Model exhibited, and witness explained the working of the yards in conjunction with the Evans truck.]
1205. How many sheep can you load in an hour with these yards and your trucks? You can load 1,000 sheep in half-an-hour with perfect ease under this system. The Traffic Manager of the Deniliquin and Moama railway has informed me that 17,000 sheep were loaded in eleven hours at Deniliquin from similar yards. The yards are constructed in an inexpensive way.
- 1206.

1206. Is it necessary to move the trucks backwards and forwards to load them? No.
1207. The ten trucks can be placed beside the races without any movement at all? Yes; and the present sheep vans, about 400, can also be loaded from these yards without ever moving the trucks or making any alteration at all. My trucks can be worked at these yards in conjunction with the present sheep trucks, but if we had end-loading trucks, and they got mixed up with the present vans, they could not be worked. The Hay yards are the same as the yards which the Deniliquin and Moama Company have at Deniliquin. The total cost of each set of yards is £25.
1208. Then if you had yards for loading ten trucks the cost of them would be £250? Yes.
1209. How many stations are there from which large quantities of stock are trucked? I think that at the outside we should not require more than five or six yards with sets for ten trucks. At smaller stations you could load from one, two, or three sets of yards, as the case might be.
1210. You say that there are only five stations in the whole Colony at which ten yards for ten trucks would be required? Yes; such places as Bourke, Dubbo, Nevertire, and Nyngan. For many of the others four, five, or six yards would do.
1211. How many of these? I could not say from memory. There might be twenty; but it is almost a matter of indifference how many there are, because the yards are so inexpensive, and the convenience to the public is so great. The land alongside the line costs nothing, as it is lying idle. The enclosure is a cheap five wire fence, and the gates are made of hardwood battens.
1212. You have carefully estimated the cost of the yards? I advertised for prices for my own satisfaction, to know what the yards would cost, and I found that I could get each set of yards built for £25.
1213. *Chairman.*] Would these yards be of any use for loading cattle? No; they are merely for sheep. We have separate sheep and cattle yards at every station now.
1214. *Mr. Smith.*] When were the Hay yards constructed on the present principle? I think four or five years ago.
1215. When were the Deniliquin yards constructed? Some time before that.
1216. Have any sheep yards been built since then? Yes; small ones at little stations.
1217. But no large ones? I am inclined to think that large yards have been built at Bourke.
1218. On what principle have they been constructed? On the old-fashioned principle of moving every truck when loaded.
1219. *Mr. Kethel.*] Are the yards at Hay those constructed when the railway was finished? No; the yards were altered. The system which has been adopted was found to answer very well at Deniliquin, and permission was obtained to adopt it.
1220. *Mr. Smith.*] The form of yards at Hay is the more modern system? Yes.
1221. Do you know whether the Railway Department has arrived at any conclusion as to these being the proper kind of yards to construct in the future? Our experience teaches us that they are. The combination truck question has been keeping all matters of the kind back. It has prevented any alterations being made. It was on the strength of that that I did not adapt my truck to the present trucking yards, because I knew that they must be superseded by something better, and it was no good constructing a truck to suit these yards particularly.
1222. *Mr. Wilkinson.*] I suppose that a proof copy of your evidence was sent to you? Yes.
1223. Did you expunge any of your evidence from it? I did make some alterations, but not many. I did not find it necessary to do so, because the evidence was so well reported.
1224. Could you tell me what alterations you made? I could not.
1225. Was there anything expunged from the answer to question 1103? I am not aware.
1226. Did you strike out any portions of your evidence? If it was incorrect I did.
1227. Did you not make some statement with reference to the end louvreing of my truck? I do not remember.
1228. Did you not say something about wool being of an inflammable nature? I believe that I did.
1229. Is that recorded in the evidence? I do not remember.
1230. Were you not asked by Mr. Smith why you did not louver the ends of your truck? I have a faint recollection of some question of the sort.
1231. Will you tell us what your answer was? Because I knew very well the danger of having the ends of the truck open, owing to the inflammable nature of wool when the yolk is in it.
1232. *Chairman.*] In answer to question 984 you gave an answer to a question asked with reference to the inflammability of wool? Yes.
1233. Therefore it has not been expunged from the evidence? No.
[Mr. Wilkinson apologised, and withdrew any imputation that he might have made.]
1234. *Mr. Wilkinson.*] Do you know what the cost of the alteration of the Hay yards was? I do not.
1235. Do you not know that the additional cost on the improved plan was £1,428? I believe that it cost that amount to alter the yards.
1236. Do you know that there are 100 sheep-trucking yards in the Colony? There are a good many,—about seventy or eighty; that is including everything—little pens at different stations.
1237. Do you know that the Government advertise 100 trucking stations? We receive and deliver stock in many cases; we do it anywhere where we can possibly load or unload, to suit the convenience of the public.
1238. But how many stations are there set apart by the Department for the loading and unloading of stock? There is provision for it at almost every station.
1239. But how many stations are there where there are conveniences? It all depends upon what you call conveniences. For instance, we have a little bit of a pen at Ashfield station, about 12 feet square, where we receive and discharge say, a milch cow. There is no pretence of a trucking yard at all.
1240. Is Ashfield station one of those at which sheep and cattle are loaded and unloaded? We can do it there in a small way.
1241. How long have you been goods superintendent? About eight years.
1242. You must know then pretty well what the stations are? I know that we can receive or discharge a certain amount of stock at the Ashfield station,—a milch cow, or anything of that sort; but, of course, we should not receive a thousand sheep there.
1243. Are there not 100 trucking stations? I do not think that there are nearly so many as that; there may be that number of stations at which we receive or discharge stock.
1244. Are not Albury, Bathurst, Blayney, and Bourke important stations? Yes; but do you mean to convey that they are of equal importance.

- G. T. Evans, Esq., 1245. Are they not generally recognized as large stations? The stations range first, second, and third class, as far as live-stock is concerned. I do not suppose that we have a couple of trucks of stock a week from Blayney, but at Bourke perhaps we have 200, so there is no good in mentioning stations in that way.
1246. You say that there are five stations of the first class? If you like, we will say there are ten where it is necessary to have provision to load 1,000 sheep at once. I think it would be quite sufficient if we had this accommodation at five or six stations.
1247. Would you require ten sets of yards at Albury? I do not think so. I think that five or six would do there, because we do not often truck sheep from there.
1248. At Kelso? Five or six would do there.
1249. Does not a great deal of stock come from there? Very little; 200 or 300 sheep at a time.
1250. Dubbo—I suppose you would consider that an important place? I would put ten yards there.
1251. What about Goulburn? A great many sheep come from there.
1252. I suppose you consider Hay an important station? Yes, and also Nevertire and Nyngan.
1253. Would you put Wagga Wagga in the same category? No, I would not put more than five or six yards there.
1254. How many would you have at Nyngan? Ten.
1255. At Bourke? Ten.
1256. At Wellington? I think that four or five would do there.
1257. Trangie? I think that five or six would be plenty.
1258. Are not a great number of sheep trucked there? Sometimes there are. We might have 10,000 in one month, and none at all for the remainder of the year.
1259. Suppose you wished to alter the whole of the yards, or half the yards, in accordance with the Hay standard, what would it cost? I would not be such a fool as to attempt to alter them to that pattern, because they are built strong enough to load bullocks from. They are unnecessarily strong and unnecessarily expensive.
1260. Have you had much experience of sheep? Yes.
1261. Did you ever know of sheep drafting yards or sheep trucking yards being constructed with wire fencing? I have not been about the squatters' stations very much.
1262. Do you not know that wire is considered objectionable for sheep drafting or trucking yards? I do not.
1263. I presume that you have seen a great many yards? Yes.
1264. Have you ever seen a drafting yard or a trucking yard of wire? I believe I have.
1265. Where? At Yando or Jando, the other side of Bourke.
1266. Is not timber very scarce there? I do not know the reason.
1267. Have you seen any other sheep drafting or trucking yards of wire? Yes, one at Yarraberg, in Victoria.
1268. To load five trucks at a time you would want five of these yards? Yes.
1269. And five sets of men? No. We would only want a man and a boy; one man would do.
1270. Could one man put the sheep in and close the doors? Yes, without the slightest trouble.
1271. And keep the sheep running up the races? There is no running. When they start they keep on going.
1272. They do not want any easing off at the doors? That can be easily done.
1273. Do you say that one man could load a truck of sheep? Yes, or ten trucks of sheep. He can go from one truck to the other, and I will guarantee that every sheep is counted into the truck.
1274. Did you ever see one man load a truck of sheep? I have done it myself many times.
1275. Without any assistance? Yes.
1276. How long did it take you? I do not know.
1277. Can you shut the stop door without shutting the gates and removing the platform? No.
1278. Then there is nothing to prevent the sheep getting out while you are doing that? You can stand there.
1279. What is the width of the platform from the gangway to the trucks? The width of half a door, 2 feet from the posts.
1280. Do you know the average distance from the posts to the trucks? I do not know, the yards vary very much.
1281. But what would be about the average? I should think 2 feet.
1282. Can you give any idea as to the average distance between the trucking yard fence and the trucks? I should think 20 feet.
1283. To construct a fence as you have it in the model, to have a gangway within 2 feet of the truck, would you not have to make up the roadway on the railway line? In some places, but as a rule the trucking yards are built on an embankment level with the floor of the truck.
1284. Are not the embankments cut away some distance from the truck? In some places they are. There, of course, it would be necessary to fill up the intervening space.
1285. In making your estimate as to the cost of yards, have you taken into consideration the cost of making up the ground in this way? It would be so little that it would not be worth while taking it into consideration. I am sure that yards can be built with all the making up of ground that is necessary for £25 each set of yards.
1286. In explaining the working of the yards in connection with your truck, you said that the sheep going through the top deck could see the sheep in other races, and that would lead them on? Yes.
1287. But if the trucks were 20 feet away from the fence of the races what the sheep would see would not be of much service? It would not be.
1288. Presuming that it would take one man to load a truck, it would take ten different men to load ten trucks simultaneously? Yes, but then you could load the trucks in about 3 minutes.
1289. To do this simultaneously it would take two men to load each truck, and therefore it would take twenty men to load ten trucks? Yes, but in that case you must not forget that it would only take 2 or 3 minutes to load the whole of the trucks; but it is childish to talk of doing that.
1290. Is it childish to imagine that it takes two men to load a truck? No.
1291. Is it childish to imagine that if ten trucks were to be loaded at once it would take twenty men? It is not necessary to load ten trucks at once. One man can do it by walking from one truck to another. Of course, if you had the men there, and they had nothing to do, that could be done, but it would be absurd.

- absurd to do it. Two men can load 1,000 sheep in half-an-hour, and ten men would do it in 2 or 3 minutes. G. T. Evans,
Esq.
1292. Presuming that we had an end-loading truck, we could load the first truck from the side, and with end doors leading into the other trucks, one platform would be sufficient? Yes; but I might explain that while you are opening your doors and getting ready before you start to load at all, I will finish the loading of 1,000 sheep in my trucks. 12 April, 1888.
1293. Have you not to open your doors to load the trucks? Yes, but they can be opened in a second; they are very different from your doors.
1294. If we had one of these platforms at the smallest trucking yard on the line, and a big lot of store sheep came there and had to be removed quickly, as is the case in times of drought, this one platform would serve the whole purpose of ten of your platforms? Yes, you could load them.
1295. So that really, as far as this yard is concerned, one platform, with end-loading trucks, is as good as ten different platforms? Not half as good; there is no comparison at all.
1296. With end-loading, is not one platform as good as ten with the other system? No; because it is absurd to talk about end-loading sheep.
1297. Presuming that end-loading was adopted, one platform would be sufficient to load any number of sheep into end-loading trucks? It would not be as good as ten platforms.
1298. *Chairman.*] Granting that one platform would be sufficient to load sheep by the end-loading system would it not be necessary to have a large receiving yard to hold the sheep in order to truck them? Yes.
1299. You must have room for the sheep? Yes.
1300. *Mr. Wilkinson.*] In that case you would not require in the large receiving yard all the partitions which are shown in the model which you have exhibited? Certainly not.
1301. If you had 10,000 sheep to truck it would not be necessary to have them all yarded at once? Not if you had shepherds to mind them outside. Generally there are a couple of men in charge of the sheep. As a rule the shepherds load the sheep.
1302. I suppose that there are fifty yards in the Colony which hold from 3,000 to 5,000 sheep? I suppose there are.
1303. Therefore no further outlay in receiving yards would be required for your truck or that of anyone else? I think that the yards ought to be altered; better accommodation ought to be given.
1304. You mean that the receiving yards ought to be larger? No; I mean the accommodation for loading. I think that the system which I have shown in the model is the best known system for loading sheep, and it ought to be adopted.
1305. Do you not know that there is often a lot of trouble in getting in the last few sheep, that they will stop in the doorway? There is a little trouble sometimes.
1306. With this platform of yours I presume that the loading is done at the entrance to the truck? Yes.
1307. Would not the fact of the moveable race for the top deck, being within 2 feet of the truck and on a level with the top deck immediately over the lower gangway, greatly impede a man in loading sheep into the bottom of the truck—would he not have to stoop there, and would there not be the same objection as there is in loading the existing trucks? No, he would not have to stoop. The moveable race is 4 feet above the bottom deck, and a man could work on the outside of it.
1308. If you have to enter the truck have you not to stoop under the moveable race to get in? No; we can get through a little gate at the side.
1309. Did you see the truck that Mr. Downe built twelve years ago? Yes.
1310. How often has your improved combination truck been used? I could not tell you. Not very often.
1311. It is your improved combination truck that you recommend the Department to adopt? Yes. I have sold my truck with all improvements to the Government.
1312. How long has that truck been built? Nearly twelve months. It is an old truck which has been altered.
1313. Not longer than that? I do not think so; it may have been.
1314. How often has it been used? I cannot say. I am not in the Traffic Department now.
1315. How often has it been used for cattle? I do not know.
1316. Has it been used three times for cattle? I do not know.
1317. Has it been used five times for sheep? I do not know.
1318. Did not the centre beam in your improved truck break once? Yes.
1319. Were not twelve sheep killed on that occasion? I forget the number. There was no one with the truck to prop the beam up when it gave way.
1320. It is quite possible then for any truck to have an accident on the road? That was the first trial of the truck. I do not think that it is possible for there to be an accident if the truck is properly constructed. It was through a faulty piece of wood that that accident occurred.
1321. Then if the truck is not properly constructed it will give way? Yes.
1322. *Mr. Smith.*] The bottom of a truck might drop out if it were not properly constructed? Yes.
1323. *Mr. Wilkinson.*] Although your fourteen trucks have been running for three years your improved truck has only been run about twelve months, and you do not know how often it has been run? It has been kept in the yards a great deal of the time for different Committees to examine it. It is now standing idle, in case the Committee want to see it.
1324. With the existing trucking yards can you shut the doors of the bottom and top decks of your truck without moving the truck? At some of the yards you can.
1325. Is it not a fact that your top door comes a foot or two below the level of your top deck? I think it is about 10 inches.
1326. Therefore, if the gangway is on the same level as your deck you cannot open the door until you move the truck past the gangway? At some of the stations you can, because the top race is far enough away to enable you to do so. Where the race is built close to the truck you cannot do it without moving the truck ahead.
1327. What is the width of your door? One foot 10 inches.
1328. If the gangway ran up within 1 foot 10 inches or 1 foot 9 inches of the truck you would have to move the truck before you could close the door? Yes.
1329. With you bottom door does the bottom flap cover the whole of the bottom opening? No; it is within about 10 inches. 1330:

- G. T. Evans, Esq.
12 April, 1888.
1330. In a great many trucking yards, if not all, can you use your present flap on the bottom floor? Yes; but in one or two places the posts are ridiculously close to the siding.
1331. What is the height of the bottom flap? About 3 feet.
1332. So that if the posts were less than 3 feet from the truck you could not shut the door without passing the truck on? That is the fault of the posts being too close to the trucks.
1333. The gangways in the existing trucking yards are about half a truck apart, are they not? About one-third of a truck.
1334. If there was a door or two side doors in your truck they could be made to suit the existing trucking yards? Yes.
1335. In the method you propose of loading the trucks, a door on the side would be of no service for these platforms? Not a bit; it would be more expensive in construction, and it would be a source of weakness.
1336. With the present trucking yards and the present trucks, people can load the top and bottom decks at the same time? Yes.
1337. But you cannot do that with your trucks at the present time with the present yards? Not at present.
1338. How could it be done with yards built according to the model which you exhibited? Very easily.
1339. Would not the effect of the top platform being down effectually stop the sheep from going through? No.
1340. You think that the sheep could be induced to run under that platform? Yes, without any trouble.
1341. How many parts are there in your top deck? Six.
1342. Are there not three at each side? Yes.
1343. And one at each end? No.
1344. In your improved trucks how many flaps are there? Six altogether; two at each side and one at each end.
1345. Is there no other part of the truck connected with the deck? There is the bar which goes down to support the deck.
1346. Then there are seven parts? Yes; but it can be made in five parts without any difficulty at all; there are only five parts in the model.
1347. In your existing trucks with the seven flaps you have to raise them to a certain angle before the centre bar can come down past them? Yes.
1348. And each flap is hung up by a hook? Yes; or a chain.
1349. How many parts are there in my deck? I do not know since it has been broken.
1350. But before that? I think there were two then.
1351. Are you sure that it is broken? Yes; and it will break every time that you use it.
1352. Will you swear that it has been broken, or is broken? I will swear that it collapsed. I do not know what you call broken. You had to put props under it to keep it up; it collapsed; it must have broken; at any rate it bent.
1353. Yours did not bend, it broke? It broke.
1354. Is it not a fact that mine can bend, but cannot break? If you had not put props underneath it, it would soon have broken and collapsed altogether.
1355. Do you know how many miles the truck ran without props underneath the deck? I do not.
1356. To speak the candid truth, do you not know that my deck may bend, but cannot break? I am quite sure that it would break, and that it would have broken if you had not put props underneath.
1357. Is it not a fact that yours did not bend, but that it broke? Mine did bend, and then broke, but I was not there to put props under it. My beam cannot break or bend now.
1358. If I strengthened my deck it would not bend? You can strengthen it by adding a ton weight in it.
1359. When your flaps are down what is the height of the closed surface from the floor upwards? It goes up to within 2 feet of the roof.
1360. There is no opening between the bottom floor and 2 feet of the roof? No.
1361. If any cattle are lying down in your truck is it possible to poke them up, except through the opening on top? No, there is plenty of room to do it there. With the closed surface it is impossible for cattle to get their legs through.
1362. If a beast is down you cannot see it? Yes, we can see it anywhere in the truck.
1363. How could you see it, except by looking through the top opening? You can look underneath if you like.
1364. You have stated that wool is one of the easiest things to set on fire when the yolk is in it? Yes.
1365. Are you quite sure of that? I speak from experience. We have had a great many trucks of wool burnt in transit, and we could never put it out, once it had started to burn.
1366. Is it more likely to burn in wool or when on the sheep's back? I cannot say, I never tried.
1367. Do you think there would be any difference? I do not know.
1368. Do you think the wool would burn at all on the sheep's back? I think so, very easily.
1369. Can you burn a sheep's skin easily? I have never tried.
1370. I presume that there is yolk in the wool when the fleec is freshly skinned? Yes.
1371. Do you think it would burn easily? I should think so. We have had to pay many claims for wool burnt in transit.
1372. Is it not generally thought that wool is anything but inflammable? A truck load of wool got on fire at Newtown, and the whole lot was destroyed before we could save any of it.
1373. You have stated that the danger of louvering would be that sparks would fly in? Yes.
1374. Will not the same objection apply to trucks that are open at the side? The sparks are not so likely to fly in at the side.
1375. Do you know the difference between an open-woolled sheep and a close-woolled sheep? Yes.
1376. Which would be the most apt to burn? I do not know. I have not tried the experiment. I might say that I have known the wool on sheeps' backs to get on fire through sparks getting into the trucks.
- [Mr. Wilkinson here produced parts of two fleeces, and asked that the witness should be requested to try to set fire to the wool, but the Committee decided not to comply with the request.]

1377. Were you present when my truck was tried before the Commission at Homebush? No.
1378. Was my truck finished when the Commission, of which Mr. Badgery was Chairman, sat? No; I do not think it is finished now. It is always undergoing alteration.
1379. Do you know what witnesses were called by that Commission? No.
1380. Were any witnesses called besides people in the Department and those who had patents? I do not know. I know that I was called. I believe that some drovers were called. I believe that the Commission advertised for anyone who desired to give evidence to come forward.
1381. Did that advertisement bring forth any witnesses? I do not know.
1382. Have you seen the evidence? No; I have only read my own evidence.
1383. Were you not in the room, or in the next room, during the whole time the Commission sat? It was my office.
1384. You would have good reason to know who were called as witnesses? I would not have the slightest idea. I did not stand at the door to know who was being examined. On many days when they were sitting I was not there at all.
1385. Were you there when I was examined? I saw you always knocking about.
1386. Did you see Mr. Perry there? No.
1387. Have not heavier wheels and axles and draw gear been put into your trucks? Yes; the wheels and axles are heavier than yours.
1388. You say that they are heavier? Yes, because yours have been running, and mine have not.
1389. Have not these heavier wheels and axles been put in since the trials took place? No, it was done during the trials.*
1390. How many trials were there? Three or four.
1391. Were these new wheels and axles in your truck when any of these trials took place? I believe so. I am nearly sure that the wheels and axles in my truck are the same class as those in your truck.
1392. Are you sure that one of the axles was not of steel and the other of iron in your truck? I am sure it is not.
1393. Are you sure that it was not so during the trials? Yes. I found it out afterwards.
1394. When were they put in? I am sure I do not know. I think prior to the trials, but I am not sure.
1395. Steel axles have since been substituted? Yes. You made some complaint about the gear under my truck being lighter than that under your truck, and not wishing to take any advantage over you in that respect I applied to have exactly the same wheels and axles put under my truck as were under yours.
1396. But were they put in? I do not know.
1397. Do you know that in your trial trips the axles ran hot on nearly every occasion? If it is so I suppose it was on account of the wheels and axles being new. It is a common thing for new wheels and axles to run hot.
1398. Is it not a fact that your truck has been loaded with goods so as to have the heaviest part of the loading in one part in order to ease the front axles? I do not know.
1399. Is your draw-gear continuous? Yes.
1400. Was it continuous during the trials? I believe it was. I am not sure.
- [Mr. Wilkinson here put questions to the witness as to the cost of carriage of stock in half truck loads and otherwise, but the questions were disallowed.]
1401. What have you to say about the principle of carrying half truck loads of sheep and half of cattle? I have admitted that it would be a slight, but a very slight, advantage in some cases to put half a truck load of sheep and half a truck load of cattle into one truck, but it would so seldom happen that this would be done that it would not be worth while altering a truck for it.
1402. Is it not a fact that the rates charged prohibit people from ordering half trucks? It is to their advantage to use full trucks.

WEDNESDAY, 18 APRIL, 1888.

Present:—

MR. KETHEL, | MR. LYNE,
MR. SUTHERLAND.

T. H. HASSALL, Esq., IN THE CHAIR.

Bruce Smith, Esq., Counsel, instructed by J. McLaughlin, Esq., appeared for the Proprietors of the Evans Australian Combination Truck. W. B. Wilkinson, Esq., appeared in person.

George Trotter Evans, Esq., recalled and further examined:—

1403. *Mr. Wilkinson.*] You have some knowledge of the trial of my truck at Homebush? I was not present, therefore I could not have much knowledge.
1404. In your evidence you said that the trial of end-loading trucks took place on the orders of Mr. Lyne as Minister? The first trial did.
1405. The trial of my truck at Homebush was undertaken by Messrs. Badgery and Gill, the other member of the commission not being present? I do not know. I have no means of knowing, as I was not present.
1406. Were not you Goods Superintendent at the time? Yes.
1407. Do you not know that some trucks constructed for end-loading at the order of Mr. Lyne were sent to Homebush to give my truck a trial? Yes, I believe they were.
1408. Do you know that the trial took place? I do not know of my own knowledge, but I believe it did.
1409. Do you not know that Messrs. Gill and Badgery were present at the trial? I believe they were.
1410. I suppose you know that Messrs. Gill and Badgery have sent in a report with reference to that trial? I believe so.

1411.

* NOTE (on revision):—I have since ascertained that these wheels and axles were put under the truck subsequent to trials.

- G. T. Evans, Esq., 18 April, 1888.
1411. In your previous evidence you did not wish to convey the idea that it was Mr. Lyne who authorised the trial of my truck? No.
1412. With reference to Mr. Badgery, is it true that he and yourself some time ago went to Bourke, and that you took a model of your truck? I went to Bourke.
1413. Was Mr. Badgery there? I met him there.
1414. Did Mr. Badgery speak in favour of your truck at a public meeting? I believe he said something about my truck, but I forget what it was.
1415. How long since is that? Two or three years ago.
1416. Do you know anything about an advertisement in a Bourke paper, stating that you and Mr. Badgery would attend a meeting and give evidence as to live-stock matters? I will tell you what I remember. There were complaints in the paper about the conveyance of live-stock by train, and as I was superintendent the Commissioner asked me if I would attend a meeting and see what the grievances were, and ascertain if there was anything in them, and I went for that purpose. I took the model of my truck so as to be able to satisfy the people that the Government of the day were doing everything possible to assist them, and were taking every precaution to convey live-stock in the best possible manner.
1417. Did the Commissioner know that you took your model? He did not tell me to take it; but I took it.
1418. Do you know anything of this advertisement:—"A meeting of all persons interested in the carriage of live-stock will be held at the 'Royal Hotel' to take into consideration the means of improving on our present unsatisfactory system. Mr. Evans, Superintendent of live-stock traffic, and Mr. Henry Badgery, will be present and explain their views on this vital question?" I did not know anything about that before, but a meeting was called by some Pastoralists' Association there for other matters, and one of the grievances was the consideration of the live-stock traffic. I was asked to be present.
1419. You spoke at the meeting? Yes, I spoke in answer to the complaints made.
1420. Is it true that subsequent to that meeting a Committee was formed to urge upon the Government the adoption of your truck? I do not know.
1421. It is a fact that the model was there, and that Mr. Badgery spoke with reference to it? He spoke with reference to the truck.
1422. You do not know that a Committee was formed then and there to urge the adoption of the truck? I do not.
1423. Mr. Smith.] You were asked the other day how many trucking stations there were throughout the country. Can you give me that information now? I have had a return prepared. The number of trucking stations is about seventy-five, that is, we have conveyed sheep from seventy-five stations during the year 1887.
1424. That number of stations includes not only stations from which sheep have been sent in large numbers, but every station from which sheep have been sent? Yes.
1425. What is the smallest number of sheep which have been loaded at some of these stations? Fifteen trucks in the year, or 1,500 sheep.
1426. Were these fifteen trucks sent at once? No, at different times; one or two trucks at a time, perhaps.
1427. What is the largest number sent from any station during the year? The number sent from Bourke station is the largest—126,700. The following is the complete return:—

RETURN showing number of sheep vans loaded at Stations for year ending 31st December, 1887.

Stations.	No. of Sheep Vans.	No. of Sheep.	Average No. of Vans per week.	Stations.	No. of Sheep Vans.	No. of Sheep.	Average No. of vans per week.
Bourke	1,267	126,700	About 24½	Bundure	75	7,500	About 1½
Dubbo	1,064	106,400	" 20½	Gunning	74	7,400	" 1½
Rylestone	978	97,800	" 18¾	Moss Vale	60	6,000	" 1¼
Neverfire	837	83,700	" 16	Mount Gudgery.....	56	5,600	" 1
Mudgee	776	77,600	" 15	Cowra	55	5,500	" 1
Goulburn	681	68,100	" 13¼	Perth	54	5,400	" 1
Carrathool	624	62,400	" 12	Girilambone	54	5,400	" 1
Bungendore	506	50,600	" 9½	Mittagong	52	5,200	" 1
Nyngan	491	49,100	" 9½	Lue	50	5,000	About 1
Hay	487	48,700	" 9½	Brewongle	49	4,900	" 1
Young	434	43,400	" 8¼	Bowral	49	4,900	" 1
Jerilderie	429	42,900	" 8¼	Culcairn	48	4,800	" 1
Wallerawang	387	38,700	" 7½	Devlin's Siding	46	4,600	" 1
Wellington	365	36,500	" 7	Coolabab	45	4,500	" 1
Kelso	311	31,100	" 6¼	Narramine	43	4,300	" 1
Molong	274	27,400	" 5¼	Bomen	42	4,200	" 1
Blayney	244	24,400	" 4¼	Marnean	41	4,100	" 1
Orange	212	21,200	" 4	Amaroo	40	4,000	" 1
Darlington	212	21,200	" 4	Yerong Creek.....	34	3,400	" 1
Wagga	187	18,700	" 3¾	Springs	31	3,100	" 1
Capertee	186	18,600	" 3¾	Yanco	30	3,000	" 1
Mount Victoria	169	16,900	" 3¼	Old Junee	28	2,800	" 1
Binalong	166	16,600	About 3¼	Coolac	25	2,500	" 1
Breadalbane	161	16,100	" 3¼	Queanbeyan	25	2,500	" 1
Colombo	160	16,000	" 3	Wallenbeen	22	2,200	" 1
Cootamundra	153	15,300	" 3	Warne	21	2,100	" 1
Tarana	136	13,600	" 2¾	Ironbarks	20	2,000	" 1
Gundagai	131	13,100	" 2½	Coolaman	17	1,700	" 1
Tarago	130	13,000	" 2½	Raglan	15	1,500	" 1
Narrandera	127	12,700	About 2½	Pictou	10	1,000	" 1
Yass	123	12,300	" 2½	Bethungra	10	1,000	" 1
Albury	122	12,200	" 2½	Junee Junction	10	1,000	" 1
Bowning	120	12,000	" 2¼	The Rock	9	900	" 1
Trangie	119	11,900	" 2¼	Grong Grong	7	700	" 1
Newbridge	98	9,800	" 2	Goonong	7	700	" 1
Whitton	87	8,700	" 1¾	Yambla	3	300	" 1
Byrock	86	8,600	" 1¾	Waradgery	3	300	" 1
Harden	79	7,900	" 1½	Wardry	1	100	" 1

SUMMARY.

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	Vans.	Number of Sheep.
Western Line	6,174	617,400
Mudgee Line	1,990	199,000
Molong Line.....	314	31,400
Southern Line	2,256	225,600
South-Western Line	1,669	166,900
Murrumburrah to Blayney Line	489	48,900
Gundagai Line.....	156	15,600
Jerilderie Line.....	671	67,100
Cooma Line	661	66,100
Grand Total, Sheep Vans	14,380	1,438,000

1428. How many trucks at a time would be necessary to provide for the loading at Bourke stations? Some lots of sheep number 1,000, some 1,500, and some 2,000, but generally speaking about 1,000.

1429. What do you think would be a sufficient yarding accommodation there all the year round? I think that yards for ten or twelve trucks would be quite sufficient there, and that is the most important live-stock station; I mean provision for loading ten or twelve trucks without moving them.

1430. You say that the average from Bourke is twenty-four and a quarter trucks per week. What would they contain? About 2,400 sheep. That would be the average per week for the whole year, but it might vary. We might bring 5,000 or 10,000 sheep one week, and perhaps none the next week.

1431. You consider that accommodation for loading ten or twelve trucks without moving them would be ample for that station? Plenty. I calculate that from the fact that at Deniliquin, where they have accommodation for loading ten trucks at a time, they have loaded as many as 17,000 sheep in eleven hours—full woolled sheep, which are always slower than shorn sheep.

1432. Have you ever heard any complaints about insufficient yards at Deniliquin? Never.

1433. How many stations are there in the whole Colony where, in your opinion, it would be requisite to have yarding accommodation to load ten trucks at a time? I should think about six.

1434. What is the next number of yards which you think would be required at some of the stations of lesser importance than those? I should think that the next would be about seven.

1435. At how many stations in the Colony would it be requisite to have yard accommodation to load seven trucks at a time? Perhaps eight or ten—that is, speaking from general observation; but I should like the Committee to understand that it is not absolutely necessary that any of these yards should be built.

1436. Next to seven trucks, what would be the quantity you would put? Five.

1437. How many stations would require that accommodation? Perhaps six or eight.

1438. *Chairman.*] I notice that the return which you have put in does not include stations on the Northern Line? No; it relates only to the Southern and Western Lines. If you include the stations on the Northern Line probably five or six more would have to be added to that list.

1439. *Mr. Smith.*] Are there any important stations on the Northern Line? There are the terminal stations, where large quantities of sheep are trucked.

1440. At how many of these stations on the Northern Line would it be necessary to have yarding accommodation for loading ten trucks? Perhaps two.

1441. That would make about eight tens for the whole Colony? Yes.

1442. Would any come among the sevens? I should think about five or six.

1443. Would any come among the fives? Perhaps three or four.

1444. Next to the fives what would be the next size of trucking yards that would be required? For all new yards, even if there was only to be accommodation for one truck, I should say that they should be built on the principle shown in my model.

1445. I am talking now of the necessities of the stations, and I want to know how many trucks you would think it necessary to provide for after these fives? I do not think it would be necessary to provide for any, with the existing yards. We can get on very well with them where there are less than five; loading is then a mere nothing.

1446. Summing up your figures they amount to this,—that it would be necessary to have appliances for loading ten trucks at a time at eight stations, which would mean eighty yards, twelve of seven, which would mean eighty-four, and ten at five, which would be fifty, or a total of 214? Yes.

1447. And these yards would cost only £25 each? That is all.

1448. So that these thirty stations could be provided with these improved yards at a cost of £5,350? Yes, and I maintain that with my trucks and these yards our sheep trucking system would be as complete as anything in the world, from all the knowledge I can get.

1449. In submitting a model of that yard to the Committee as a suggested improvement, I understand that you do not submit it as indispensable to your truck? Not at all.

1450. It simply amounts to this, that by having that yard there would be no occasion to move any truck whatever in loading? Yes.

1451. That one man not only could, but has loaded ten trucks himself? Yes.

1452. He could do it with these yards and with your truck? Yes; there is absolutely no necessity for more than one man, even where there are ten yards.

1453. But suppose there were only five yards, and there were ten trucks to load, one man could do the work, and there would only be a necessity to make one movement of the train? The engines would put the trucks in their place.

1454. Suppose an engine was not there, I suppose the train could be moved? Yes, it could be easily moved.

1455. But you propose to have ten yards where ten trucks are likely to be loaded, therefore that would not be likely to occur? In that case it would not; but in nearly every case there is an engine at the stations where large quantities of sheep are loaded.

1456. You were asked the other day, as bearing on your evidence concerning the cost of the yards, whether you did not know that the Hay yards had cost a certain sum? Yes.

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1457. Do you consider that the money expended on those Hay yards is any criterion as to what is necessary for future yards constructed on this principle? Not the slightest criterion, because the yards at Hay are strong enough to load bullocks from, instead of sheep. They are big, strong, heavy, fences.
1458. Is there anything else which is unnecessary? The deck is raised, instead of being on a level with the ground.
1459. So that there is the cost of an extra deck above the ground? Yes.
1460. Speaking generally the yards are much stronger than there is any necessity for? Yes.
1461. You were asked by Mr Wilkinson, whether it was not possible with his truck to do away with the internal arrangements of the yard as shown in your model—to have one yard to hold the whole of the sheep to be trucked, and to truck them by running them into the end of one of the trucks? Yes.
1462. Is it not possible to have one large yard in the same way, and to load ten trucks by moving them up one at a time? Yes.
1463. And thus would obviate all the labour which has been found necessary in every case in dividing the sheep throughout the different trucks by end-loading? Yes.
1464. By the system of yards which you suggest, you can count every sheep before loading them, and if you find one too many for a truck in any of the yards, you can easily draft it into another lot? You can depend upon having exactly the same number of sheep in every truck.
1465. In that way you will avoid crushing? Yes; you would have a great advantage in being able to see before you started to load, whether the sheep were too much crowded or not in the yard. With any other kind of truck, you must put the sheep in before you can tell whether there are too many or not.
1466. Would not that be an advantage to people discharging sheep at a terminus? Yes, they would know that each truck contained the same number of sheep. But the great advantage would be at the loading station, because the pens being the same size as the trucks you could see at a glance whether they were too much crowded. But with our present system, or any other system, you cannot ascertain that until the trucks are loaded, and then if you find that there are too many sheep in one truck, you will have a terrible job to get them out, and put them into other trucks.
1467. If you did away with the internal arrangements of your yard and had only one large yard, it would be the same as end-loading? Yes; but it would be necessary then to move each truck.
1468. The moving of the truck would simply be a set off against dividing sheep in the truck by the end-loading system? Yes.
1469. We have evidence that it requires men constantly in among the sheep with the end-loading system? Yes. I should like the Committee to understand that with the present trucking yards we can load 1,000 sheep in an hour, but with the yards which I suggest we could do it in half-an-hour.
1470. Where has that been done in half-an-hour? At Deniliquin, and at Hay; it can be done any day.
1471. You have the authority of the Traffic Manager of the Deniliquin Railway for that statement? Yes, Mr. Steers, who is connected with the firm of Permewan, Wright, and Company, promised to get the information for me, and Mr. Tennant, the Traffic Manager of the Deniliquin Railway sent him the following telegram:—"Largest number woolly sheep trucked one day, Deniliquin, 17,000, 11 hours loading, could do faster if wanted; shorn sheep faster."
1472. *Mr. Lyne.*] You say it has been done at Deniliquin. Have you had your truck on the Victorian Railways? No. These sheep have been loaded in the ordinary vans.
1473. *Mr. Smith.*] With this system of yards loading is exceptionally and unprecedentedly quick? Very quick indeed.
1474. And when the combination of these yards and your truck is brought about it will be infinitely quicker? There will be no labour at all, it will be as simple as possible.
1475. By putting another door in your truck you could load at that fast rate even with the present trucking yards? 1,000 an hour.
1476. That would be without any alteration of the yards at all? You could do that by putting another door in my truck, but I would prefer a slight alteration to the races, which would be the same thing. The alteration which I would suggest would not cost more than £10 for each yard. I would have a moveable race, so that there would be no necessity to move the truck after you started to load. That would save weakening the truck, which is a great consideration. The less doors you have in the truck the better.
1477. You know that in pursuance of a request by Mr. Wilkinson his truck has undergone certain trials? Yes; one from Byrock to Sydney, one from Carrathool I think, and one from Bourke.
1478. You know that Mr. Harper reported on those trials? I believe so. (*Mr. Harper's report handed in. Vide Appendix A.*)
1479. *Mr. Wilkinson.*] You know that when Mr. Lyne was Minister for Works he authorised the alteration of some trucks? Yes.
1480. You have stated that my end doors are exactly similar to those which were put in the trucks which were so altered? Yes.
1481. Is that the case? I think it is.
1482. Are not my end doors louvred on top? I think they are.
1483. Are the doors in the trucks which were altered louvred on top? No.
1484. Is there an upright beam running down the centre of my end doorways? I do not think so.
1485. Is there not an upright beam running down the centre of the doorways of the trucks that were altered? I am not sure. The draftsman who prepared the plans for the alterations of the trucks told me that he was quite sure that the doors of the two trucks were made from the same drawing. He said, "I am prepared to prove that they are from the same drawings as were used for the trucks which were altered." That is the reason why I said I believe they are exactly the same. I still think that the principle is exactly the same. I do not think that there is any difference at all.
1486. Your reason for saying that my doors are similar to those in the trucks which were altered on the authority of Mr. Lyne is that some person has told you that they were taken from the same drawings? Yes, and from my general observation.
1487. Did you carry out the alteration of the trucks? Not of the first lot, but of the second lot I did.
1488. Are not the doors of the first and second lot similar. Not at all; they are not at all the same.
1489. Which of the two doorways then does mine resemble? The first lot, the lot which was altered by Hudson Brothers, and your truck was built by Hudson Brothers; and this draftsman says the doors are exactly the same.

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1490. What is his name? I will produce him; but I do not think I will be justified in using his name without his permission. He told me that he would have no objection to come here.
1491. Do you know how my doors are constructed? I have an idea.
1492. How is the framework put together? It is morticed and tenoned.
1493. What is the size of the timber? I cannot exactly say it may be 3 x 2 or 3 x 3.
1494. Is there any frame in the doorways of the trucks which were altered on the order of Mr. Lyne? Yes, they are framed together as yours are; I do not remember any difference.
1495. Only that they are not louvred as mine are? I think that is the only difference.
1496. Do you know that when my truck was first inspected the end doors were in one, and that they were old doors? So many alterations have been made in your truck that it would be impossible for me to remember.
1497. Are there not two half doors now? I believe so.
1498. Do you not know that they were made for a certain object, so that the doors might overlap in case of the engine bumping up? It is impossible for me to tell what object you had.
1499. You do not know what my doors are like now? Oh yes, I do. As near as I can see, they are exactly like those in the first six trucks that were altered.
1500. *Chairman.*] In giving the weights of the various waggons now in use, you told us that the weight of the sheep vans ranged from 6 tons 15 cwt. to 7 tons 13 cwt.? There are a few as high as that.
1501. Why do they vary so much in weight? They are old vans, and the Department has been all the time trying to lighten them as much as possible, because weight is of so much importance.
1502. Is it likely that, in constructing trucks on your pattern or Mr. Wilkinson's, that they would vary so much in weight as that? No; my trucks would not weigh more than 6 tons 10 cwt.
1503. With the improved method of construction now in vogue, you can make a lighter truck equally as strong as the original trucks, which weighed 7 tons 13 cwt.? Yes.
1504. You told us that Hudson Brothers sent in an account for £295 for each of the fourteen of your trucks, and that finally they accepted £265 each? Yes.
1505. How do you account for their charging such a sum as that, when the estimate quoted by Mr. Henry Hudson to you was for £174? I never could understand it. I could not find the letter which I read to you to prevent their getting the money. It has been a mystery to me. I showed the letter to my father-in-law, Mr. Forsyth, and in spite of all I could do, he moved the adjournment of the House, and made a great noise about the business. He thought a great injustice was done to me and my truck by the exorbitant price which was charged for it.
1506. *Mr. Wilkinson.*] Was not Mr. Henry Hudson a partner of yours at the time that he wrote that letter? No.
1507. Did he never have a share in the truck? It was patented in his name, and that was the only interest he had in it in any shape or form.
1508. *Mr. Lyne.*] But he told me that he was a partner? He never had a penny of interest in it. He was never a shareholder in it in his life.
1509. Why does he refer to the question of royalty in his letter? He said that I must add what I wanted as royalty.
1510. *Mr. Wilkinson.*] Did you never ask Hudson Brothers for a royalty on the manufacture of trucks? Never.
1511. Did not you have to give up a portion of your interest in your truck because he sold a share to some person for £800? Never. He never had a share to give up.
1512. *Chairman.*] You say that, after examining your truck, Glasson & Company quoted the price at £145 or £150? Yes.
1513. Do you know that they are prepared to construct your trucks at that price now? I believe they are. Further, I believe that my truck can be built for £125. I think that Glasson and Company would build it for that.
1514. *Mr. Lyne.*] As affecting your evidence relating to Mr. Henry Hudson, how does this letter bear on it? [*Mr. Lyne was proceeding to read letter No. 5 in papers ordered to be printed on the 14th October, 1886, Mr. Smith objected to the letter being read; objection allowed.*] Have you read the papers before the Committee? All but the recent ones.
1515. Have you seen letter No. 5 in the papers ordered to be printed on the 14th October, 1886, signed by Henry Hudson? Yes.
1516. Are you aware that that letter makes a certain offer or suggestion to the Government for building your trucks? Yes.
1517. Are you aware that that letter is signed by Mr. Henry Hudson "for self and colleagues?" I see that it is. But he was simply acting as my agent. He had no right of any kind. He never put a penny into the truck.
1518. If he never had any interest in the truck why should he sign himself in that way? I cannot say. I can say that Mr. Henry Hudson's name was used amongst others to patent the truck, only his name was used. He had no right or title to any part of my truck. On the day after I found out that they sent in an account for such an exorbitant charge for building the trucks I instructed my lawyer to go to the firm and demand that the three brothers should assign back their right, title, and interest, if any, in the truck. They were simply acting as my agents.
1519. *Mr. Smith.*] Did they do so? Yes.
1520. Without demur? Yes.
1521. *Mr. Lyne.*] How could they assign their right, title, and interest to you if they had none? I said "if any;" but they never had any. Although it was patented in their name I paid the money out of my own pocket.
1522. *Mr. Smith.*] Did you ever have a single copper, or any coin of the realm, or anything representing money, from Hudson Brothers, in connection with the truck? Never.
1523. *Chairman.*] What would the result as affecting the stock traffic on the railways if the Glebe Island abattoirs were abolished? It just depends if others were substituted for them.
1524. Do you think that in case of their being abolished it would reduce the live-stock traffic on the railways considerably? If they were abolished altogether it might reduce it a little, but we should still have a tremendous live-stock traffic from different places.

- G. T. Evans, Esq. 1525. You think that in the event of the abattoirs being abolished it would be necessary to establish killing stations and depôts in various parts of the country? Yes.
1526. In the event of that being done could your trucks be converted into trucks for the conveyance of chilled meat? Yes.
1527. Have you any idea what it would cost to do that? I do not know what it would cost, but I may mention that I intend to give to the Government another improvement in my truck, which I think will be a splendid one in connection with the conveyance of meat.
1528. You say that your trucks could be used for the conveyance of chilled meat? Yes, with great advantage, and at very little cost.
1529. *Mr. Smith.*] The new improvement which you speak of is one by which you utilize the motion of the wheels for the ventilation of the chamber? Yes. I have been working at the idea for twelve months.
1530. *Chairman.*] You think that under any circumstances, whether Glebe Island abattoirs are abolished or not, there would always be a good deal of live-stock traffic? Yes.
1531. And that a combination truck would be useful? Yes; of the greatest value.
1532. *Mr. Lyne.*] When you referred to the trucking of sheep at Deniliquin, are you aware that the Victorian vans are divided into four compartments? Some of them are. I have seen a lot of them without partitions.
1533. Are you aware that the trucks which are now being made by the Victorian Railway Department are all divided into four compartments? I am not.
1534. You make a suggestion for the alteration of the yards pretty well throughout the Colony? I think that it would be a very good thing, but not all the yards.
1535. Have you loaded many sheep yourself? A great many.
1536. Have you actually loaded them? I have worked at the loading myself.
1537. I understood you to say that there would be no occasion to alter the yards where there were not more than five trucks required? I do not think it would be necessary.
1538. Did you ever move five trucks to and from the races? Yes; a good many times.
1539. Did you not find it hard work? Yes, it is pretty hard work, but in some cases it is easy. It was this which caused me to give the matter some thought, with a view to devising some means to remedy the evil. I think that the improvement of the yards as I have suggested would be the simplest and best means.
1540. At what station is it always possible to obtain an engine when required for loading sheep? At most of the sheep-loading stations where there are any number to be loaded there is always an engine waiting to take them away.
1541. Do you know anything about the Albury station? Yes; but very few sheep are conveyed from there, that is comparatively speaking. The total number conveyed from Albury in 1887 was 12,200.
1542. How many would there be the year before? I do not know.
1543. Do you think there were 100,000? I should not think so.
1544. Do you think there were 200,000? I should not think so.
1545. Do you not know that during the dry seasons sheep were bought in Victoria by hundreds of thousands and brought by rail to Wodonga, unloaded there, driven to the Albury yards, and retrucked there to be taken to different places in the country? I remember that during the dry years they were taking sheep from every station on almost all the lines.
1546. Do you know how many stations there are on the Northern Line? I do not.
1547. Does not the list issued by the Department show that there 100 trucking stations altogether? Yes.
1548. I suppose that some of the stations on the Northern Line are important? Yes, the terminal stations would be important for sheep.
1549. How many? Two or three. I think it would be madness to think of constructing a large number of these yards at all the stations, because they never would be used. But where new stations are being built, I think that the principle which I suggest ought to be adopted. If we were only to have accommodation for loading two trucks at a time I should adopt this principle.
1550. Have you had any experience in end-loading sheep? I have seen it tried.
1551. How many times? I could not say. I saw it tried when some trucks were altered some years ago.
1552. Are you aware that in South Australia they load trucks from the end? Some of them. The principal reason is because they carry the sheep over two different gauges, and they put the trucks end on and run the sheep from the narrow gauge to the wide gauge. They do not take the trouble to count them, or care how they are loaded. They are just run in anyhow—the owners taking the risk.
1553. Then you mean to infer that they do things in a slipshod manner there? That is the way they carry live-stock. They do not bother about counting them at all.
1554. Are you aware that they load from the end in New Zealand? It has been done very recently, if at all. I am quite sure that they did not do it two years ago, because I was there. There was a locomotive engineer from New Zealand here five or six months ago and he said then that they did not load from the end.
1555. When you were examined on the 14th March you were asked some questions with reference to the last experiment which was tried, and you were asked:—
1051. How long ago was that? I suppose it must be eighteen months ago.
1052. What was done then? We had six trucks altered first, at a cost of about £50 each.
1053. Who instigated that experiment? Mr. Lyne, who was then Minister. They were tried at Homebush, and the trial was anything but satisfactory. It was stated that it required a train load of trucks to be altered to give the system a fair and proper trial.
1556. Do you still say that the trial was unsatisfactory? I do.
1557. Then you were asked:—
1054. Was that ever done? Yes; Mr. Lyne asked me to superintend the alteration of eight other trucks which would make fourteen trucks in all. He thought the cost of altering the first trucks was exorbitant, and he instructed me to buy the material for the other trucks as cheaply as possible, and to save all unnecessary expense. I superintended the alteration of the trucks, and I think that they cost about £30 each. Of course it was more temporary work than was put into the other trucks.

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1055. What was done with the fourteen trucks? They were tried at Homebush.
1056. Were you present? Yes; I cannot remember exactly what was done, but the trial was a miserable failure, as far as success is concerned
1558. Do you still say that? Yes.
1559. Who superintended that trial? I think you did.
1560. How do you reconcile that with the statement that you did so? Acting under your instructions I had the doors opened and fastened, and I got the sheep for you.
1561. Then you were asked:—
1057. Do you remember in what respect the trial failed? In the first trial of the six trucks, I remember that they put 400 sheep into the bottom decks. The sheep could not be stopped when they started to run, and they were only 200 left for the top decks. The men occupied about 40 minutes in loading the six trucks, and then they never counted the sheep or closed the door after the trucks were loaded, and some of the sheep actually stood in the spaces between each truck. They were not divided or counted.
- Do you know that they were not sufficient sheep there to fill the top decks? That arose because too many sheep were put into the bottom decks. You could never fill the trucks properly. There were 600 sheep to fill the six trucks, 400 were run into the bottom decks, and only 200 were left for the top decks.
1562. You still repeat that? Yes; I can bring forward half-a-dozen witnesses to corroborate it.
1563. Did not I get into the trucks and load the sheep? Yes.
1564. Did not I send away the men whom you put there, as they were no good at all? I did not put any men there at all to load the sheep. I superintended by getting the trucks ready, having the doors opened, and borrowing the sheep, that is what I mean by superintending.
1565. Then you were asked:—
1058. Was Mr. Lyne present? Yes; I may mention that when the trial of the fourteen trucks took place, I got two of the smartest men that we had at Homebush, and I instructed them to open the doors and have the trucks ready for end loading, and I told them that I wanted them to do it as quickly as they could. It took these two men 50 minutes to open the doors and to get the trucks ready for loading. You must understand that in each of the fourteen trucks there were eight doors and four flaps to open, thus you would have 112 doors to unfasten, to open, and then to fasten open.
- That was not done when I was there? That was done before you arrived.
1566. You say now absolutely that it took half-an-hour to open the doors of these six trucks? Yes, I am quite sure.
1567. Are the trucks still in existence? I believe they are. I will guarantee that in my truck we can load 1,000 sheep in the time you are opening the doors and fastening them open, with the present system that we have for loading. I can satisfy the Committee with evidence on that point which cannot be questioned.
1568. How long were we putting the sheep in? I cannot remember particularly, but I should think over half-an-hour. I think 40 minutes.
1569. Was it not 20 minutes? I think it was more than that.
1570. Do you not know that there is an official statement that it was done in 20 minutes? I do not know, but I am sure that it was more than 20 minutes. The doors were never closed, or the sheep taken from between the trucks. The sheep were run into the trucks and that was all that was done.
1571. Do you say that none of the doors were shut? Yes.
1572. Were not the doors of two trucks shut? I will not swear that they were not, but I did not see them. It was after the trial was finished that they were shut, if they were shut. The time taken was that occupied in running the sheep in. The doors were not interfered with in any way at all.
1573. Had you anything to do with the loading? I assisted by frightening the sheep, and seeing that there was no delay. At the time I was anxious to get all the information I could, and I wanted to see if there was really anything in the end-loading system.
1574. You say that 400 sheep were put into the bottom decks? Yes.
1575. And yet you say they were not counted? The top lot were counted after they were unloaded, and then we knew how many sheep were put into the bottom decks.
1576. Were all the sheep in the yard put in? Yes, all the 600 that I brought were put in.
1577. Were there none left in a back yard? The 600 were put in. The man in charge at Homebush counted 180 or 220 in the top decks, and there were quite two-thirds of the sheep put in the bottom decks.
1578. I should like you to reflect a little over your statement that all the sheep were loaded? I should not make the statement without being able to prove it. I have had my opinion corroborated, and I can bring witnesses to prove that what I say is correct.
1579. You still adhere to your statement that the whole of the sheep you brought there were put into the trucks? That is my impression.
1580. You are altogether opposed to end-loading? I do not think that there is anything to be gained by it. If there was anything to be gained by it, I should be as much in favour of it as any one, but I think that there is much to lose by it.
1581. Have you had any experience on stations? I have had no experience except in the loading of sheep into trucks. Here I may say that I know some men who could do as much with stock in half-an-hour as others could do in two or three hours. We had a man at Goulburn who could load 1,000 sheep in half-an-hour, without a dog or a boy, or any assistance of that kind, while half-a-dozen men at the next station might not be able to do it in six hours.
1582. When at Homebush on the occasion referred to, did you not tell me that the reason you could not open and shut the doors more quickly was that the flaps were too heavy? I did. They were ridiculously heavy. But if you have an end-loading system you must have strength; you must have big heavy doors; you must have doors and flaps as heavy as those were. You must not have doors which would be strong enough for sheep, because they must be strong enough to carry cattle. I do not believe in end-loading, for the reason that it costs £40 or £50 more to construct a truck for end-loading that will be strong enough to carry cattle as well as sheep, and the truck would have to be a ton heavier than it would be otherwise. The doors help to make the truck heavier, and they weaken it tremendously. I am sure that if your experience was as great as mine, especially with cattle, you would agree with me that the less doors you can have in a truck the better it is, and end doors would weaken a truck so much that it would last no time or cattle.

- G. T. Evans, Esq.
18 April, 1888
1583. Leaving out of the question details as to strength of doors, I want your opinion as to the principle of end-loading generally? I do not think that there is anything to be gained by it. It is almost impossible to introduce it now. We have 300 trucks, and before we could introduce the system we must alter all these trucks, and that would mean a cost of £30,000 or £40,000. Further, I think it would be impossible. You cannot regulate the number of sheep in a truck as you can with the present system.
1584. Can Mr. Wilkinson's truck be used at the present yards without altering them at all? I believe that it can.
1585. *Mr. Smith.*] Referring to Mr. Lyne's question as to your having moved trucks yourself, is it not a fact that you have worked your way up to your present position from that of porter? For three years I was a railway porter.
1586. You have gone through every phase of railway work up to your present position? Everything.
1587. You have moved trucks personally; you have loaded sheep personally; and you have done all the hard as well as the easy work in connection with the different positions? Yes.
1588. About how often would it occur out of a dozen occasions that you would have to move trucks by hand in consequence of there being no locomotive at the station under the present system? Very rarely; not more than three or four times. I should like to explain that in Victoria all the live-stock is loaded by the Department. They have not the slightest difficulty in loading there, because they have men who are accustomed to the work, and know how to do it; but here we have loading done by people who are not accustomed to it.
1589. *Mr. Lyne.*] Are you sure that at Wodonga the loading is done by the Victorian Department? The Department are supposed to load the stock. They undertake to do it; I have seen it done at Sandhurst and other places repeatedly.
1590. *Mr. Smith.*] If the yards are fitted up, as suggested by you, at a cost of £5,300, is it not a fact that it will only be necessary to move the trucks where the quantity of sheep to be trucked is unusual? That is all.
1591. Because, where the number was usual and provision was made in the yards, there would be no moving of the trucks necessary? No moving at all.
1592. Would it not be possible at new stations where the quantity of the stock traffic was great to erect one set of yards to start with in such a way that as the traffic increased you could add yard after yard? Yes, without the slightest trouble; you could increase the yards according to the amount of traffic.
1593. In all the evidence which you have given before bearing upon the capabilities of your truck and these yards, and all the difficulties which are to be met with at present, you speak from actual practical knowledge gained in the service of the Department? Yes, and I say further that I have not had the slightest assistance or wrinkle from anyone. The whole thing is my own idea. The two models that you see before you are my own work entirely.
1594. *Mr. Lyne.*] The Chairman has asked you some questions with reference to the probable stock to be carried supposing the Glebe Abattoirs were to be done away with? Yes. I say there would still be a good deal of stock traffic.
1595. I suppose you base that statement on the assumption that the number of stock in the country is increasing to such an extent that in any case there must be a large traffic of life-stock over the railways? You could not have killing places everywhere, and you would have to travel stock perhaps 100 or 150 miles, and so on.
1596. You do not altogether calculate the carriage of stock upon the carriage of fat stock? No, we carry a lot of store stock.
1597. You are aware that in bad seasons there is not sufficient rolling stock to carry the store stock away? That is one of the reasons which induced me to go in for a combination truck, so that instead of having to take empty trucks away to take starving stock from one place to another we should be able to utilise the trucks for other traffic.
1598. What do you conceive would be the saving to the Department in the carriage of goods and live-stock if the whole of the trucks were combination trucks? I would not have nearly the whole of them combination trucks. As nearly as I can calculate, giving the benefit, if any, against the combination trucks, I am quite sure that £80,000 or £90,000 a year would be saved to the Government.
1599. Suppose there were 100 trucks running what percentage in saving do you think there would be in having combination trucks which could be used for sheep as well as stock, that is, in dead running? I think about about 50 per cent. I think that instead of carrying live-stock at a loss as we do now we should carry it at a profit because the live-stock traffic would be natural back loading, and the return from it would be clear profit, as compared with the present state of things.

THURSDAY, 19 APRIL, 1888.

Present:—

MR. HAYES, | MR. LYNE.
T. H. HASSALL, Esq., IN THE CHAIR.

Bruce Smith, Esq., Counsel, instructed by J. McLaughlin, Esq., appeared on behalf of proprietors of the Evans Australian Combination Truck. W. B. Wilkinson, Esq., appeared in person.

William Boyce Wilkinson, Esq., further examined:—

W. B. Wilkinson, Esq.
19 April, 1888.

1600. *Chairman.*] I understand that you are desirous of giving some further evidence—will you state what it is? In the first place, I desire to hand in some letters which I wrote to the Commissioner for Railways, and which have not been included in the papers laid before Parliament. (*Letters handed in. Vide Appendix B.*) The reason why I put in these letters is that I received no replies to them.

1601.

W. B.
Wilkinson,
Esq.
19 April, 1888.

1601. *Mr. Smith.*] How did you send them? I delivered them myself at the Works Office, in order that there might be no mistake. I wish now to refer to a trial of my truck which took place, in compliance with a request made by the Chairman of the Committee, in December, 1887. I loaded my truck at Dubbo with fifty sheep and five bullocks. These sheep and cattle were supplied by Mr. Baird at Dubbo. I had no opportunity of seeing the sheep or cattle to judge of their size until they were brought to the trucking yard. The sheep were trucked in the presence of Mr. Henson, the Traffic Inspector at Wellington. I travelled with the sheep as far as Orange, 80 miles. It was one of the hottest days of the summer. From Orange I came on in the mail train to Penrith. I waited at Penrith until the truck arrived there, and then I came on to Granville with the truck, and from there to Homebush. The truck was twenty-six hours in transit, but I only travelled with it some five or six hours. The truck was attached to four different trains. It eventually came in to Homebush behind a coal train. The screw coupling was not attached; it was hung by the three long links, so that the truck got more than the usual average knocking about that a truck would get on such a journey. The sheep and cattle were unloaded; they looked well. The truck had sustained no injury; there was not a scratch on it. The sheep and cattle were sold at good average prices at the Homebush yards, on the Monday following. The cost of the carriage of that truck of fifty sheep and five bullocks in my truck, from Dubbo to Flemington, was £7 6s. 8d. I exhibit the railway voucher, with a minute attached to it, written by Mr. Warden Harry Graves, as follows:—"This was a consignment of fifty sheep and five bullocks consigned to me by Mr. T. Baird, Dundullimal, Dubbo, and they all arrived here fresh and good." At the rates given in pages 39, 40, and 41 of the rate-book of the Department the carriage of the same number of sheep and cattle in any of the trucks in existence in the Colony would have cost about £13 16s.

1602. They would have to be brought in two trucks, which would cost that amount? Yes. Half a truck of cattle, or one deck of sheep, would cost 6d. a mile. The distance from Dubbo to Flemington is about 267 miles.

1603. *Chairman.*] From your experience in trucking stock, do you think that any man residing as far away as Bourke or Dubbo would send a consignment of half a truck of sheep or cattle? Yes. Since my truck has been constructed several applications have been received by me for the use of it in that way.

1604. Do you not think that instead of paying at the rate now charged a man who wished to send half a truck of stock would make arrangements with his neighbour to make up a full truck? He might make arrangements with his neighbour, but in that case, with the present trucks, he could only send the same one class of stock, but if my truck were available he could send fifty sheep and five bullocks, or any two, or even three, classes of stock.

1605. Are small consignments of half trucks often sent? No; because the present prices are prohibitory. I should also like to point out that with the present trucks the cost of carrying a horse from here to Dubbo would be £6 1s. I exhibit a railway voucher, showing that I have paid that amount. With my truck you could send a consignment of 4 or 5 tons of goods at one end, and a horse could be taken in the other end. At present we are almost debarred from sending horses from Dubbo to Sydney, or *vice versa*, except by truck loads, owing to the prohibitory rates. By utilising my truck in the way I suggest you could carry a horse for a quarter of the present price.

1606. *Mr. Lyne.*] How many horses could you send in one end of your truck? Four, five, or six, and 3 or 4 tons of goods in the other end. If I wanted to send a horse from Dubbo, by using my truck I could send it in one compartment, and sheep or cattle in the other.

1607. *Chairman.*] Would you care to put horses in one compartment and wild cattle in the other? I should prefer putting them into my truck to putting them into an ordinary truck, because in my truck they are shut out from the weather, and from the view. My truck is nearly as good as a loose box in a stable. The truck was afterwards sent to Bourke, and loaded with cattle, as per Mr. Harper's report, number four of the papers ordered to be printed 28th February, 1888. I accompanied the truck as far as Nevertire. All was going on well then. Up to that period my truck was 2 degrees cooler than Evans' truck. Mr. Harper does not mention the temperature in his report, as he says one of the thermometers was detached from a truck. Nevertheless we kept a record. The thermometer which was not broken was taken from one truck to the other, and the temperature registered. In his report Mr. Harper refers to cattle being down in my truck. My objection to the report in this particular is that although the cattle were down no steps were taken to get them up. This is shown by Mr. Harper himself, because he admits that they got up themselves between different stations. The second public trial took place on January 8th. I take objection to the 4th paragraph in Mr. Harper's report respecting this trial. "Before loading the 'Wilkinson' truck that gentleman objected to a large and rather wild and sulky bullock, which in the ordinary course would have been loaded in his waggon, and at his request the beast was returned to the main mob." I state that this is untrue. Mr. Harper tried to get this particular bullock into Evans' truck three different times. It was a large horned bullock. They made the bullock sulky by knocking him about, and then they wanted to insist upon my taking him, and because I objected—that is represented as being detrimental to my process of loading. I also take exception to the latter part of the 6th paragraph of the report:—"During this part of the journey on several occasions the horns of the cattle in the Wilkinson truck became entangled amongst the bars and had to be released." This is not true. There was one very large horned big stag in the truck. When the shutters were closed he could not put his horns right through. I removed the shutters, and allowed him to put his horns through, and he had his horns through in that same position nearly half the journey. He never moved, and was unloaded at Homebush without a scratch. One of the advantages of my truck is that a bullock can put his horns through the bars without being entangled. The space is large enough to allow him to withdraw them again. There is no comment in the report as to the state of the cattle on their arrival at Homebush, but cattle were down in nearly all of the trucks, Evans' included, and they had been down throughout the whole journey except mine. The cattle came out of my truck just as they were when they left Byrock, and Evans' truck had been unloaded twice. The cattle were some thirty-six hours on the road, and those that were in my truck were not hurt in any way.

1608. *Mr. Hayes.*] I would point out that in his report Mr. Harper says that the whole consignment of the thirty-three trucks arrived at Homebush with about twenty-four head down? I did not notice before that he mentioned that specially; but I may say that I never saw so many cattle down in a consignment before. The reading of the thermometer given by Mr. Harper at Byrock is not true. The following are the

W. B.
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the readings of the thermometer taken in the presence of Mr. Anderson, of Bourke, and Mr. John Little, the owner of Curraaveena station:—

Time.	Place.	Evans' Patent.		Wilkinson's.		Guard's van.	Remarks.
		Thermom-eter.	Number of cattle in truck.	Thermom-eter.	Number of cattle in truck.	Thermom-eter.	
9:40 a.m.	Byrock	97	—	95	—	Not taken	Both trucks stationary.
12:35 p.m.	Byrock	101	—	99	—	Not taken	All shutters closed in Wilkinson's truck.
3 p.m.	Coolabah ...	102	8 head	102	9 head	96	All shutters closed in Wilkinson's truck.
4 p.m.	Girilambone	103	8 "	101	9 "	97	Shutters open in Wilkinson's truck on north side only.
5 p.m.	Nyngan.....	100	8 "	99	9 "	96	Both sides closed in Wilkinson's truck.
6 p.m.	Nevertire ...	96	8 "	94	9 "	90	Shutters open on north side only.
9:30 a.m.	Bathurst and Kelso.	84	8 "	84	9 "	80	Shutters closed on both sides in Wilkinson's; one bullock taken out of Evans' at Kelso.
12:45 p.m.	Wallerawang	83	7 "	83	9 "	78	Shutters closed (Wilkinson's).
2:50 p.m.	Zigzag siding	88	7 "	90	9 "	80	Shutters closed (Wilkinson's).
1:30 a.m.	Flemington	79	7 "	82	9 "	Not taken	Shutters closed (Wilkinson's).

I also object to the last paragraph of Mr. Harper's report respecting the second trial, in which he says—"The Evans truck arrived intact, and was not touched. The Wilkinson truck had a new louvre placed in it, the working parts oiled, decks raised and adjusted, and sundry alterations to the shutter fastenings." It is correct to a certain extent, but it is put in such a way that it is liable to give a wrong impression. The facts are that when my truck arrived at Flemington I got a man to lower the deck and raise it to see if it was still in good repair. There was no adjustment, as Mr. Harper says. The alterations to the shutter merely consisted of taking the pin out of the side of the shutter and putting it in the bottom, so that the shutter was fastened at the bottom instead of at the side. To read Mr. Harper's report you would think that the truck had undergone a number of alterations. I now come to trial No. 3, which took place at Carrathool. I take exception to the 3rd paragraph, in which Mr. Harper says, "Evans' truck was altered by myself, and 112 sheep loaded, the time occupied being 27 minutes." The Evans truck was altered by Mr. Harper from a cattle truck to a sheep truck, and it took him 13 minutes to make this alteration. The truck was then brought up to a race and the loading of it occupied 14 minutes. My truck was brought to the sheep yard as a cattle truck. I loaded the bottom deck first, which enabled me to walk into the bottom deck and distribute the sheep evenly. I lowered my deck from a cattle truck into a sheep truck while the sheep were being loaded. The alteration, the conversion, and the loading of my truck took 14 minutes. The time was taken by Mr. Roberts, traffic inspector, at June. I take exception to the 5th paragraph of Mr. Harper's report, in which he says:—"On reaching Darlington (24 miles from Carrathool) it was found that both of the upper decks in the Wilkinson truck had given way some 5 or 6 inches, being completely twisted and strained, and threatening at any moment to fall altogether. At Mr. Wilkinson's request, and in the interests of humanity, a wire was sent to Narrandera to provide screw-jacks and timber to support the decks." The facts are that there is a nut which runs in a slot which is fastened to the side of my deck. This slot runs in a groove, and this particular slot was about an inch shorter than any other slots, therefore it did not reach into the groove. It has not been altered. I have left the truck as it was so that the Committee may see the cause of the depression of the deck. With regard to the weights of the truck, I would point out that they have been weighed several times, and that on no two occasions have they weighed the same. There was a difference of cwts. in some instances. I also take exception to Mr. Harper's report where he states:—"The upper decks of the Wilkinson truck after all the gear had been adjusted took 7¼ minutes to raise." Messrs. Scott, Downe, and Kirkcaldie were there at my request, to see what had really happened to my truck, and Mr. Downe has given evidence as to that. It will be seen from a minute by Mr. Kirkcaldie that we had no knowledge that the time was being taken by Mr. Harper. I asked the man to raise the deck, and after he had raised it a certain distance I ordered him to stop. We then got inside the truck, and I pointed out to Mr. Downe how the slots were short. This examination took a minute or two, and then the man was told to wind the deck up to the top. The time that we were in the truck is included in the time which Mr. Harper says it took to convert the truck. The time taken in lifting my deck is 2 minutes. I also take exception to the last paragraph, in which Mr. Harper says:—"The Wilkinson truck is 7 tons 15 cwt. 2 qrs. in weight; has had most unremitting attention, such as could never be paid to ordinary stock vehicles; has been repaired, and is to-day unfit to carry sheep." I say that my truck has had no more attention than should be given to any other truck that was conveying stock. It is an advantage that you can bestow attention on it, whilst you cannot with other trucks. The statement that the truck was being repaired is absolutely incorrect. No alteration has taken place since the trial, and the necessary repairs could be made for £1. It was in its present state when it was sent to the Exhibition and judged there. I now come to Mr. Harper's further report, included in papers ordered to be printed, 4th April, 1888, in which he says, "Mr. Wilkinson's truck has carried stock four times, but not in competition, nor in any sense under the supervision of myself, nor, as well as I am aware, under that of any other office of the Department." I take exception to this, as the truck was loaded in the presence of and under the superintendence of traffic inspector Henson, and it was unloaded in the presence of Mr. Harper. On reference to the Commissioner's minute, page 2 of the papers ordered to be printed 28th February, 1888, it will be seen that the Commissioner refers to the first trial, so that there must have been some official report respecting it. I take exception to the next paragraph, in which Mr. Harper says, "The Evans truck will carry as many or more stock as compared with the Wilkinson. The measurements of the two vehicles are my authorities for saying so." Reference to the measurements will show that as a cattle truck there is more floor area in my truck than there is in Evans' truck, and as a sheep van my truck has the same floor area as Evans'. It is the floor area which regulates the number of stock to be carried, but Mr. Harper has been basing his calculations on the total area. I also take exception to the concluding paragraph of Mr. Harper's previous report, in which he says:—"With reference

reference to the number of operations necessary to alter the waggons I may state that they have no value in relation to the practical working of them. The Evans truck has seventeen to convert it to a sheep-van, the Wilkinson eight, but in each case they are principally of a minor character. At the conclusion of the trials the Evans truck was altered in $4\frac{1}{2}$ minutes, the Wilkinson truck in $7\frac{1}{4}$ minutes." I say that the seventeen conversions referred to in connection with the Evans truck are important. As to the model of the trucking yards which Mr. Evans has exhibited, I will point out that all trucking yards are, and must be, from 10 to 20 feet from the main line, and I would point out that yards similar to those indicated in the model could not be constructed except on a made road. It is proposed to put a platform within 2 feet of the trucks, and therefore the top platforms from the yards to the trucks would need to be 40 or 50 feet long, and they would need to be enormously heavy. The gangway or movable platform would have to be carried 20 feet beyond the level of the trucking yards themselves. With my truck the side and end-loading doors are so situated that it can be used without there being a necessity to spend a shilling on existing trucking yards. Any ordinary trucking yard along the line with a common receiving yard is as good for my purpose in loading 100 or five trucks as the best trucking yards in the Colony. Since my truck has been tried, further advantages than I have claimed for it have manifested themselves. By the movable shutters you can shut out the sunlight, and protect the stock from the weather. Mr. Harper's report bears this out, but he turns it to my disadvantage. I can close the shutter on one side and protect the stock from the rays of the sun, if necessary, and I can open the shutter on the shady side. To test whether my truck was any hotter with the sides closed than when opened, I tried the temperature during the trials, and I found that there was no difference. The draught which runs between the side shutters and the sides of the truck and also the end louvred kept the truck quite as cool with the shutters closed as it was when they had been open. Another great advantage which I found in travelling the stock was that by moving the shutters I could see whether or not any beast was down, and I could get at him anywhere from the floor of my deck up to the roof. In the existing trucks and all models of trucks that I have seen the sides are all dead wood from the floor to within something like a foot or 18 inches of the roof. Further, if a bullock is down in any other truck the only means you have of getting at him is by putting your hand over the top of the dead wood near the top and trying to poke him up. At night time I found that I could walk along my truck, and with a hand lantern I could put a light through the truck and see if all the beasts were standing. It is a great advantage for the man who travels in charge of cattle to be able to go along the trucks in this way and see that the cattle are standing, because if one bullock is down the chances are that with the first shunting that takes place he will bring three or four others down. With reference to the loading of stock I may say that I have been trucking stock for a number of years. When Dubbo was the terminus, and previous to the Mudgee line being opened, it was the largest trucking depôts in the Colony. At that time I trucked for all the leading agents in Sydney except Hill, Clarke, & Company. I say that it is almost impossible for one man to load a truck of sheep. It might be done, but the Department would never allow it, because it would throw all the trains late, and the person trucking would have to be continually walking up and down the races, going to the mouth of the trucks to make the sheep enter, and then coming back to the mouth of the races to make them start again. It takes three men at least to truck sheep. The shunting at all the principal stations has to be done by manual labour. Throughout all the years that I have been trucking at nearly all the principal stations on the Western Line we have never been assisted by a horse or an engine in the shunting of trucks, except on three occasions. With reference to my end doors, as far as I know, they resemble those of no truck or patent in any way whatever. The ends of my truck are louvred, but there is no danger from sparks falling and burning the sheep, as wool on the sheep's back is not at all inflammable. I have put five matches alight at one time on an open skin and it would not burn. As showing that I apprehend no danger in this way I may say that in my trip from Hay to Sydney I left the roof of my truck open all the way.

1609. *Mr. Smith.*] With the exception of those points in Mr. Harper's report to which you have drawn attention do you admit the truth of the rest? No. There are other points in his reports which I mean to bring out when I cross-examine Mr. Harper.

WEDNESDAY, 25 APRIL, 1883.

Present:—

MR. KETHEL, | MR. LYNE.

T. H. HASSALL, ESQ., IN THE CHAIR.

Bruce Smith, Esq., Counsel, instructed by J. McLaughlin, Esq., appeared on behalf of proprietors of the Evans Australian Combination Truck. W. B. Wilkinson, Esq., appeared in person.

John Harper, Esq., called in, sworn, and examined:—

1610. *Chairman.*] What are you? Goods and Live-stock Superintendent, Railway Department.
 1611. Have you any knowledge of any trials which took place between combination trucks? I have.
 1612. You were requested to furnish a report of the running of the different trucks? Yes; of the Evans and the Wilkinson trucks.
 1613. How many journeys did you make with the trucks? Three.
 1614. And the substance of your observations is contained in a report which you furnished to the Commissioner, and which is now before this Committee? Yes.
 1615. Will you swear that the statements you have made in that report are true in every particular? The oath that I subscribe now I subscribe to that report.
 1616. How long have you been connected with the Railway Department? Seventeen years.
 1617. I presume that during that time you have had large experience in the trucking of stock? I have been connected with the goods and live-stock traffic the whole of the time, with the exception of twelve months when I was in the office of the Engineer-in-Chief.

J. Harper,
Esq.

25 April, 1883.

J. Harper,
Esq.

25 April, 1888.

1618. You have had means of observing the transit of stock by rail during the whole of that period? The whole of the correspondence relating to the traffic has passed through my hands, directly or indirectly. I have had every opportunity of judging the various complaints and suggestions which have been made in connection with the live-stock traffic.

1619. In the event of the Glebe Island Abattoirs being abolished, and it being necessary to establish killing depôts in various parts of the country, do you think these trucks could be made available as chilled trucks for the conveyance of dead meat? I see no reason why they should not. I may say, in explanation, that as far as I have been able to glean the most modern truck which is suggested for use for the dead meat traffic is the Tiffney car, which is simply a box truck like these combination trucks. These combination trucks could be made available for all the purposes of the dead meat trade by boxing them up in the same manner as the Tiffney car is boxed up. From what I have seen of both these trucks, I think they can be made available for the chilled process carried out in the Tiffney car.

1620. Do you think that the cost of alteration would be great? No. You would simply have to box up the trucks and make them air-tight.

1621. So that in the event of these combination trucks being constructed on either of the patterns submitted and in the event of the live-stock traffic falling off and a dead meat traffic superseding it, the trucks could be made available for that traffic? Yes; at a small cost. The information which I have is of the latest character; I got it the other day from Mr. Bruce, who has been making inquiries about the Tiffney car, and I gathered from him that that is the car at present in use in the United States.

1622. *Mr. Smith.*] In carrying dead meat, the carcasses would have to be suspended from the roof of the truck? Not necessarily in the Tiffney.*

1623. But in these trucks? The meat could be suspended from the roof in the Evans truck, on account of the structure of that truck.

1624. Speaking, generally, of combination trucks, the carcasses would have to be carried hanging from the roof? Yes.

1625. In the Evans truck what substance would there be to put the hooks into? It is a solid roof.

1626. It would hold as much meat as you could hang in the truck? Yes; it would hold $4\frac{1}{2}$ tons, which is the quantity of meat we ordinarily carry.

1627. What would there be to fasten the hooks into in the Wilkinson truck when the upper deck is up? I do not know what there would be to support the bars; the opening in the roof would be a serious detriment to hanging the carcasses from the roof.

1628. Suppose hooks were put into the deck when it was up, to correspond with hooks in the roof of Evans' truck, would that deck, in your opinion, hold 4 tons of meat? Decidedly not.

1629. Then, as at present constructed, you do not think that the Wilkinson truck would be as suitable for the carriage of carcasses as the Evans truck is? I am sure that bars could not be put in the lower portion of Wilkinson's middle deck.

1630. It has been imputed that throughout the trials of the trucks you displayed a preference for the Evans truck—is that true? It is not true; I simply did my duty as an officer of the Department.

1631. Were you perfectly impartial in the treatment of the two trucks for the purpose of ascertaining their capabilities? I made the conditions as nearly equal as I possibly could for the trials, and I reported the results with all the impartiality which I felt due to my position in the Department.

1632. Did you say or do anything throughout the trials which would justify an imputation of that kind? I am sure that I did not.

1633. You have no feeling one way or another in the matter? None whatever.

1634. You simply did your duty as an officer of the Department? Yes.

1635. If you turn to paper number four, referring to the first trial, you will see that you state that "the trucks weighed empty, as follows:—Evans' truck, 6 tons 13 cwt. 1 qr.; Wilkinson's truck, 7 tons 18 cwt." Have you any doubt as to the truth of this clause in your report? None whatever. They were weighed in the presence of myself and Mr. Braid, the locomotive carriage foreman. They were standing on the bridge at Sydney uncoupled. I wish to explain that the trucks were weighed after heavy rain had fallen, two days after, and probably that will explain the discrepancy which you will notice further on in the weights. The effect which the rain would have on the trucks would depend upon the quantity of soft wood in them.

1636. You also state that "they were loaded on 29th December with the following weight of goods for Bourke:—Evans', 5 tons 0 cwt. 1 qr.; Wilkinson's, 4 tons 17 cwt. 2 qrs." You say that is correct? Yes.

1637. Further on you state that "after leaving Bathurst the cattle began to slip about considerably in the Wilkinson truck, and at Katoomba one bullock got down. At Lawson two were down but were able to get up again, as at Glenbrook they were all on their feet. On reaching Penrith three head were down." Have you any alteration to make in that statement? None whatever.

1638. You are perfectly certain about it? Yes.

1639. Are we to infer from the fact of your omitting to say that there were any down in the Evans truck that there were none down? There were none down. The cattle in Evans' truck were on their feet the whole journey.

1640. Further on you state that on reaching Homebush "two of the cattle had regained their feet, the remaining one being in a very exhausted condition." Do you reiterate that? Yes.

1641. Then you state that "the whole of the cattle in the Evans truck were on their feet throughout the journey, and were unloaded in $2\frac{1}{2}$ minutes. Those in the Wilkinson truck, exclusive of the beast that was down, were $14\frac{1}{2}$ minutes unloading, a fact which the unloaders attribute to the van being too close to enable them to work the cattle. The remaining bullock had to be assisted to his feet." Have you any doubt as to this statement? None whatever.

1642. In your report as to the second trial, you state that "before unloading the Wilkinson truck that gentleman objected to a large and rather wild and sulky bullock, which in the ordinary course would have been loaded in his waggon, and at his request the beast was returned to the main mob." Is that so? That is perfectly correct.

1643. Is it a fact that you tried to get the animal into the Evans truck three times, and that it refused to go in? In explanation, I may say that we had ten head of large cattle drafted from the mob into the crush

* NOTE (on Revision) :—I have since ascertained that the meat is suspended in the Tiffney car.

crush pen. There was one bullock which had very large horns indeed. We started loading them, and eight of them ran into the Evans truck; then Mr. Anderson, the agent, said that the truck would hold no more. This big red bullock was then the second in the race, and we had to turn the two of them back. He would not go through the posts of the crush on account of his horns. After he was turned back Wilkinson's truck was brought up, and Mr. Wilkinson then said, "I object to that bullock being loaded in my truck;" and he was turned back into the main mob.

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1644. Then you say that there is no truth in the statement that three efforts were made to put that bullock into the Evans truck? No. He was one of the last two that we started for that truck. You may call that an attempt to put him in, if you like.

1645. There was no other refusal made by the bullock to go into the truck? No; but he could not get past the post at the time as his horns were too wide.

1646. In another part of your report you state, "During this part of the journey, on several occasions the horns of the cattle in the Wilkinson truck became entangled amongst the bars and had to be released." Is that so? Yes.

1647. If Mr. Wilkinson says that it is untrue, are you prepared to say that it is true? I am prepared to swear to all that I say in my report.

1648. Would there be any truth in the statement that the bullock was knocked about more than other cattle? The bullock was sulky before he went into the race. He was not knocked about more than usual in getting into the race.

1649. Mr. Wilkinson, in his evidence, says, "They wanted to insist on my taking him, and because I objected that is reported as being detrimental to my system of loading." What do you say to that? I have not said that at all. I simply said that the bullock was turned back into the main mob.

1650. Mr. Wilkinson says, "That it is not true that on several occasions the horns of the cattle in his truck became entangled in the bars and had to be released?" I say it is true.

1651. Mr. Wilkinson says, "There was one very large-horned big stag in the truck. When the shutters were closed he could not put his horns right through. I removed the shutters, and allowed him to put his horns through?" The trouble with that bullock occurred subsequently to that, after we passed Orange. I am referring to the cattle in the western end of the truck. This bullock was in the eastern end of the truck.

1652. Mr. Wilkinson goes on to say, "He never moved, and was unloaded at Homebush without a scratch. One of the advantages of my truck is that a bullock can put his horns through the bars without being entangled. The space is large enough to allow him to withdraw them again." You say that the facts which you have stated is an illustration that the cattle do get entangled? I think they clearly prove that cattle can get entangled in his trucks, as they did in the old type of trucks.

1653. That is a difficulty which you experienced in past times with old trucks? Yes; before they were boarded up.

1654. Mr. Wilkinson complains that "There is no comment in the report as to the state of the cattle on their arrival at Homebush. Cattle were down in nearly all the trucks, Evans' included, except mine." What do you say to that? There was a bullock down in the Wilkinson truck when it reached Homebush.

1655. Is it true that cattle were down in nearly all the trucks? Yes. It was about the most fatal trip that we have ever had with cattle; there were many dead.

1656. *Mr. Lyne.*] What was the cause of that? They were over-driven. They were driven to Byrock to save mileage, and they were watered at 2 o'clock the previous afternoon, and they were five hours yarding them. There were twenty-four head down. I forget how many were dead, but a great number were.

1657. Mr. Wilkinson says, "The cattle came out of my truck just as they were when they left Byrock";—is that so? With the exception of the bullock which was down, which got up when we got to Homebush.

1658. What was the reason of its being down? I think that it was sore-footed, like the rest.

1659. *Mr. Smith.*] Mr. Wilkinson says, "That the reading of the thermometer given by you at Byrock is not true?" I say it is.

1660. You saw that for yourself? I did.

1661. You had no reason to find fault with or be dissatisfied with the thermometers which you had? None whatever. We used thermometers of the same standard in the two trucks, and they were tried and adjusted before use.

1662. The thermometer in Mr. Wilkinson's truck was thrown down? That was on the first trip.

1663. Mr. Wilkinson has given a number of readings of the thermometer, which he says were taken in the presence of Mr. Anderson and Mr. John Little; have you seen these? I saw them in the *Daily Telegraph*, in a letter written by Mr. Wilkinson.

1664. *Mr. Kethel.*] Was the reading at Byrock taken before the stock was trucked? Yes.

1665. *Mr. Smith.*] Does Mr. Wilkinson's letter give a correct account of the readings of the thermometer? No. I maintain that my readings are correct.

1666. Mr. Wilkinson also objects to the statement in your report in which you say, "The Evans' truck arrived intact, and was not touched. The Wilkinson truck had a new louvre placed in it, the working parts oiled, decks raised and adjusted, and sundry alterations to the shutter fastenings." Have you any reason to depart from that statement? None whatever.

1667. Mr. Wilkinson says, "It is correct to a certain extent, but it is put in such a way that it is liable to give a wrong impression. The facts are that when my truck arrived at Flemington I got a man to lower the deck and raise it to see if it was still in good repair. There was no adjustment, as Mr. Harper says";—is that true? I regard the lowering and raising of the deck and oiling it as adjusting it.

1668. Is anything analagous to that done with the ordinary trucks in the ordinary carriage of cattle? No.

1669. Are there opportunities for it? No.

1670. *Mr. Lyne.*] But there are no trucks in existence in which the decks are lowered? Evans' truck is the only one analagous to it in that respect.

1671. *Mr. Smith.*] Does Evans' truck require any alteration of that kind in lowering, raising, or altering the decks? They are oiled just as it occurs to the Locomotive Department to oil them. They are not specially oiled after each trip.

1672. They do not have careful attention on the journey? None whatever.

1673. Do you regard that as an infirmity if a truck requires it? I do.

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1674. Mr. Wilkinson says, "The alterations to the shutter merely consisted of taking the pin out of the side of the shutter and putting it in the bottom, so that the shutter was fastened at the bottom instead of at the side";—what do you say to that? That is quite right.
1675. Is it true that a louvre was broken in Wilkinson's truck, and that a new louvre was put in? Yes.
1676. How was it broken? I imagine by the kick of a bullock; but that is merely a matter of conjecture. We found it broken when we reached Orange in the morning.
1677. Was the louvre made of thin stuff? Of pine.
1678. *Mr. Lyne.*] Do the louvres go right to the bottom? No; there is about a 3-inch board right at the bottom of the truck, and then louvred for about 18 inches or 2 feet up in the end. The louvre which was broken was 14 or 15 inches up.
1679. *Mr. Kethel.*] Was it the slot or the frame which was broken? The slot was broken right out.
1680. *Mr. Smith.*] Referring to the passage in your report in which you say, "Evans' truck was altered by myself, and 112 sheep loaded, the time occupied being 27 minutes." Mr. Wilkinson says, "The Evans truck was altered by Mr. Harper from a cattle truck to a sheep truck, and it took him 13 minutes to make this alteration. The truck was then brought up to a race, and the loading of it occupied 14 minutes. My truck was brought to the sheep yard as a cattle truck. I loaded the bottom deck first, which enabled me to walk into the bottom deck and distribute the sheep evenly. I lowered my deck from a cattle truck into a sheep truck while the sheep were being loaded. The alteration, the conversion, and the loading of my truck took 14 minutes";—is that true? No; it took 23 minutes, as I have stated in my report, to alter and load Mr. Wilkinson's truck.
1681. Mr. Wilkinson says, "That the time was taken by Mr. Roberts, traffic inspector at Junee?" Yes; and I have corroborated my statement since by comparison with Mr. Roberts' memorandum.
1682. Then you deny that the results were obtained as stated by Mr. Wilkinson? Yes; I took the time right through from the start until the finish of the loading, and that was 23 minutes.
1683. Then Mr. Wilkinson says, "I take exception to the 5th paragraph of Mr. Harper's report, in which he says:—'On reaching Darlington (34 miles from Carathool) it was found that both of the upper decks in the Wilkinson truck had given way some 5 or 6 inches, being completely twisted and strained, and threatening at any moment to fall altogether. At Mr. Wilkinson's request, and in the interests of humanity, a wire was sent to Narrandera to provide screw-jacks and timber to support the decks.' The facts are that there is a nut which runs in a slot which is fastened to the side of my deck. This slot runs in a groove, and this particular slot was about an inch shorter than any other slots, therefore it did not reach into the groove. It has not been altered. I have left the truck as it was so that the Committee may see the cause of the depression of the deck." What do you say to that? I attribute the collapse of the deck to the weakness of the deck itself.
1684. Did the deck bend? Yes.
1685. Would the effect of that bending be to draw the bolt out of the slot? Yes.
1686. Because it only fits in when it is perfectly horizontal? Yes.
1687. Is it your opinion, based upon your experience and observation, that the deck is not strong enough to carry a quantity of sheep? It is.
1688. Mr. Wilkinson says, "With regard to the weights of the trucks, I would point out that they have been weighed several times, and that on no two occasions have they weighed the same. There was a difference of cwts. in some instances";—what do you say to that? That is easily understood by anyone who has had experience.
1689. What was the difference? I think there was a difference of $2\frac{1}{2}$ cwt. in the Wilkinson truck; but that was when it was weighed after having run a trip through all the dry country.
1690. Was the difference of weight confined to the Wilkinson truck? No; there was a difference of $\frac{1}{2}$ of a hundredweight in Evans' truck.
1691. However great the differences may have been under different circumstances both trucks would be effected more or less alike? It would depend upon the class of timber in them; but I think that the Wilkinson truck would be more effected than the other, owing to there being more pine in it; and it is well known that pine will absorb moisture from the atmosphere without rain.
1692. What proportion of the Wilkinson truck consists of pine? I could not say; but a large proportion of it, on account of the louvres and the doors being made of pine.
1693. You do not attribute the difference to defective scales? I think we have fair average scales.
1694. Are they tested frequently? They are tested regularly once a month right throughout the lines.
1695. If they are found "out" to any appreciable extent they are adjusted? Yes. I may explain, with reference to the weighing at Junee Junction, that the bridge is in an awkward position. It will hold about four trucks between the bridge and the buffer stops. In weighing the trucks we had to keep the engine attached, and this jammed one of the trucks on to the bridge. With the buffers jammed it is impossible to weigh the trucks correctly. The only way of weighing them quite accurately is to have them unattached on the bridge. This accounts for the difference in the weights given at Junee and the weight at Granville.
1696. Mr. Wilkinson also says, "I also take exception to Mr. Harper's report where he states:—'The upper decks of the Wilkinson truck after all the gear had been adjusted took $7\frac{1}{2}$ minutes to raise.'" That was the time taken by yourself? Yes, after Mr. Wilkinson and others had been duly notified that I was going to alter it, and after the middle doors had been closed and adjusted.
1697. You did not include that in the time? No. The end doors were also adjusted. Mr. Wilkinson was inside the truck showing Mr. Downe where the break occurred.
1698. Who were present? Messrs Scott, Downe, and Kirkcaldie, my foreman, and about half-a-dozen shunters.
1699. By whose request were they there? By mine. I particularly asked them to be there in order that they might see the trucks after the trial.
1700. If Mr. Wilkinson says that Messrs. Downe and Kirkcaldie were there at his request;—that is not true? I distinctly deny that Mr. Kirkcaldie knew that the trucks were there until I invited them to go and see them. Whoever may have seen him afterwards I do not know, but I say that I was the first to give information on the subject.
1701. You say that the time— $7\frac{1}{2}$ minutes—was taken by you and noted? Yes.
1702. Mr. Wilkinson says, "We had no knowledge that the time was being taken by Mr. Harper";—is that true? Mr. Wilkinson was in the truck pointing out to Mr. Downe where the accident happened. I passed

passed a remark to him, "I am going to have the truck altered." He said, "Are you ready to alter it?" and I said yes. He said, "You had better get someone to alter it." Then I called a loading-porter, about one of the strongest men we have in the Department. Mr. Downe got out of the truck after being cautioned by Mr. Kirkcaldie that we were going to alter it. This man whom I specially selected got on top and wound the deck up while Mr. Wilkinson was adjusting the decks inside.

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1703. Mr. Wilkinson says, "I asked the man to raise the deck, and after he had raised it a certain distance I ordered him to stop. We then got inside the truck, and I pointed out to Mr. Downe how the slots were short. This examination took a minute or two, and then the man was told to wind the deck up to the top. The time that we were in the truck is included in the time which Mr. Harper says it took to convert the truck. The time taken in lifting my deck is 2 minutes";—is that a true statement? No; it occupied $7\frac{1}{4}$ minutes that morning, and the time that Messrs. Wilkinson and Downe were in the truck was not in any way included in that time.

1703 $\frac{1}{2}$. Mr. Wilkinson.] They helped to do part of the work in the truck? He adjusted the chains while there.

1704. Mr. Smith.] Then you say that his statement that they had no knowledge that you were going to take the time is untrue? Whether Mr. Wilkinson heard me I do not know, but I am satisfied that the others did, because Mr. Downe left the truck in order that the trial might be conducted.

1705. Mr. Wilkinson says, "I also take exception to the last paragraph, in which Mr. Harper says, 'The Wilkinson truck is 7 tons 15 cwt. 2 qrs. in weight; has had most unremitting attention, such as could never be paid to ordinary stock vehicles; has been repaired, and is to-day unfit to carry sheep';—do you reiterate that? I still maintain it.

1706. Mr. Wilkinson says, "I say that my truck has had no more attention than should be given to any other truck that was conveying stock";—what do you say to that? I say that it did.

1707. In what respect? In adjustment of the shutters and in keeping the stock on their feet. You could not get the most careful drover to work as hard as he did.

1708. Did he visit his truck frequently? Both trucks were visited frequently by both of us to inspect them during the journey.

1709. Mr. Wilkinson says, "The statement that the truck was being repaired is absolutely incorrect. No alteration has taken place since the trial, and the necessary repairs could be made for £1." Did you ever say that any alteration had taken place since the trial? I say that the deck was straightened and, if I am not mistaken—I will not say positively—a piece of timber was put on the deck. The screw-jacks and the weight of the sheep in the first instance straightened it, and since then it has been straightened still further, but how, I cannot say.

1710. I thought that the sheep bent it? The screw-jack being applied underneath and the weight of the sheep being on top would have the effect of straightening the dip in the truck. A prop was put underneath.

1711. With reference to a paragraph in your report which says, "Mr. Wilkinson's truck has carried stock four times, but not in competition, nor in any sense under the supervision of myself, nor, as well as I am aware, under that of any other office of the Department." Mr. Wilkinson says, "I take exception to this, as the truck was loaded in the presence of and under the superintendence of traffic inspector Henson";—is that true? He had no directions in the matter. I have ascertained, as a matter of fact, that if he was there he was not there officially.

1712. Mr. Wilkinson says, "The truck was unloaded in your presence?" I was at Homebush, but not in my official capacity. I had no instructions to report on the truck and I made no report about it.

1713. Did Mr. Wilkinson request that anyone should be at the loading or the unloading? No; I had no instructions.

1714. Referring to the paragraph in your report in which you say, "The Evans truck will carry as many or more stock as compared with the Wilkinson. The measurements of the two vehicles are my authorities for saying so." Mr. Wilkinson says, "Reference to the measurements will show that as a cattle truck there is more floor area in my truck than there is in Evans' truck";—what do you say to that? Three feet, I think.

1715. Mr. Wilkinson goes on to say, "And as a sheep van my truck has the same floor area as Evans'," 6 feet less. The flaps of Evans' truck being down decreases the area as a cattle truck. The measurements of the trucks as cattle trucks are—Evans' 7 feet 8 inches, Wilkinson's 7 feet 9 inches. The lengths are—Evans' 17 feet 3 inches, Wilkinson's 17 feet 6 inches. As a sheep van, Evans' truck is 7 feet 11 inches wide; the Wilkinson 17 feet 6 inches by 7 feet 9 inches.

1716. Mr. Wilkinson says, "That there is more floor area in his truck than there is in Evans'?" It is $6\frac{1}{2}$ feet less superficial floor area.

1717. Referring to the paragraph in your report in which you say, "With reference to the number of operations necessary to alter the waggons I may state that they have no value in relation to the practical working of them. The Evans truck has seventeen to convert it to a sheep van, the Wilkinson eight, but in each case they are principally of a minor character. At the conclusion of the trials the Evans truck was altered in $4\frac{1}{2}$ minutes, the Wilkinson truck in $7\frac{1}{2}$ minutes." Mr. Wilkinson says, "I say that the seventeen conversions are important";—what do you include in those conversions? There are six flaps to be raised, a bar to be lowered, and four bars to be put in to divide the sheep and the opening of the doors.

1718. In the number of operations which you mention you do not include the division at all? I include the shutting of the middle doors.

1719. You have spoken about the usefulness of the combination truck for dead meat carriage. You consider both of the trucks an improvement on the old-fashioned method and as good as the patent American method? I say that both can be readily converted to the Tiffney type of truck.

1720. You say that the difference would be in the roof; that whereas the roof of Evans truck would be of sufficient strength to carry 4 tons of meat the upper deck of Wilkinson's truck, as at present formed, would not hold 4 tons? That is so.

1721. How many tons of actual dead weight were there on the upper deck of Wilkinson's truck when it collapsed? About 2 tons 3 cwt.

1722. In order to use that truck for the purpose of carrying dead meat it would have to stand nearly double that weight hung from the roof by hooks? More than double the weight, as the weight would be below instead of above. It would be a dragging weight instead of a pressing weight.

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1723. Are you capable of speaking as to the facilities for loading these two trucks at the present yards? As far as that is concerned both have disadvantages on account of the difference in the distances between the posts and the flaps of different yards for loading purposes.

1724. Is the Wilkinson truck adapted in every way to the present yards for loading sheep? Not more than the Evans truck. It is not adapted to some of the yards.

1725. Why? Because he requires to move his truck to close his doors when loading from the side. He has the same half doors at the end as Evans has.

1726. Why have the trucks to be removed? In order to clear the posts, because the races are too near to allow the doors to swing to until the truck is moved away.

1727. *Mr. Lyne.*] Are you sure of that? It occurred at Carrathool.

1728. Is that an ordinary platform? An ordinary sheep loading race.

1729. *Mr. Smith.*] Then it is not true that one of the chief merits of the Wilkinson truck is that it is perfectly adapted to the present yards? It is not.

1730. What has to be done to adjust it as it is at present formed? I do not think that the bottom flap will fit over the flap of the lower race.

1731. What had you to do with the truck? We had to remove the truck three or four times; that was at Carrathool.

1732. Is not a large quantity of stock trucked from there? I think that Carrathool was about the fifth largest loading station last year.

1733. How many conveniences are there there for loading? Only one yard and two races.

1734. Had you to move the Evans truck as often as the Wilkinson truck? The Wilkinson truck was moved oftener than the other.

1735. Was it necessary to move it? Yes, otherwise it would not have been moved.

1736. So that whatever other merits Wilkinson's truck may have it requires just as much moving as the Evans truck? It did at that yard; that is all that I have seen of its working in that respect.

1737. *Mr. Kethel.*] In your report you state, "The whole of the cattle in the Evans truck were on their feet throughout the journey and were unloaded in 2½ minutes. Those in the Wilkinson truck, exclusive of the beast that was down, were 14½ minutes unloading, a fact the unloaders attribute to the van being too close to enable them to work the cattle." What is the meaning of that? About half of the Wilkinson truck is boarded up or occupied by doors, and the other half is occupied by perpendicular bars, crossed by horizontal wooden bars, with intervals of 3 or 4 or possibly 6 inches between them. In unloading cattle the unloaders have to poke them up so as to start them running out of the truck, and if there was an obstinate beast in one corner of the truck we could not get at it. I have conveyed the expression of opinion of the people who unloaded the truck.

1738. *Mr. Wilkinson.*] In one part of your report you state, "Those in the Wilkinson truck, exclusive of the beast that was down, were 14½ minutes unloading, a fact the unloaders attribute to the van being too close to enable them to work the cattle." Lower down you say, "The time occupied in unloading was—the Evans truck, 7 minutes; the Wilkinson truck, 5 minutes." Is it not a fact that in the Evans truck there were seven cattle and in my truck nine? Yes.

1739. And in that instance I beat the Evans truck by 2 minutes in the unloading? Yes.

1740. You make no remark in that instance about the truck being too close? No remark was passed by unloaders.

1741. According to your own showing, the first statement which you have recorded must have been a fallacy? I have drawn no deductions. I merely repeated what the unloaders said.

1742. You say that you were present in your official capacity when the five cattle and fifty sheep were unloaded from my truck? Yes.

1743. You know that Inspector Henson was present at the loading, but not officially? I do not know; but I know that he had no instructions, because the papers came through my office. The instructions which were given were that you were to be allowed to make the trial.

1744. Would the instructions necessarily go through you? Yes; he takes all his instructions with reference to stock from me.

1745. Did you give special instructions with reference to the cattle in transit as to what trains they were to be sent by? In all probability I gave instructions that they should come on by the first train; that is all that I did. Such an instruction as that may have been sent from the office in the ordinary course.

1746. You say that no special instructions were given with reference to the first trial? I say distinctly that I personally gave no instructions.

1747. Do you know whether any were given? That I cannot say. I know that Inspector Henson received no instructions.

1748. Do you know whether Mr. Kirkcaldie or Mr. Read gave special instructions with reference to this trial? I do not know, but I do not think so.

1749. Is it not a fact, with regard to the wide-horned bullock to which I took exception, that you tried to get it into the Evans truck, and could not? I have already explained that there were ten bullocks in the yard, and that only eight could get into the truck, and that this bullock was one of the two left behind.

1750. Is it not a fact that his horns were so broad that he could hardly go through the race? Most decidedly.

1751. Is it not a fact that he passed into the race three times and passed back again whilst you were loading the Evans truck? Yes.

1752. A bullock which had been put into a race three times, and which had forced his way back again, would naturally be sulky? I think he was sulky before he went into the race.

1753. *Mr. Smith.*] No one refused to receive him for the Evans truck? If he had gone through he would have gone in.

1754. *Mr. Wilkinson.*] Is it a fact that on the first trial I left you close to Nevertire? Yes.

1755. Up to that time the cattle were getting on well in both trucks? Yes; and so they did all the way through to Bathurst.

1756. Is it a fact that on the journey down, between Katoomba and Homebush, cattle which had been down got up themselves unassisted? Yes.

1757. Is it not usual for people in charge of cattle to try to get them up when they are down? It all depends upon the position that they are in. If they are in a dangerous position the men would get them up.

up. If the cattle were foot-sore or tired the persons in charge would leave them down if they were not in the way of others.

1758. Would any man in charge of cattle think of leaving three head down without trying to get them up? Most decidedly not.

1759. Did you make any remark on the passage down after I left you with reference to the heat in my truck and in Evans' ? I may have done so.

1760. Did you ever state, on different occasions after I left you, that the heat in my truck was 10 degrees higher than it was in Evans' truck? I did not. I said that the thermometer in one of the trucks was destroyed at Nyngan, and there was only one thermometer available between the two trucks, which was shifted from one to the other. Between two stations on the road we found that the thermometer had changed 6 degrees, and a remark may have been passed about that.

1761. Did you state to anyone that my truck was 10 degrees hotter than Evans' truck? I never did.

1762. Is this declaration by Mr. Robert Allen Fraser, Superintendent of Roads, true? No; it is not. Whatever expressions I may have used to any of our officers, I refuse to have them considered in that way.

[Mr. Smith objected to the production of the declaration, and the Chairman ruled that it was inadmissible.]

1763. You made a remark with reference to my truck, that it received more attention than should be given to it? More attention than would be given to an ordinary truck.

1764. If a person was in charge of a consignment of stock, would he not give all the attention that he could to them? He should do so most decidedly; but unfortunately our experience is that this is not done.

1765. Is it not a fact that the Department allow a pass for a certain number of trucks, and that the person who has that pass is supposed to devote his attention to the consignment? Yes.

1766. You say that you have no official knowledge of the first trial. Have you noticed a minute from the Commissioner as to some of the sheep conveyed on that occasion being small and others large? I have.

1767. How did the Commissioner get that knowledge? I cannot say. I say most emphatically that he did not get it directly or indirectly from me, nor did he ask me for it.

1768. After thinking over the matter, do you say that Messrs. Downe, Kirkcaldie, and Scott inspected the truck on your invitation? Most decidedly I do.

1769. Did you see Mr. Downe come there? Of course I did. You and I were waiting there until they arrived.

1770. You are quite certain of that? Positive.

1771. Do you not think it an extraordinary thing that, if they were there, they did not notice you taking the time? I do not know what to think or to say about it. They all knew that I was taking the time. Mr. Kirkcaldie cautioned you and Mr. Downe to get out of the road, and Mr. Kirkcaldie looked at my watch and saw the time.

1772. Have you seen a minute in which Mr. Kirkcaldie states that he had no knowledge that the time was being taken? I see it now.

1773. Do you think it at all consistent that these two gentlemen should be there and should not remember these things? I know that it is perfectly consistent, because both gentlemen have told me that they have an indistinct recollection, but they are not sufficiently clear to speak with confidence.

1774. Do you know that my side doors fit the existing sheep trucking yards? At some of them they do, and at some of them they do not. I do not know that they would fit all of them, but I would not speak with confidence.

1775. In carrying dead meat in the Tiffney car the meat is not hung from the roof by hooks? No.*

1776. *Mr. Smith.*] It appears by the report that there were nine cattle in the Wilkinson truck, whereas there were only eight in the Evans. Can you tell me whether the nine weighed as much as the eight? The nine weighed less than the eight.

1777. *Mr. Wilkinson.*] But only seven out of the eight head of cattle in Evans' truck arrived at Homebush? Yes.

1778. *Mr. Smith.*] As to the difference of a ton in the weight of the two trucks, do you regard that as being of much importance to the Department? It is the most important feature of the whole lot.

1779. Have you calculated what difference in the expenditure that ton would make to the Department in the year? It costs 301d. per mile for every ton we haul.

1780. How many miles do the trucks average in the year? From a return prepared the other day, I find that the mileage of live-stock vehicles in the year was about 12,000,000 miles.

1781. *Mr. Wilkinson.*] If my truck were reduced to the same weight as Evans' there would be no discrepancy? None.

1782. *Mr. Smith.*] If it were altered to an exact copy of Evans' it would be as good? Yes.

1783. The floor is now the same? Not altogether.

1784. What would be the saving of 1 ton in the mileage amount to in the year? About £15,000.

1785. So that if the Government were to pay £16,000 for Evans' patent it would pay for itself in one year compared with Wilkinson's truck? That would be so.

1786. *Chairman.*] If you refer to page 4 of your report you will see a discrepancy in the weights of Wilkinson's truck. In one case it is given at 7 tons 8 cwt., and in another at 7 tons 18 cwt. How do you account for that? It is a misprint.

1787. *Mr. Smith.*] Speaking from your experience of the Department, do you think there can be any question as to combination trucks being an advantage to the Department? There can be no question whatever about it. It would save us thousands of pounds.

1788. From your experience of that particular Department, and from what you have seen of the two trucks, are you in a position to say which you consider the best, the one which is likely to be most profitable to the Department, quite apart from the weight question? I consider that Evans' truck is the best combination truck that I have seen, including Wilkinson's and Mulholland's.

1789. Even apart from the weight consideration altogether? Yes.

1790. *Mr. Lyne.*] Then you have formed an opinion as to Mulholland's truck? I have seen the working parts of it, and formed an opinion on them; and I have seen it after two trials. I have formed no official opinion,—I have made no official report.

1791. *Mr. Smith.*] You have seen the Perry truck? No; I saw a model of it, but I paid no particular attention to it.

1792.

* See note to answer No. 1,622.

- J. Harper, Esq.
25 April, 1888.
1792. Do you think that the principle of the floor of Wilkinson's truck is a good one? I do not consider any horizontal floor a good one.
1793. Speaking of horizontal floors generally, quite apart from Wilkinson's truck, does your experience lead you to approve of or object to them? I object to them, because you cannot get power enough to raise them after they have been used. My first experience of them was with Mr. Downe's truck ten or eleven years ago. That truck had a horizontal deck which was lowered to the floor. It was raised by gear from below. It made one or two trials, but we were never able to raise the deck, and the truck was put by.
1794. Why were you not able to raise the deck? It had gone out of adjustment. It is a difficult matter to keep a horizontal deck of such length and width in correct adjustment.
1795. Was that experience of such a nature as would lead you to condemn horizontal floors generally? Yes; and I have heard since of the experience of horizontal floors in Victoria.
1796. Leaving out of consideration what you heard, from what you saw then you formed this objection to horizontal floors? Yes.
1797. After seeing Mr. Wilkinson's horizontal floor do you think that he has got rid of these objections? I do not think so.
1798. I understood you to say that the flaps of Wilkinson's trucks might fit some of the present yards, but would not fit all? They would not fit all. It would be impossible to get a truck which would fit all of them. The present sheep vans are the only ones which are adapted to them all, because those vans have sliding doors.
1799. *Mr. Wilkinson.*] What position did you hold in the office prior to taking the position of goods superintendent? I was clerk-in-charge of the Sydney goods department.
1800. Who was the officer-in-charge? The goods superintendent was Mr. Evans; but I was as independent of him as I was of anyone.
1801. You have succeeded Mr. Evans in that position? Yes.
1802. Is it not a natural sequence that his influence was great when he was in charge of the stores? Not necessarily.
1803. *Mr. Lyne.*] Mr. Evans was over the Department in which you were clerk? Yes.
1804. *Mr. Smith.*] You know what this means, what the imputation is: that having been under Mr. Evans, you are biassed in his favour. I ask you whether you were under Mr. Evans in the sense of being amenable to his orders? In no way whatever. He had no more to do with me than the members of the Committee have.
1805. Had he any power over you in any official position except with express authority? No more than he had over any other station-master on the line.
1806. *Mr. Wilkinson.*] Were you station-master? Yes; and before Mr. Evans was appointed goods superintendent.
1807. Were you head clerk under Mr. Evans? Never.
1808. Were you never head clerk in the goods office? I was station-master, and goods clerk-in-charge of the goods office.
1809. Who was your superior officer? My immediate superior officer was the goods superintendent.
1810. Who was he? Mr. Evans.
1811. *Mr. Lyne.*] Just now you made an emphatic statement that combination trucks were superior to ordinary trucks? Yes.
1812. Are you aware that Messrs. Kirkcaldie and Read have said the reverse? I do not know what they have said.
1813. Suppose they have said so, you think they are mistaken as to the advantages to be derived from combination trucks? I distinctly say they are.
1814. Have you had any experience of the end-loading of sheep? None whatever.
1815. Do you know whether it is an advantage or a disadvantage? I cannot say. I will give you an instance of what occurs almost every day, to show you the advantage of a combination truck. We had to shift forty-five trucks of sheep from Bungendore for Mr. Rutledge. We had to send forty-five empty trucks from Homebush. On the road at Goulburn we passed thirty cattle waggons, as there were no orders in that district. The sheep were taken across country to Nevertire, and were discharged there. We loaded ten of the trucks back again from Nevertire. We were loading cattle at Bourke and Nyngan, and we had to send cattle trucks from Homebush to those places. As there were heavy truckings of sheep at Mudgee, Dubbo, and Kelso, we had to bring the remaining sheep vans back to these stations empty. The result was that there were 16,000 miles of empty running with forty-five trucks. Had the thirty trucks at Goulburn been combination trucks, they could have been used to convey Mr. Rutledge's sheep to Nevertire, and then could have been used for cattle on the return journey.
1816. You stated that at one place Wilkinson's truck had to be moved backwards and forwards to load it with sheep? Yes; at Carrathool.
1817. Why is there such a difference in the various yards? I do not know. There is a difference in the races, and in the flaps, and in the height of the races. You can scarcely find two or three races alike.
1818. That being so, if end-loading was an advantage all the difficulty of moving the trucks would be overcome? There would be no difficulty in this respect in loading the trucks if they were loaded from the end.
1819. Is it not hard work to move the trucks backwards and forwards when you have not an engine to assist you? It depends upon the road, and the number of men you have. A couple of men can move them.
1820. You know from experience that the way in which the trucks are usually loaded is to run them up to the race, load them, and then hand-spike them away, and bring other trucks up? Yes.
1821. Does that not involve great labour? Yes.
1822. And it would be a great advantage if that could be overcome? Yes.
1823. You will agree that with end-loading there would be no necessity for that? That I cannot speak of.
1824. Supposing that an engine shunts the trucks up to the race, and that one truck is put at the race to admit the sheep, and they are run through from the whole of the trucks to the end without moving at all, would not that be a great advantage and saving? It would if the sheep could be properly distributed.
1825. You said that when the upper deck of Wilkinson's truck got out of repair coming from Carrathool the

the weight of the sheep and the use of the screw-jack straightened it. How do you explain that? You understand that there is a truss-rod running through the centre of the truck, this was bent, and the deck itself was bent. The sheep were on the dock, and the screw-jack was applied underneath, and the pressure being applied to the middle straightened up the edges.

J. Harper,
Esq.
25 April, 1888.

1826. I suppose there is a certain amount of springiness or elasticity in the deck? I do not think so. There is too much iron in it.

1827. You think that it would readjust itself to a certain extent when the weight was taken off? I do not think it would.

1828. You are aware that there is a discrepancy in the weights of the trucks at various points? Yes.

1829. You are aware that the trucks weigh differently according to the atmosphere in all cases? Yes.

1830. It does not matter much what the trucks are or where they are weighed, but in different weathers they will weigh different weights in consequence of the absorption of moisture? Yes.

1831. *Mr. Smith.*] The instance which you have mentioned of there being so much dead travelling is only one of a great many? It occurs every day; but the case to which I referred came under my notice a day or two ago, and it almost startled me when I saw the empty running made over that particular transaction.

Henry Hudson, Esq., called in, sworn, and examined:—

1832. *Chairman.*] What are you? A contractor.

1833. Have you had anything to do with the manufacture of combination trucks as submitted to you by the inventors? I have.

H. Hudson,
Esq.
25 April, 1888.

1834. Will you explain to the Committee why, in the face of a letter from yourself to Mr. George Evans, in which you estimate the cost of the complete manufacture of his combination truck at £174, including the wheels, axles, and bearing springs; which are supplied by the Government, and which you say cost £40, the Government afterwards paid you £265 for each of these trucks constructed, or a difference of £80 or £90 each as compared with your estimate? It is so long ago that I forget. Perhaps I made the estimate from a model; I do not know. In fact it is new to me that I did write such a letter. I did not know that I had written such a letter, but I suppose I did. As the letter has been produced, it is evident I wrote it; but I have not the slightest recollection of having written it.

1835. Can you give the Committee any idea how it was that the cost was so largely increased? The cars were built entirely under Mr. Evans' own inspection, and, as Mr. Evans is here, he will admit that I demurred several times to putting in so much work. I urged that it was not necessary, that it was aggravating the cost of the truck without anything as a recompense for it. I can remember that.

1836. Can you give us any idea what would be the cost of the construction of the present Evans truck, and the present Wilkinson truck? I should say that the present Evans truck would be worth £200. That estimate of £174 is too low; I have no doubt about that. We are all apt to make mistakes, and I made a mistake in this instance.

1837. At that time you had not constructed any trucks on that model? I entirely forget how that letter came about; whether I estimated from the model, a description, or what. Had it not been that the letter was here, I should have said that I had not written it.

1838. What do you think that the Evans truck can be constructed for at present? £200.

1839. And the Wilkinson truck? It will cost rather more; £25 or £30 more.

1840. Then you think that the Evans truck can be constructed for £200, and the Wilkinson truck for £225 or £230? That is my belief.

1841. *Mr. Kethel.*] Would that be for the manufacture of one or two trucks, or a quantity? It makes a difference if you manufacture a quantity; but I say, estimating approximately, that if we got an order for, say, twenty trucks, we could build them at those rates.

1842. Suppose you got an order for 200 trucks? The cost would be reduced considerably, because we would then make dies of all the work, and stamp it instead of making it by hand. This would apply particularly to the blacksmith work, which is very expensive.

1843. *Chairman.*] Have you constructed each of these trucks? Yes.

1844. Therefore you are in a position to offer an opinion as to the relative cost? Yes.

1845. Have you any interest, direct or indirect, in the Evans or the Wilkinson patent? I have not in the Evans, but I have in the Wilkinson.

1846. *Mr. Smith.*] Glasson and Company are a firm who manufacture this sort of work, and I am told that they have given an estimate, after seeing the Evans truck, that they will undertake to make them at £140 apiece. I presume that they have gone into a calculation. Would you be in a position to say that they could not make it pay at that? I should say certainly they could not make it pay. I know that we cannot, and I think that we have as good appliances to do the work as they have.

1847. Up to what amount would you feel justified in saying that they could not do it to make it pay; suppose we say £160? What I mean by making it pay is that the manufacturer should certainly get 20 per cent. profit. I should say that £160 would be about the net cost.

1848. So that £200 would leave about 20 per cent. profit? Yes.

1849. *Mr. Kethel.*] In the amount paid to you by the Government for the manufacture of these trucks—namely £265—was the whole of that your charges, or did it include royalty? That amount represented our charges. There was no royalty paid. We got that sum.

1850. *Mr. Smith.*] Have you ever paid Mr. Evans any money whatever in connection with his trucks? Never a brass farthing.

1851. Or given him a valuable consideration of any kind whatever? None whatever.

1852. Are you indebted to him anything on them? Not that I am aware of.

1853. *Mr. Wilkinson.*] Were you ever a partner with Mr. Evans in his patent? I am not now, of course; the inducement held out to me at the time when the patent was taken out was that we were to have the sole right of manufacture, and if the thing turned out successfully we should afterwards confer with Mr. Evans and those jointly with him, and be recognized in a nominal way; that was the extent of our interest.

1854. Was not the patent taken out in your name in conjunction with others? I think it was taken out in my name to the best of my recollection; it is so long ago that I do not remember; but Mr. Evans had all to do with it.

1855.

- H. Hudson, Esq.
25 April, 1888.
1855. Can you recollect whether in December, 1883, you had an interest in the truck? I really cannot connect 1883 with the trucks.
1856. Do you recollect Mr. Evans writing a letter with reference to the cost of construction of the trucks? No; the letter giving the estimate of the cost was the first letter written on the subject I presume.
1857. Was the patent in your name at that time? I do not know; I do not know whether it was patented then.
1858. Were you ever asked at any time by Mr. Evans to give up a portion of your interest? Yes.
1859. Did ever a dispute occur between you and Mr. Evans with reference to the royalty on the truck? No; Mr. Evans asked me if I would forego my interest in it, because the cost was so much that the other parties interested felt sure that they could not get anything out of it; of course I said that I had no objection.
1860. Did anything occur between you and Mr. Evans with reference to the sale made by him of a share in his truck for £800?
- [Mr. Smith objected to the question.]
1861. *Chairman.*] You said that you were asked to give up a portion of your interest in the truck; what did that interest consist of? The right to manufacture, and as I said before, an indefinite interest which was to be arranged at some future date, when the success of the thing was established.
1862. *Mr. Smith.*] You never paid any money, nor ever gave any consideration whatever for it? None whatever.
1863. Is it not a fact that Mr. Evans represented to you that, being in a public position, he did not care to patent it in his own name, and that he asked you to patent it in your name? That is so.
1864. Is it not a fact that you afterwards conveyed back to him whatever interest (if any) you ever had without any consideration whatever? Just so.
1865. You did that on the request of his solicitor? Yes.
1866. *Mr. Wilkinson.*] Was it not through some sale that Mr. Evans made that he asked you to forego a portion of your share? That is more than I can say; to the best of my recollection Mr. Evans said that the cost of the truck was so much in excess of what was anticipated that the people who were associated with him did not see any chance of getting any profit, and he wanted to know if I would forego my interest, and I said yes.
1867. Have I ever received any consideration from you for the share you held in my truck? Not a brass farthing.
1868. *Mr. Smith.*] What is the arrangement between you and Mr. Wilkinson; what shares have you? We have not defined that exactly; it has to await development.
1869. *Mr. Lyne.*] Do I understand you to say that you have the same arrangement with Mr. Wilkinson as you had with Mr. Evans? We are to have the sole right of manufacture, and when the thing is developed we are to arrange what the proportions shall be.
1870. That is exactly the same interest as you had with Mr. Evans? Yes; the only difference is that one arrangement is rescinded and the other is in force.

WEDNESDAY, 2 MAY, 1888.

Present:—

MR. BRUNKER,

MR. KETHEL.

T. H. HASSALL, ESQ., IN THE CHAIR.

J. McLaughlin, Esq., Solicitor, appeared on behalf of the proprietors of the Evans Australian Combination Truck. W. B. Wilkinson, Esq., appeared in person.

Warden Harry Graves, Esq., called in, sworn, and examined:—

- W. H. Graves, Esq.
2 May, 1888.
1871. *Chairman.*] What are you? A stock and station agent, residing in Sydney.
1872. Have you had large experience of the trucking of stock? I have not put many in the trucks myself, but I have had great experience in everything pertaining to stock, including trucking.
1873. As a man of business have you received thousands of cattle and sheep consigned by rail to your firm for sale? Yes; hundreds of thousands.
1874. Consequently you have had exceptional opportunities to judge of the condition of the stock as conveyed by these trucks? Yes; I have been engaged in this business for thirty years, I have been nearly ten years selling in Sydney. I was about seven or eight years in Melbourne, and I was at Deniliquin.
1875. Have you any knowledge of the new combination trucks which have lately been in use on the railways? I have seen the Evans and Wilkinson trucks, but I have not seen any others.
1876. Have you examined them carefully? Yes.
1877. As a practical man what is your opinion as to the merits or the demerits of the two trucks? In my opinion Wilkinson's is very much the better of the two. Here I would observe that I consider that Mr. Evans is a greater friend of mine than Mr. Wilkinson is. I met Mr. Evans in the street one day, and he asked me if I had seen the trucks, and, if I had, which I considered the better of the two. I replied, "You are a great friend of mine, but I am bound to say that I consider Mr. Wilkinson's the better of the two." He said, "I like a man to speak straightforwardly." I mention this fact to show that I am no partisan.
1878. You are giving your evidence as a practical man? Yes, for what it is worth, based on my experience.
1879. In what do you think the excellence of Wilkinson's truck consists? I think its chief recommendation is the end-loading; that is the vital difference between the two trucks. I consider end-loading very much preferable to side-loading. I have not seen many stock loaded at the end, but I can see how it would work. I know, as a matter of fact, that end-loading must be the better system of the two.
1880. Once you get stock moving in one direction in a race in a yard or in a race in a truck, it naturally stands to reason that they will follow each other, and lead up as long as you can guide them and put the requisite

requisite number in the trucks? Yes, you can do that without any stoppage. I do not think there is the slightest comparison between the two systems. I do not see how any practical man can possibly say anything different from what I say.

1881. *Mr. Brunker.*] You think that there would be a saving of time and labour by adopting the end loading system? Yes; and you would save knocking the sheep about too. As to the saving of labour, I will give you an instance. On the Jerilderie and Narrandera line there is a station called Colombo, and frequently we have stock from there, and, as I am informed and as I verily believe, there has never been an engine there to shift the side-loading trucks. Of course, you know that as each of these trucks is loaded it has to be shifted. I had to send men from Narrandera for the purpose of shifting these trucks, and I have had to pay their railway fare; the Department would not allow me to send them without. If they had been end-loading trucks of course that would have been all avoided. With the side-loading trucks you have to shift each truck as it is loaded, and the loading may take two, three, or four hours, according to the number of sheep, whereas, if you had end-loading trucks the sheep would go in in a string. Of course there would be occasional interruptions from one cause or another. I am sure the end-loading must knock the sheep about less. It is obvious that this must be the case.

1882. *Chairman.*] In that essential requisite, facility for loading stock and obviating the necessity for knocking them about, you are in favour of the end-loading system? Decidedly.

1883. *Mr. McLaughlin.*] Have you ever seen any trucks loaded from the end? No.

1884. Then your idea is simply a speculation? Not at all; it is a positive certainty. I can see that if sheep go in in a continuous stream there must be much less knocking about of them.

1885. But that is a speculation? I will swear to it positively. There is no speculation about it.

1886. Is there not a possibility of getting a block in the gangways between the trucks as the sheep are passing through? Of course, there is every chance of their getting temporarily stopped, but a man can walk right through the truck and free them. But the sheep might jam just as readily in the other truck. I should say that there was ten times as much knocking about of sheep in side-loading as there is in end-loading. With loading at the side you may get one sheep in and it may run back, you may get another in, and then there may be a rush of three, four, or five all at once, and they may jam in the doorway exactly as they might jam in the inside doorway in the end-loading truck. The advantage of the end-loading truck for loading sheep is that the sheep can see daylight through, and they rush ahead. But with the side-loading truck there is very great difficulty in getting them in. They are obstinate, stupid, animals, and you have to force them in. When you get them in a certain distance there is the greatest trouble to get them on to the other portions of the truck, and a man has to squeeze himself in the best way he can to try to ease them off; and when it comes to the last few, to get them in you have to use almost violence, and shove them in anyhow on top of one another to get the door shut. In the end-loading system a man can go from one end of a truck to another, and if the sheep halt on the platform between the trucks he can go and send them along, as he would in the yard. They are not more likely to jam in the trucks than they are in any race. If you were racing sheep in a race half as wide as this table they would be just as likely to stop in that as they would in the gangway between the trucks. When each truck is loaded, that is when the full number is in, you can shut it off, and load the next one in the same way, and so on.

1887. *Mr. Brunker.*] There would be less difficulty in breaking a block at the end of a truck where sheep were running than there would be in forcing them in at the side of a side-loading truck? Very much.

1888. *Mr. Wilkinson.*] Is it an advantage, in your opinion, to have a truck which will carry two classes of stock if necessary, say half cattle and half sheep? It will be an advantage to have it, but it may not be often required. I suppose that as the small railways go into the interior it will be an advantage. It cannot be an injury, and it must occasionally be an advantage. It will be an advantage to small settlers who may have two or three fat bullocks and a few sheep to send to market.

1889. Is it an advantage to be able to shut the cattle out from the view, if you do not interfere with the ventilation? It is decidedly better if they cannot see out. They do not get frightened when the train is being shunted at stations.

1890. Is it an advantage to have open flaps in the roof of the truck so that people can walk through in loading sheep? That is one of the advantages of the truck which I have been explaining.

1891. You have some knowledge of a consignment of half sheep and half cattle which came down in my truck? Yes. It came to me from Mr. Thomas Baird. I saw the stock come out of the truck.

1892. In a minute written by Mr. Goodchap he says,—“I learn that the sheep sent were very small, recently shorn, and that the cattle were of the smallest and tamest”;—is that so? It is not the case; they were not recently shorn, and they were not small. They were medium quality fair sized sheep. As to the cattle being small and tame, I did not see anything tame about them. It being an off day when they arrived I had Mr. George Turner, the butcher, there, with a view to sell the cattle to him, and I found that they were just as wild as any other cattle.

1893. *Chairman.*] I suppose that they were an ordinary consignment? Most decidedly.

1894. *Mr. Brunker.*] The sheep were not shorn specially for the truck? Not at all. They were an ordinary consignment in every shape and form.

John Brown, Esq., called in, sworn, and examined:—

1895. *Chairman.*] What are you? Designer and inspector of rolling stock for the Government.

1896. In your capacity have you had an opportunity of examining the Evans and the Wilkinson trucks? Yes. I have examined both, but I have not closely examined Wilkinson's because it was taken out before I had time to go fairly through it. I examined it sufficiently to know its general features.

1897. Do you know that the Evans truck has been in use for something like two years? Nearly three, I think.

1898. Has it during that time borne the strain of the conveyance of stock in a fair manner? Yes.

1899. Equally as well as the ordinary cattle trucks in use previously? Taking the general construction of the truck, I think better.

1900. Has it cost less in repairs? It has only had minor repairs. It has never cost anything for large repairs at all.

1901. You think that it has answered the purpose for which it was designed in conveying goods and stock? Yes.

- J. Brown, Esq.
2 May, 1888.
1902. You say that you have not inspected the Wilkinson truck closely? I have inspected it as to its general build, but not sufficiently to give an exact estimate of its cost.
1903. Speaking approximately, what do you think would be the cost of it compared with the cost of the Evans truck? I should think that there would be about £60 difference in the cost of the original construction of the truck in favour of the Evans.
1904. Have you any knowledge of end-loading? Not in trucks. I have had a good deal of experience of sheep in pens and shearing sheds.
1905. Judging from your experience do you think that end-loading is an advantage as applied to trucks? I certainly do not think so. We have closed up eighty-five *trucks which were provided with openings for end-loading years ago. I have been employed at that for a long time, closing the doors, in fact removing them altogether.
1906. *Mr. Brunker.*] What are your objections to end-loading? I think that when sheep start to run they will run to the furthest end in a body, and it is very difficult to stop them when they are fairly started.
1907. You think it would be difficult to block them? That is my experience.
1908. You do not think it possible to load them up by a man standing in the gangway? You might stop them if you stood in the gangway, but it would be very troublesome, I have seen a sheep jump on top of a man and knock him down, and the other sheep continue to jump over him; I have seen them jump into water when they have started to run.
1909. *Chairman.*] As a designer and constructor what is your opinion as to the respective merits of the two trucks? I have an objection to the Wilkinson truck on the ground that the top deck has to be removed into the roof, and it requires hand-power sufficient to lift the whole floor into the roof. I think that that is more than one man could do if the deck was heavy enough to bear the weight of the sheep.
1910. You think that the deck would have to be of such strength to carry a consignment of sheep that it would be almost impossible for one man to raise it? Yes; by manual power.
1911. Does the Evans truck labour under that disability? No; there is only a beam to lift. The floor forms the sides. It is utilised for two purposes.
1912. *Mr. Kethel.*] What is the reason that the Wilkinson truck will cost £60 more in original construction than the Evans? There is such a number of hinges, which I could not put down at less than £10 a ton more than the Evans ironwork, and the nature of the ironwork is worth £10 more. There is fully half a ton more of it. Then there are about 100 feet more of timber required and more labour would be necessary for the building of it. Taking it altogether, as at present constructed, it would cost £60 more than the Evans truck.
1913. Have you any idea as to the weight of the upper deck of the Wilkinson truck. I think that as a whole it would weigh a little over 6 cwt.
1914. When you said just now that it would be impossible for one man to lift the upper deck do you mean with the appliances at present fixed on the truck? I mean that a man might raise the present deck; but it is not strong enough. It should be heavier; and then a man could not lift it. I do not think the deck is strong enough to undergo the strain which would be put upon it in carrying a load of sheep.
1915. *Mr. McLaughlin.*] How many doors are there in Wilkinson's truck? Thirty-six that I might call doors proper. Then there are other fastenings which are hinged which require to be considered in the cost of the truck. Then there are sliding doors. I think there are about forty altogether.
1916. Would not the end doors have the effect of weakening the truck? Certainly, very much.
1917. Is it not necessary sometimes to brace the ends of ordinary cattle trucks? We have not done so, but it is necessary in many cases. We have not done so because there are so many cross-bars which interlock with the uprights in the ordinary cattle trucks, but these are cut in two in the Wilkinson truck.
1918. The brake vans have been braced up? Yes, and our "C" vans have been braced. I think that the bracing will come to the cattle trucks next.
1919. With the end-loading doors could you possibly brace up these trucks? Not sufficiently. The space between the doors and the side is too narrow for a sufficient brace.
1920. *Mr. Wilkinson.*] How long have you been in the Government Service? About ten years.
1921. Are you the designer of a new truck? I am the designer of a new "D" truck which is about to be built.
1922. Have you patented it? No.
1923. In what employ were you before you entered the Government Service? Glasson's, Harvey's, and Hudsons', in Sydney.
1924. How many parts are there in Evans' deck? Eight, I think.

Edward Andrew Loughrey, Esq., called in, sworn, and examined:—

- E. A. Loughrey, Esq.
2 May, 1888.
1925. *Chairman.*] What are you? Travelling Locomotive Inspector in the Government Service.
1926. *Mr. McLaughlin.*] Are you acquainted with the Evans' combination truck? Yes.
1927. How long has it been running on the railways? About two years.
1928. Have you always found it answer the purpose of a merchandise as well as a cattle and sheep truck? Yes; I have found it very suitable.
1929. As suitable as the ordinary cattle and sheep trucks? More so.
1930. Is it more substantial—does it cost less for repairs than the ordinary trucks? I could not say anything about that.
1931. Have you seen Wilkinson's truck? Yes.
1932. Do you think that it is as suitable as Evans'? It is not, in my opinion.
1933. Will you give your reasons? Comparing one with the other, Evans' truck is the simplest in design and the most strongly constructed. It is lighter; it would cost less to make and keep in repair, and it affords better facilities for cleaning. The top decks are lowered to the sides. They stand on end, and a man can wash the top decks and the bottom at the same time, and the droppings fall away much better and quicker than in the other truck. It affords better ventilation for live-stock, and there is less chance of the beasts injuring themselves by getting their legs or horns fast during transit.

1934.

*NOTE (on revision):—I think about eighty-five.

1934. Can they get their horns and legs fastened in Wilkinson's truck? They can.
1935. What difference would there be in the haulage? On our ordinary grades of one in forty, of which we have a great many, it would make a difference of about a truck in a train; that is to say, there would be one more of Evans' trucks in the train than there would be of Wilkinson's.
1936. How much is a train load? An ordinary train load over a grade of one in forty, made up of Evans' trucks, would consist of eleven trucks and a van; if it consisted of Wilkinson's, there would be about ten trucks and a van. The weight of such a train would not vary to the extent of the weight of one truck, but it would be so near it that we could not divide it in any other way.
1937. When Wilkinson's truck is fitted up for cattle with the top deck in the roof what effect would that have on the oscillation of the train? It is objectionable in so far as it brings a great strain upon the elevated portion of the truck when running at high speeds. We have found it necessary to brace many of our trucks diagonally at the ends in order to resist this rapid oscillation due to high speeds.
1938. Would it be possible to brace Wilkinson's truck? Not with end openings.
1939. Are you in favour of end-loading or side-loading? I have no practical experience, therefore I cannot express an opinion.
1940. *Mr. Wilkinson.*] Do Evans' side rods run from the floor to the roof? I think so.
1941. Do you know whether mine go from the floor to the roof? I do not know.
1942. Do you know if my pillars go from the floor to the roof in one solid piece? Yes.
1943. Is my truck braced on the side? Yes; but that is where it is not wanted.
1944. Is Evans' truck braced on the side? I could not say, but it is end bracing that is wanted. On looking at the model I see that the rods in Evans' truck do not go from the floor to the roof. They are screwed into an angle-iron beam which runs the whole length of the truck.
1945. Do you know if there are rubbing bars inside my truck? Yes.
1946. And do they not go from end to end? I believe so.
1947. Do they not help to strengthen the truck? They may do so.
1948. Is it impossible to put two diagonal braces on each side of the end of my truck? Not to be of any value. You may get them in, but they would be so upright that they would not be of much effect. The braces should go from corner to corner.
1949. Could not four diagonal braces be put in the end? Yes; but they would not have much effect.
1950. Do you maintain that there is better ventilation in Evans' truck than in mine? Yes.
1951. Then you think that the temperature would be higher in my truck than in Evans'? That would depend on circumstances.
1952. Not on the ventilation? Not altogether.
1953. *Mr. McLaughlin.*] Do not the upright bars which are screwed into the angle-iron beam act as a brace in the Evans truck? Yes.
1954. Do you not think it strengthens the truck very much? Yes; but it is in the ends that the bracing is most wanted.
1955. *Chairman.*] Because the strain is from side to side? Yes.
1956. You think it is absolutely necessary that the end of the truck should be the strongest part? Yes.
1957. *Mr. Wilkinson.*] If the iron beam which runs fore and aft in the Evans truck were to give way all the rods and pillars must give way too? No.
1958. Does not the whole strength depend upon that beam? No.
1959. *Mr. McLaughlin.*] Do you think it possible to build a truck open at the ends strong enough to carry a load of cattle? I do not, unless you go to unreasonable expense in the construction.
1960. *Mr. Wilkinson.*] Do you know whether there are cattle trucks with end doors in any of the other colonies? I do not know.

E. A.
Loughrey,
Esq.

2 May, 1888.

THURSDAY, 3 MAY, 1888.

Present:—

MR. KETHEL, | MR. LYNE.
J. HAYES, ESQ., IN THE CHAIR.

Bruce Smith, Esq., Counsel, instructed by J. McLaughlin, Esq., appeared on behalf of the proprietors of the Evans Australian Combination Truck. W. B. Wilkinson, Esq., appeared in person.

Andrew Johnstone, Esq., called in, sworn, and examined:—

1961. *Mr. Wilkinson.*] What are you? Salesman for Brown Bros.'
1962. How long have you been connected with stock? Fifteen or twenty years.
1963. With the trucking of stock? For the last fifteen years.
1964. What firms have you been in? Bruncker and Wolfe and Brown Brothers. I was with Bruncker and Wolfe for seven years.
1965. You have had a great deal of practical knowledge as to the trucking of stock? Yes.
1966. With regard to side-loading is it your experience that there is a difficulty in getting the sheep into the trucks? Sometimes. Many times it is very hard work, and a good deal of force has to be used to get the sheep in.
1967. *Chairman.*] Have you had any experience of end-loading? I have never seen an end-loading truck loaded or unloaded.
1968. *Mr. Wilkinson.*] Will you state what difficulties you have experienced in trucking with side-loading trucks? All I have objected to in loading sheep up country is the delay in shunting. It takes more time to shunt the trucks than it does for us to actually put the sheep into the trucks.
1969. From your knowledge of stock what is your opinion of end-loading? I say that I have never seen an end-loading truck loaded or unloaded.
1970. Is it an advantage to be able to walk into a truck and distribute the sheep over the surface either with side or end loading? No doubt it is.
1971. Does that apply to both top and bottom decks? Yes.
1972. Would it be an advantage to any class of your constituents to be able to carry two classes of stock in one truck? I should think that that would be an advantage.

A. Johnstone,
Esq.

3 May, 1888.

1973.

- A. Johnstone, Esq.
3 May, 1888.
1973. Is there not cruelty attached to the side-loading of sheep in trying to force them into the trucks or up the races? If a person is hurried and wants to get his stock away he has to force them in at times.
1974. You say that you have had a good deal of experience among sheep? As much as most people about Sydney.
1975. Judging from your experience of the penning and yarding of sheep, and the general movements and habits of sheep, can you form any idea as to end-loading? It is patent to anyone that a lot of sheep will run through a lot of trucks more easily than they can be forced in against a wall, as it were.
1976. *Mr. Smith.*] In the whole course of your experience you have never seen sheep loaded by the end of the truck? No.
1977. Then you have no experience of the way in which sheep would run into a series of trucks put on end? Practical experience would tell you that.
1978. How do you think you could get the sheep in and divide them into different quantities? Much more easily than by forcing them into one single truck.
1979. You say that, although you acknowledge that you have never seen a truck loaded from the end? Yes; that is my opinion.
1980. *Chairman.*] You base your opinion on what you have seen of sheep running through ordinary races? Yes. I have seen many hundreds of trucks loaded at the side, and my opinion is that sheep will run better through the trucks than they would in side-loading trucks.

Mr. John Wilkins called in, sworn, and examined:—

- Mr. J. Wilkins.
3 May, 1888.
1981. *Mr. Wilkinson.*] What are you? Waggon-builder,—foreman for Hudson Brothers.
1982. How many years have you been waggon-builder? Thirty-six.
1983. Have you been in other employ? All about in the railway-waggon building—in most shops. I have followed the railway-waggon work for thirty-six years now.
1984. Were you ever chosen by any company out of a number of men as a builder? In 1858 I was picked out of 150 waggon-builders from Wright's in Birmingham, to go to Brazil.
1985. You built the truck known as the Wilkinson combination truck? I was the foreman over it; it was built under my supervision.
1986. Has not my truck been altered several times in the course of construction? It has been altered several times since I first built it.
1987. In building any other trucks on the same pattern would they be stronger? They would be stronger and lighter.
1988. As to general construction, would a truck built on the same lines, without alterations, be sufficiently strong to carry all classes of stock? It will carry anything that you can put into it.
1989. Have you any doubt about that? Not the slightest.
1990. Do you supervise the construction of other railway trucks? All that are made by Hudson Brothers.
1991. Have they not the right for a certain number of years to construct the rolling stock required by the Railway Department? They had a five years' contract, which is up next Christmas.
1992. Should there be any oscillation from the deck when in the roof of my truck? No; because it is wound tight up.
1993. It is said that the oscillation of the deck would be detrimental to the strength of the truck? That cannot be so, because it is wound tight up, and it cannot get away from it.
1994. Is there any oscillation at all when it is wound up? There is no oscillation in it.
1995. Is it not a fact that some meat waggons have lately been constructed which are louvred all round? Yes.
1996. Is that truck not arranged so that the meat has to be hung from the roof? Yes. It has to be hung from iron bars from the roof.
1997. What is the weight hanging from the roof? I should say it would be a ton.
1998. How many quarters of beef would the truck carry? I do not know.
1999. They are louvred trucks without braces? Yes.
2000. Then if any truck would suffer in oscillation that truck would? You would think so, but it is not so; it is a very good truck.
2001. You say that it is possible to build my truck lighter than it is at present? Yes.
2002. *Mr. Brunker.*] Would not that depend on the material used? There is a lot of ironwork in it which is useless. I was never spoken to about the weight when I first started the truck.
2003. *Mr. Wilkinson.*] Why do you say that a new truck would be stronger? Because the present truck has been weakened by being altered so many times. I have had to cut it away so many times.
2004. How much could it be reduced in weight without affecting its strength? I can take about 10 cwt. off it.
2005. *Mr. Kethel.*] Would you curtail the quantity of material to lessen the truck by that amount? There is a lot of ironwork which is useless; there are hinges which are too heavy. There are solid iron bars right through from top to bottom; and I would put tubing in place of these bars, and I would not require so many of them. Hinges half the weight of the present ones would do.
2006. Do you think the fact of my having openings for doors in the ends will weaken the truck so as to make it unfit to carry all classes of stock? It is strong enough to carry anything. It is all tied together with braces at the side.
2007. Do you think that the machinery in my truck would be likely to get out of gear? No; it would not.
2008. *Chairman.*] What are the meat trucks, to which you have referred, supposed to carry? Five or 6 tons.
2009. What would be the weight of the meat hanging from the roof? I should say one of the "C" trucks would carry a ton.
- [Mr. Hassall here took his seat.]
2010. *Mr. Kethel.*] Would there not be oscillation caused by the weight of the deck even though it were wound close up to the roof? No; the roof cannot sway with it. It is all held together with an iron beam. It cannot sway; it is all fastened down to the bottom sole-line.
2011. *Mr. Hassall.*] You do not think that the truck would oscillate through the weight of the deck being up in the roof? No; it would not make any difference.

Mr. J.
Wilkins.
3 May, 1888.

2012. *Mr. Kethel.*] Is it sufficiently braced at the end, notwithstanding the doors at the end, to resist all the effects of oscillation caused by the extra weight in the roof of the truck? The end is not braced at all; it is braced from the side.
2013. *Mr. Smith.*] Is it not an ascertained fact in the construction of waggons, as well as everything else, that the greater the weight you get on top the greater is the tendency to oscillation of the whole body? If you did not make the bottom in proportion to hold it.
2014. *Mr. Hassall.*] You mean that if you have a heavy top weight you must have a heavy bottom to balance it? Yes.
2015. *Mr. Smith.*] Have you never noticed when travelling in a tram that the more people there were on the top the more oscillation there was? I never noticed that.
2016. Do you know that the floor of Wilkinson's truck was like the floor of Evans' truck? No.
2017. Have you ever seen the Evans truck? I have never examined it closely.
2018. You say that one of the further alterations which you would make would be to substitute gas pipes for the iron bars? Yes.
2019. Do you know that that is a feature of the Evans truck? No.
2020. Who suggested to you putting gas pipes instead of iron bars? A draftsman whom we have.
2021. *Chairman.*] Have you ever tested the time that it takes to convert the Wilkinson truck from a cattle to a sheep truck? I have tried it myself in the shop; and to convert the truck from a cattle to a sheep truck takes about $1\frac{1}{2}$ or 2 minutes.
2022. You remember the exact time? To a second or two.
2023. Was that done in the workshop before the truck was used? Yes.
2024. How long does it take to convert it from a sheep to a cattle truck? Two and a half or nearly 3 minutes.
2025. *Mr. Smith.*] Have you seen it since the trial, when the deck had to be supported by a screw-jack? Yes.
2026. How do you propose to alter it? The way in which Mr. Wilkinson first wanted to have it done, that is to put two pieces of angle-iron into it.
2027. Could it not be altered by simply altering a bolt at the side? Of course.
2028. Would that make it substantial? It would carry the weight then if the bolt was made longer.
2029. Is it not the tendency of the deck to bend. Did it not bend in this case and cause the bolts to come out? The bolts were too short.
2030. When the deck was level were not the bolts chock up into the end of the groove? No.
2031. How far off? Three-eighths of an inch on each side.
2032. Then you intend to make them $\frac{3}{8}$ of an inch longer? Yes.
2033. Is that all that you propose to do? No; in addition to that I intend to put in two pieces of angle-iron underneath the T iron, and rivet it through. These pieces will be of $1\frac{1}{4}$ or $1\frac{1}{2}$ -inch angle-iron.
2034. What will they weigh to make it a substantial job? I could not tell you exactly.
2035. Will they weigh a cwt.? Oh, no.
2036. *Mr. Kethel.*] Would that small sized angle-iron be sufficiently strong for the purpose desired? Yes.
2037. *Mr. Wilkinson.*] Mr. Smith in asking you a question inferred that the deck bent and caused a bolt to come out of the groove; is that the case? No; the bolt was too short for the studs.
2038. *Mr. Lyne.*] What proportion of the Wilkinson truck is of soft wood? All the top framing and under framing is of hardwood—tallow wood chiefly; the cantrils and corner pillars are all hard wood; the floors, the doors, the louvres, and the sheeting are of soft wood. The roofs of all waggons are made of soft wood.
2039. Do you put the same proportion of soft wood in other trucks as in this? Yes.
2040. *Mr. Smith.*] In any alteration which you have made have you substituted soft wood for hard wood? No.
2041. *Mr. Wilkinson.*] Have you ever had any instructions as to the weight—have any instructions been given to reduce the weight? Nothing was ever said to me about the weight.
2042. Was there any model when the truck was built? None whatever.
2043. Has not the truck been constructed entirely from my own suggestions? Yes.

Charles Lindsay Nicholson, Esq., called in, sworn, and examined:—

2044. *Mr. Wilkinson.*] What are you? I am a grazier, residing in the Berrima district. I have resided there for forty years.
2045. Do you send any quantity of stock to the Sydney market? I send a considerable quantity, and have done so ever since the railway was opened.
2046. Do you think it would be any advantage to the people in your district to have a truck which would carry two classes of stock? I have advocated it for a number of years. I think it would be very serviceable to the small farmers. Parties who have small consignments of calves, lambs, and pigs are put to a great amount of inconvenience through not being able to get trucks at a reasonable rate, because they have not enough to fill a truck.
2047. *Mr. Smith.*] I understand you to say that the chief use of a truck which would carry half-and-half would be for the conveyance of calves and sheep? I think it would be an advantage for the conveyance of small consignments of stock.
2048. Would there be any case in which you would want to carry half a truck of cattle and half a truck of sheep? Frequently.
2049. Taking your own district, how many trucks do you think would be required to satisfy the wants of the public in that respect? I should say two a week. There are a large number of small settlers in my district. It is exceptional in that respect.
2050. How many trucks would be wanted twice a week for the purpose? I have taken little notice of the stock going away recently, but I should think that it would be easily ascertained from the returns.
2051. Do you think that two or three such trucks would find constant employment all the year round from your district? I am inclined to think they would.
2052. Would you go any higher than three? Not from Moss Vale station alone.

C. L.
Nicholson,
Esq.
3 May, 1888.

- C. L. Nicholson, Esq.
3 May, 1888.
2053. Is it not a fact that the district is peculiar on account of the large number of small stock-holders resident in it? Yes; I think it would take a larger number of such trucks than any other district that I know of on the Southern line. The trucks would also be useful at such places as Tarago and Goulburn.
2054. Suppose there are two individuals, and each has half a truck load of stock, would it not be an easy matter for them to fill one truck? If they met; but I might be 10 miles away, and you on the spot. I have advocated a combination truck for the advantage of small consumers for years. If I were a large farmer and took a truck load of calves to the station, and I found a small man coming in with four or five calves, it would be at my disadvantage if you had combination trucks, because I would not be able to speculate and buy the calves from the other man. I do not think that the idea of mixing the consignments works well; the parties are often dissatisfied. They do not like to trust each other, and they would sooner send the stock on their own account and pay the extra money.
2055. *Mr. Wilkinson.*] Are not the charges prohibitory for half truck loads? You have to pay nearly the same for a half truck load as for a full load.
2056. *Mr. Smith.*] Is it not a fact that only four or five trucks a week of sheep and cattle leave Moss Vale? That may be the average taking the whole year.
2057. How many trucks are required for small stock? I think there are two or three trucks every week for pigs, calves, &c.
2058. *Mr. Wilkinson.*] I suppose the combination trucks would be an advantage in other districts as well as yours? I take it that they would be an advantage in any district where there are small farmers.
2059. It would be an advantage to find a truck which you could convert to any use when wanted? I have always advocated combination trucks. I think I suggested them to Mr. Evans fifteen years ago.
2060. Do you think that end-loading of sheep would be a success? I think it would be a very great advantage if it could be done; but I have had no experience of it.

THURSDAY, 7 JUNE, 1888.

Present:—

MR. HAYNES, | MR. LYNE.
T. H. HASSALL, ESQ., IN THE CHAIR.

J. McLaughlin, Esq., Solicitor, appeared on behalf of the proprietors of the Evans Australian Combination Truck. W. B. Wilkinson, Esq., appeared in person.

Alexander Bruce, Esq., called in, sworn, and examined:—

- A. Bruce, Esq.
7 June, 1888.
2061. *Chairman.*] What are you? Chief Inspector of Stock, residing in Sydney.
2062. *Mr. Wilkinson.*] You have brought certain documents with you; will you tell the Committee what they are? I submit a portion of my report for 1870 which shows that I then recommended end-loading. I believe that I was the first person to suggest the idea here. I also submit two letters which I have received from Mr. Valentine, the Chief Inspector of Stock in South Australia, and also copy of a report which I made to my Minister respecting the Wilkinson truck. [*Documents handed in.*]
2063. *Chairman.*] Have you had any experience of end-loading? No experience of the working of the system.
2064. Have you superintended any experiments, or ever been present when end-loading has been tried? No. In 1870 there were several trucks made for end-loading on my recommendation. They were used for some time, but I believe that the Department were against them, and they were dropped.
2065. *Mr. Wilkinson.*] What is your own idea about end-loading? I believe that it is the best system. I have no actual practical knowledge, but my idea has been confirmed by the experience of the system in South Australia and on the Northern railways in Queensland, where the system has been in use for some time.
2066. *Chairman.*] You have had communications from the Inspectors of Stock in those Colonies stating their opinion as to end-loading? Yes.
2067. *Mr. McLaughlin.*] You have never seen end-loading done in South Australia? I have never seen it done in any place.
2068. I notice that in 1870 you recommended end-loading for cattle? Yes, because at that time there were no cattle carried by train, and I pointed out to the Minister for Works the large amount of traffic which might be got.
2069. Are you still in favour of end-loading for cattle? I am not.
2070. How long did you continue in favour of it? Until I saw that cattle could be loaded the other way.
2071. Don't you know that it would be impossible to load cattle at the end? It would be quite possible, but it is a question as to whether it is not as well the other way, perhaps better.
2072. Are you sure that there were no cattle carried by train in 1870? I could not say that there were no fat cattle carried, but if any were carried they were very few. I know that at that time neither sheep nor cattle were carried by train to the extent that they ought to have been even up to 1876. There were only something like about fifty sheep trucks on the Southern and Western Lines.
2073. You were under the impression that, if end-loading was introduced, there would be more cattle carried by train? That was my opinion at the time.
2074. *Chairman.*] Have you seen Evans', Wilkinson's, and Mulholland's trucks? Yes.
2075. What is your opinion with regard to the facilities for loading the different trucks? I am altogether in favour of the end-on system.
2076. In looking at the two trucks, in which that principle has been adopted—Wilkinson's and Mulholland's—do you think that either of them possesses any advantage over the other? The question, as far as my judgment goes, is whether Mulholland's is a practical truck. It seems to me that he is attempting too much, and that his truck is, too, made complicated by the raised floors. I believe that Wilkinson's is the more serviceable of the two end-loading trucks.
- 2077.

2077. Are you of opinion that, by adopting the system of end-loading, the loading of stock can be carried on more expeditiously, and with less cruelty to the animals than under the present system? Decidedly.

A. Bruce,
Esq.

2078. *Mr. Lyne.*] Have you any photographs showing the end-loading system in operation in South Australia? No; but I have the working plans of the Department.

7 June, 1888.

2079. *Mr. Wilkinson.*] Do you think that the opening in the roof of my truck will improve the facilities for loading? Very much.

Norman Selfe, Esq., called in, sworn, and examined:—

2080. *Chairman.*] What are you? Civil Mechanical Engineer, member of the Institute of Civil Engineers of London, and member of the Institute of Mechanical Engineers of London.

N. Selfe, Esq.

2081. *Mr. Wilkinson.*] Have you seen my truck? I have.

7 June, 1888.

2082. Will you state from your practical knowledge what you think about the truck, as to its strength, utility, and working parts? I do not pretend to give any evidence which would be of the slightest value in connection with stock. I know nothing about that; but, as a practical mechanical engineer, accustomed to designing engineering and other structures, I say that the Wilkinson truck may be so constructed as to withstand all the strain that can well be put upon it in the ordinary course of railway traffic.

2083. As to the movable deck or its parts, do you think that they are likely to get out of order? They are not likely to if they are properly made.

2084. Is it a simple system of moving the deck up and down? It is a very simple system.

2085. Evidence has been given here as to the strength of the truck being reduced by the opening for the end doors. Do you think that with that opening the truck is sufficiently strong to carry stock? It is not so strong with the door out of the middle of the end as it would be with the end in one piece, unless compensation is made in other ways; but, that compensation can be made, the two separate divisions of the end may be made so strong as to compensate for the cutting out of the door.

2086. Have you seen the truck which I have had constructed to send to Victoria? I have.

2087. Though it is the same in principle as the other truck, does it not embody some improvements? It is better in several ways.

2088. *Mr. Lyne.*] Have you seen Evans' truck? Only the model which Mr. Evans showed me some time ago.

2089. I suppose that you consider it perfectly strong too? There is nothing from what I saw to prevent it.

2090. *Chairman.*] Do you think that it is as strong as, or stronger, than the Wilkinson truck? That is merely a matter of degree. You can make each as strong as you like. I would not say, without further examination, which would be the strongest for a given weight. You can make either of them strong. That is merely a question of putting material in the right place.

2091. From your practical knowledge will you say whether the Wilkinson truck can be made as strong as the Evans at the same weight, taking into consideration the different principles of construction? I would not say that without going further into it; but there is no difficulty in making compensation for the cutting out of the doors. You see it is a very important thing that the truck, having the weight in the roof it will have an easier rolling motion; it will be like a ship with the cargo well distributed and a high centre of gravity. A ship loaded in that way always rolls a great deal easier than a ship with all the ballast in the bottom.

2092. *Mr. McLaughlin.*] But does not the ship roll more when the cargo is distributed as you say? Yes, but there is less wear and tear on the ship.

2093. How would you make compensation for the cutting out of the end doors? That can be done very easily.

2094. *Mr. Wilkinson.*] There is a report before the Committee which states that my patent is very ingenious, but that it is unworkable. Is there anything about it which you consider unworkable? I have not seen the truck used, but looking at it from a mechanical point of view, I do not think it is unworkable.

2095. *Mr. McLaughlin.*] Do you know that there are thirty-eight doors in the truck? There must be something like that number.

2096. Don't you think that that will weaken the truck a great deal unless extra iron is put in? There are fifty-two doors in my house, and only three people live in it.

2097. *Mr. Wilkinson.*] Do you know how many parts the Evans deck is in? No. When I saw the model I thought that the centre beam was perhaps a weak point.*

2098. *Mr. McLaughlin.*] You cannot say anything about the relative merits of the trucks? No; my evidence is simply this—the Wilkinson truck can be made to stand the wear and tear of railway traffic.

2099. Will it not have to be very much heavier? Very often a flat bar of iron weighing 2 or 3 lbs. will add immensely to the strength of a structure if put in the right place.

TUESDAY, 12 JUNE, 1888.

Present:—

MR. LYNE, | MR. SUTHERLAND.
T. H. HASSALL, Esq., IN THE CHAIR.

John McLaughlin, Esq., Solicitor, appeared on behalf of the proprietors of the Evans Australian Combination Truck. W. B. Wilkinson, Esq., appeared in person.

Henry Septimus Badgery, Esq., called in, sworn, and examined:—

2100. *Chairman.*] What are you? Stock and station agent.

2101. *Mr. McLaughlin.*] What experience have you had in the trucking of cattle and sheep? I first commenced at Pictou when the railway was opened there, then at Mittagong, and Moss Vale.

H. S.
Badgery, Esq.

2102. How many years? Twenty-five or twenty-six—ever since trucking has been carried on. I was one of the Committee which submitted plans to the Government of yards at Moss Vale. Those were about the first yards of any size that were put up in the Colony.

12 June, 1888.
2103.

*NOTE (on revision):—This is not an important matter, as there are several ways in which this beam could be strengthened.

- H. S. Badgery, Esq.
12 June, 1888.
2103. What is your experience of the end-loading system as far as cattle are concerned? I do not think it can be used for trucking cattle. I do not think it possible especially for the unloading.
2104. Do you approve of the end-loading system for sheep? I approve of end-loading for sheep; but not with all classes of trucks.
2105. You have seen the Evans and the Wilkinson trucks? Yes.
2106. Do you think the Evans truck could be converted into an end-loading truck if it were thought necessary to do so? I think so.
2107. Do you think it would be as suitable as Wilkinson's for end-loading? No; and I will explain why. The difficulty which has always presented itself in connection with end-loading is that the men could not get through the trucks so as to regulate the sheep. That difficulty has been overcome in the Wilkinson truck, but not in the Evans truck, at least not to the same extent. I consider the Wilkinson truck a better truck for end-loading than the Evans.
2108. *Mr. Lyne.*] How has the difficulty been overcome in the Wilkinson truck? If you have a fixed deck, the man working the sheep will have to be in a stooping position, and will not be able to count the sheep or to regulate them. But in the Wilkinson truck the upper deck is raised to the roof while the lower deck is being loaded, so that the men can walk about. Then, when the top deck is being loaded, there is an opening in the roof which enables the men to go about and regulate the sheep.
2109. *Mr. McLaughlin.*] Has it not struck you that it would make the truck much weaker by having the openings at the top and in the end? Of course it has.
2110. You cannot say how it will operate in practice? What I speak of is with regard to the facility for loading and unloading. As to whether using the truck would injure it, or whether it would get out of repair, is a matter upon which I could not give an opinion.
2111. *Chairman.*] We understand that you do not offer any opinion as to the construction or stability of the trucks? I merely offer an opinion as regards loading and unloading; but common sense will tell you that the openings at the end and the top must weaken the truck.
2112. *Mr. McLaughlin.*] Do you think that a truck open at the top and the ends would be sufficiently strong to carry cattle without being braced with iron? It would require very strong bracing because cattle are very heavy.
2113. The top deck of Evans' truck could be loaded in the same way if there was an opening in the top? Yes.
2114. You were Chairman of a Board appointed by the Government of which Mr. Lyne was a member to report upon the trucks? Yes.
2115. The Board consisted of yourself, Mr. Thallon, and Mr. Gill? Yes.
2116. The Board reported on the 28th January, 1887? Yes.
2117. In your report you give the relative merits of the trucks, and you report that the Evans truck has 45 points in its favour; Perry's truck 34, and Wilkinson's 38. Do you still adhere to that? Yes. I do not desire to add anything to that report in my present state of mind, nor to give away any point of it.
2118. I believe that you spent three or four weeks in considering the matter? I do not know exactly how long; but we spent a good deal of time.
2119. Who is Mr. Thallon? Traffic Manager of the Queensland railways.
2120. Do you know whether he has had considerable experience? I should think he was one of the best experienced men we have in any of the colonies.
2121. Who is Mr. Gill? He is one of the heads of the waggon construction department in Victoria.
2122. One of the points claimed for Wilkinson's truck is that you can carry in it half a load of sheep and half a truck load of cattle. How often do you think a truck of that description would be likely to be required? It would be very hard to say. It might be used a little near Sydney, but not much.
2123. Is it not your experience, as one who receives consignments of cattle and sheep, that if two or three persons have small lots to send to market they club together and take a full truck? I do not know of any instance of people clubbing together; it seldom happens. I do not think it is of much account at all. If you ask my opinion I will put it in this way: I would not recommend the Government to have many trucks constructed for that purpose, as I do not think that the trade is likely to require many of them.
2124. Have you had any experience of the actual working of the Evans truck? I have never travelled with it; but I have seen it loaded and unloaded.
2125. Will you tell me whether in your opinion it has been a success as a cattle waggon? The Evans trucks which were in use had a partition. I do not approve of the truck with the partition in it for cattle for the reason that you have to load the cattle through two different doors, and you lose so much room in the corners; but without the division it is a first-class cattle truck.
2126. Have you seen anything better? No.
2127. I believe that without a division its weight is 6 tons 12 cwt. 3 qrs.? The weights are given in the report.
2128. How does it work as far as the carrying of sheep is concerned? Very well; I look upon it as being a better sheep truck than any other we have at present. It gives the sheep more room, more head room particularly, and more ventilation.
2129. Are the floors suitable for both cattle and sheep? Yes; I do not know of any objection to the floors.
2130. Can you remember the difference between the floors of Wilkinson's and Evans' trucks? No.
2131. From your experience after all your investigations, do you consider the Wilkinson as good a cattle truck as the Evans? No; if you look at the opening part of our report you will see that there is a paragraph in which we speak of the requirements of the different classes of trucks, and of the difficulties which have to be overcome. For a sheep truck you must have perfect ventilation, and for a cattle truck you must have a smooth surface at the side, and have the truck boarded up.
2132. You say that the Evans truck has these requisites? Yes.
2133. Is it a truck which can be easily washed out? Yes; more easily than a truck with two decks.
2134. *Mr. Wilkinson.*] In your report you state the great difficulty in providing a truck suitable for sheep and cattle lies in the fact that for sheep in upper and lower decks there must be abundant ventilation, and for cattle, as near as possible, a perfectly smooth surface inside to avoid injury, and to prevent cattle from seeing out. Do you think it a great essential that the cattle should not be able to see out? I am quite sure of it.

2135. Do you know that cattle cannot see out of my truck at all? Of course, if it is boarded in all round they cannot.
2136. Do you know that when my sliding doors are shut cattle cannot see out? Yes.
2137. When this report was written was not my truck in an unfinished state? We inspected it two or three times. We went to the works to see it. It was not finished.
2138. At that time the inside of the truck had not a smooth surface? No.
2139. Do you not know that it has a smooth surface now? I do not know. The last time I saw the truck it had iron rods inside, and they were only protected on the outside.
2140. Do you not know that they are protected on the inside now? No.
2141. You do not know that there are rubbing boards on the inside of the truck now all round? No.
2142. If there are rubbing boards in the truck now it must have been altered since you saw it? Certainly.
2143. In your report you state "The Board was desirous of testing Mr. Wilkinson's truck as to end-loading, and arrangements were made with the Department, stockowners, and others to have the end-loading trucks now in use, and a sufficient number of sheep at Homebush, on Wednesday, 26th instant, but in consequence of Mr. Wilkinson's truck not being sufficiently advanced this had to be abandoned?" Yes.
2144. Subsequent to Mr. Thallon leaving the Colony was there not a trial of my truck? Yes.
2145. After that trial did you and Mr. Gill send in a supplementary report? Yes.
2146. Did you speak in favour of my truck? I expect we did.
2147. Do you know anything about this letter:—

H. S.
Badgery, Esq.
12 June, 1888.

In consequence of the contractors not having Wilkinson's combination truck completed in time for the Board of Inquiry to have a trial of the end-loading system before the conclusion of their labours and the departure of Mr. Thallon, the two remaining members, for their own information, visited Homebush on Monday morning last, when several of the trucks, which had been opened at the ends by the Department, were placed at each end of Wilkinson's, and a number of sheep were run through. The patentee entered the truck, and showed that by loading the lower floor while fixed as a cattle truck, with doors to regulate the sheep, there was no difficulty in arranging the proper number in each compartment. The members of the late Commission were so pleased with the satisfactory trial that they have forwarded a statement to Mr. Goodchap, setting forth that, while they consider the end-loading with our present trucks could not be carried out, Mr. Wilkinson has overcome the difficulty. The great advantage in end-loading is that any number may be loaded without moving any of the trucks.

HENRY BADGERY, 2/2/87.

I remember that letter.

2148. You then had a practical test of my truck? That is how I give my opinion now.
2149. Suppose at little extra cost, a merely nominal cost, we could get a truck which was capable of carrying half cattle and half sheep, would it be an advantage to have such a truck? That would be a question for the Department to answer, inasmuch as they would have to keep the truck standing somewhere to be at call.
2150. Presuming that any truck could be converted by partition doors into a sheep and cattle truck, but which need not necessarily be used in that way, would it be an advantage to have such a truck? It would be an advantage.
2151. *Mr. McLaughlin.*] Does it not appear from your report that in January, 1887, the balance of your opinion was against end loading? Decidedly so. But subsequently we went and saw that the difficulties which stood in the way of end-loading had been removed by Mr. Wilkinson's invention. You will remember that at the commencement of my evidence to-day you asked me if I approved of end-loading, and I said that I did; but if you ask me if I prefer end-loading to side-loading, that is a different question.
2152. *Mr. Lyne.*] When you witnessed a trial of end-loading of ordinary trucks some time before that, was not the great objection which you had as to the difficulty of dividing the sheep and regulating the numbers? That was the great objection.
2153. *Mr. McLaughlin.*] Which do you prefer—end-loading or side-loading? I have not had as much experience of end-loading as of side-loading; but I think that if I were to give an opinion from what experience I have had, I should say that a truck can be loaded more rapidly with end-loading than with side-loading.
2154. You have not seen any end-loading done? No; and I do not know much about it, and I give my opinion on what little experience I have had.
2155. You have formed that opinion since this report of yours was written? Since I have seen Mr. Wilkinson's truck at work. Of course, there is the question of altering trucks, which has to be taken into consideration. As to loading or unloading, I think it can be done more rapidly with trucks on the Wilkinson plan than with side-loading trucks, unless there is some plan of yards that I do not know anything of.
2156. Have you seen the yards at Hay? No; but I have heard them spoken of very highly.
2157. Have you heard that they can load and count 1,000 sheep in half-an-hour there? Yes.
2158. If we had all our yards built on the same principle would you still prefer end-loading? I do not say that I prefer end-loading. I say that I think it can be done more rapidly than side-loading, unless there is some plan of yards which I have not seen.
2159. Was it not your opinion, and was not that opinion backed up by Mr. Gill, who has had great experience, that the opening of a truck at the top and the ends would weaken it and make it dangerous for use? By all means.
2160. *Chairman.*] Do you think that there would be a considerable saving of time as well as saving of labour in adopting the end-loading system when applied to sheep? It depends upon how long it takes to fix the trucks.
2161. There would be a continuous stream, and from your experience you know that when one sheep leads the others will follow. This being the case do you think that there would be a saving of time and trouble in adopting the system of end-loading as applied to sheep? I think there would.
2162. But with cattle you do not think there would be any advantage? I do not think that you could use it for cattle. I would not let my cattle go in and out by the end. If you had openings at the end for cattle, I do not care how you brace them, the cattle would smash the truck and themselves too.
2163. I suppose that you have seen a stockyard fence burst out bodily by the crush of cattle? Yes.
2164. *Mr. McLaughlin.*] If you used trucks for end-loading for sheep you would not advise that they should be used for cattle afterwards? I do not see any objection to their being used for cattle, but not on that same principle.

- H. S. Badgery, Esq.
12 June, 1888.
2165. If there were openings at the end and at the top would not the truck be so weak that you could not recommend the Government to use it? I cannot give an opinion about what the Government ought to do; but my common sense tells me that the openings at the ends and the top must weaken the truck.
2166. If you thought it was possible to count into a truck 1,000 sheep in half-an-hour with side-loading trucks, would you recommend a change from side-loading to end-loading? Certainly not. We get on very well now.
2167. *Mr. Wilkinson.*] Do you know that the roof of my truck is bound on top by a heavy band or archway of angle-iron, tied together in the centre? I do not know anything about that; but I know that there is a good deal of iron bars about it.
2168. You have had no practical experience of my truck of any consequence? No.
2169. You do not know that the rubbing boards are there? No. I do not understand how you are going to have it open for sheep, and then close it for cattle with a smooth surface. It is essential that there should be plenty of ventilation for sheep.
2170. Do you know which is the cooler truck mine or Evans'? I do not.
2171. *Mr. Evans.*] If you had to open all the doors, 108 doors, and fix them open, and then load the sheep from the end, and count the sheep in each compartment, and then close up the doors, do you think it would be possible to load 1,000 sheep in the same time as you can load them now with the old-fashioned yards? It is hard to give an opinion on that.
2172. Do you think it could be done in half-an-hour? No.
2173. *Mr. Lyne.*] Do you know whether they load from the end in South Australia and Queensland? No.
2174. *Mr. Wilkinson.*] For end-loading you would only want one gangway? Yes.
2175. *Mr. McLaughlin.*] What about the gangways between the different trucks. Would there not be a difficulty in moving sheep from there and counting and dividing them? That has always been a great difficulty. It has always been the objection which I have had to end-loading.
2176. *Mr. Wilkinson.*] But you say that objection has been overcome by me? Very largely.

Mr. John Shaw called in, sworn, and examined:—

- Mr. J. Shaw.
12 June, 1888.
2177. *Chairman.*] What are you? I reside at Wallerawang. I am a hotel-keeper and a contractor.
2178. Have you had any experience of the trucking of stock? I believe more than any other man in the Colony. I have been engaged in the work since the railway was opened to Wallerawang.
2179. You have had a great deal of experience of the old-fashioned stock waggons apart from the Evans trucks? Yes.
2180. Have you had any experience of the Evans truck? Yes.
2181. Have you had any experience of any other combination truck? I have not loaded them. I have simply looked at the Wilkinson truck.
2182. Have you assisted in loading any quantity of stock into the Evans truck at Wallerawang? Yes.
2183. Do you think the Evans truck is superior to the ordinary stock truck in general use? Very much so.
2184. Why do you come to that conclusion? The reason is this: You know that ordinary stock trucks are run daily from Homebush to Bourke, a distance of 500 miles. They are sent there empty, and they are brought back loaded with stock. If they are loaded with cattle the charge is £11 3s. Taking into consideration the two journeys which the truck has to make I consider that this must be a considerable loss to the country. With the other truck, you can load it with 6 tons of merchandise to Bourke, which would realise from £30 to £50, and then you would have the load of stock back, which would bring £11 3s.
2185. You say that you have examined the Wilkinson truck? I have not seen the latest improvements on it.
2186. Have you had any experience of end-loading? Yes. The first seven stock trucks were not end-loading trucks, but trucks from seven to forty-five were built for end-loading. At that time I was loading almost night and day, as Wallerawang was the only station in the west. I found that I could load the stock into each ordinary side-loading truck singly, in about half the time that I could do it with end-loading. The great trouble was in regulating the number of sheep in a truck. There would be a rush of sheep in, and you would not know how many you had got into the truck, and the result was that a considerable number used to be smothered. But if they had been properly regulated, as far as numbers are concerned, they would not have been smothered.
2187. Did you ever try end-loading with cattle? No. We have no end-loading trucks for cattle. In loading cattle the fewer you can handle at a time the better.
2188. In the end-loading trucks to which you refer were there facilities for closing the sheep off as you got each truck filled? The job was after you got the sheep to run to ascertain when you had to close off.
2189. Had you not a man stationed in the truck to count them? You might count them; but if you let them run sometimes they would block half-way in the truck, and you would have just as much difficulty to get them to start from there as you would from the yards. The experience of the system was so unfavourable that the end-loading was abolished altogether, and the ends of the trucks were closed up.
2190. Have you any experience of how the thing is worked in the Wilkinson truck? I could not say exactly. But I am very sure that side-loading is preferable for the reason that you can regulate the number of sheep in each compartment better. You may run the sheep quicker into end-loading trucks; but the question is is there any advantage in that, seeing that you cannot regulate the number. With side-loading trucks I can with perfect ease load 10,000 sheep in eight hours with four men. There are not many stations where it often happens that 10,000 sheep have to be loaded in a day.
2191. *Mr. Lyne.*] With side-loading trucks if you have not an engine in the yards, do you not find it a great labour in moving the trucks up to the race? None whatever. We had new yards built at Wallerawang about seven years ago. The Traffic Manager asked me if I thought it would be advisable to build new yards there, considering that the railway was being extended further west. I said, "Yes. It will simply amount to this, that stock will come to Wallerawang in great numbers when the markets are low; but in high markets they would be trucked further west." It has turned out as I said. There is a great quantity of stock being trucked there now. In building the new yards I got him to put the siding in with a slight grade, so that the truck is simply held by the brake while being loaded, and after it is loaded you simply have to raise the brake and the truck goes away gently as far as you like.

2192. Was there not a difficulty before that grade was put there? Yes; we had to handspike the trucks away after they were loaded. I think that all the new stock-yards are made that way now. Mr. J. Shaw.
2193. *Mr. McLaughlin.*] Are you aware that the Wilkinson truck weighs a ton more than the Evans? Yes. 12 June, 1888.
2194. *Mr. Wilkinson.*] Are you sure of that? I am perfectly aware of it.
2195. *Mr. McLaughlin.*] Would that in your judgment give a great preference to the Evans truck as against the Wilkinson truck? I say that a great number of our trucks are too heavy. I can give you a good example of that. In the old sheep trucks (7 to 45), which have been running now about seventeen years, the upright bars are not any thicker than my little finger. These trucks had been run a number of years, and notwithstanding that they had worked satisfactorily, the department in building new trucks put in $\frac{3}{4}$ -inch bars. I reckon that in the new sheep trucks there are 2 tons more iron than there ought to be; bolts, nuts, bars, and everything else are heavier than is necessary.
2196. Do you think that the weight of the truck is of great importance? It is a great consideration.
2197. *Mr. Wilkinson.*] What is the weight of my truck? I am not exactly sure.
2198. What is the weight of the Evans truck? I cannot tell you. All the knowledge that I have about the weights is what I have read in the papers.
2199. Do you think that Mr. Badgery is qualified to give an opinion on the question? I think so.
2200. Do you think that if he states that a trial of my trucks demonstrated that there was no difficulty in arranging the proper number of sheep in each compartment that this is to be relied upon? I speak for myself. I have had more experience of end-loading than Mr. Badgery has had. I am very confident in what I state, that I can load more sheep by the side than you can at the end. At any rate, I prefer side-loading.
2201. Have you any knowledge of what Mr. Badgery's experience is? I know that he has had a good deal of experience in the loading of stock; but I have had more.
2202. You state that the difficulty is in arranging the number of sheep in each truck? Yes.
2203. Is it not a fact that in the trucks which you have seen the decks are fixtures and the man loading cannot walk about in the trucks? That is so.
2204. Do you know that in my truck you can walk about either in the bottom or the top deck? I have not had great experience of your truck; but if you say that men can walk about in the bottom deck as well as in the top deck the truck must be 16 feet high.
2205. If a person could walk through the stock would it not overcome a great deal of the difficulty with regard to end-loading? A little; but I am confident that you could not load as quickly as I can by the side.
2206. You do not know the actual working of my truck? I say so; but still I am confident that side-loading is quicker than end-loading.
2207. *Mr. McLaughlin.*] Supposing there is an opening of about 2 feet or 2 feet 6 inches in the roof of a truck, which enables you to walk through, your head and shoulders being in the air, would you have much control over the sheep? No; you want to be able to look at the sheep.
2208. The difficulty is not overcome of getting the exact number into each truck? No.
2209. Would not the same difficulty exist in closing the doors, locking them up, and counting the sheep? Yes.
2210. *Mr. Lyne.*] You said that Evans' truck was of great advantage, because it could be utilised to carry merchandise into the interior. Would not that apply to all combination trucks? Yes.
2211. *Mr. Evans.*] But if one truck weighed a ton more than another, would not that be a great disadvantage? It would be additional haulage.

Mr. William Alexander Herkes called in, sworn, and examined:—

2212. *Chairman.*] What are you? I am a live-stock porter on the railways.
2213. *Mr. McLaughlin.*] What experience have you had of loading cattle and sheep? Thirteen years. Mr. W. A. Herkes.
2214. How long does it take you to truck 1,000 sheep? Half-an-hour. 12 June, 1888.
2215. With what assistance? Three men besides myself.
2216. Is that with the side-loading system? Yes.
2217. Would you recommend the Government to change side-loading for end-loading? No.
2218. Why not? Simply because I think the side-loading system much easier and better both for cattle and for sheep. As for sheep, they do not get knocked about so much as they would in end-loading.
2219. Can you give any other reason? No.
2220. Do you know anything about the Hay yards? Yes; I have worked there for four and a half years.
2221. They are improved yards? Certainly.
2222. You can load 1,000 sheep there without moving the trucks? Yes.
2223. Could similar yards for sheep be erected at nearly all the stations, or the present yards be altered to the same style at very little expense? Yes.
2224. The Hay yards are very strong? Yes.
2225. You say that you can load 1,000 sheep there in half-an-hour? I have done it more than once.
2226. Are they counted accurately? They are counted into pens as they run through the races. As soon as ten trucks are loaded the engine pulls them away, and ten other trucks take their place. If we have not an engine there we have to do it by hand-shunting.
2227. If there was a slight inclination in the yards the moving would be still more simple? We could move the trucks easier if we had an incline.
2228. Are not all the yards on an incline? No.
2229. *Mr. Wilkinson.*] The sheep are all counted into different pens before you commence to load? Yes.
2230. Have you had any experience of end-loading? None.

Mr. William Green called in, sworn, and examined:—

2231. *Chairman.*] What are you? Porter-in-charge at Flemington. Mr. W. Green.
2232. *Mr. McLaughlin.*] Do you think that there is any necessity for a change from side-loading to end-loading? No. 12 June, 1888.
2233. Would you recommend it? No. 2234.

- Mr. W. Green.
12 June, 1888.
2234. Will you state your reasons for not recommending end-loading? With the poor appliances that we have at Homebush now I can load from 1,000 to 1,200 sheep in an hour.
2235. And count them too? Yes.
2236. And distribute them equally in the trucks? Yes. Last Friday I loaded 1,320 sheep in about an hour and three-quarters. Then, of course, we were taking our time, not hurrying at all.
2237. How many men? Four.
2238. Do you think it would be possible to load and count the sheep as rapidly with the end-loading system? I do not, not even in daylight.
2239. Why? If we had end-loading trucks all the stages would have to be fixed. I know that at a trial of end-loading trucks which we had it took me and another man half-an-hour to fix the trucks, and then we loaded some 400 out of 600 sheep over the bottom decks. I should like to know how you are going to divide them and count them from truck to truck.
2240. Mr. Lyne.] To what trial do you refer? It was one made some time ago with Mr. Lyne's end-loading trucks.
2241. Why do you call them Mr. Lyne's trucks? They were ordinary trucks which were altered by your orders.
2242. Mr. McLaughlin.] Do you think that the Evans truck is a suitable one for the Government to continue using? I do, from what I have seen of the others, and I have seen then all. The Evans truck has been in use now for some years. It seldom carries less than 100 sheep, and it can carry 120 shorn sheep with great ease, and 100 sheep with the wool on, allowing plenty of ventilation and plenty of room. It is seldom that we have a dead sheep in any of these trucks.
2243. Have you seen the Wilkinson truck? Yes.
2244. You know that the top deck goes up to the roof? Yes.
2245. Would not that heavy floor being suspended in the roof cause great oscillation in the train? I can hardly tell you that.
2246. Would not the Wilkinson truck be more difficult to clean than the Evans truck? I can hardly tell you, because we have not had it to do. This is the third truck of that sort that we have had. They worked very well at first, but by-and-bye they became so clogged that it was a moral impossibility to shift them at all. We have had two other trucks with the tops going to the roof.
2247. Mr. Wilkinson.] On the same principle as mine? With the exception that in yours you throw it out of gear to lower it. They worked very well when they were new and clean.
2248. Mr. McLaughlin.] Do you think that the opening in the roof is any great advantage? I fail to see how it can be. It is very well for a man to be able to walk along through the sheep; but I fail to see how he can get in among the sheep when he is up there.
2249. Is it not a fact that his legs would be down among the sheep and his head and arms out of the truck? Yes.
2250. Chairman.] Have you had any experience of end-loading? Thirteen years ago we had some end-loading trucks. They were tried on several occasions, but we could make nothing of them, and consequently they were condemned.
2251. Mr. Lyne.] At the trial which took place to which you have referred, is it not a fact that I loaded the sheep myself? I assisted you. I went through with the first sheep.
2252. You said that 400 out of 600 were put in the lower decks; were they not put in purposely? As far as I know they were.
2253. It was not through any mistake that 400 were put in the lower decks? No. You did not intend to try any more; you seemed satisfied with what was done.
2254. Mr. Evans.] During that trial the doors were all arranged before the trial commenced? Yes.
2255. And the doors were not closed until after the sheep were out of the trucks again? No.
2256. Mr. Wilkinson.] Are not the doors generally opened before you bring the trucks to the yards? Under the present contracts the men have to have the doors closed.
2257. Do you know anything about trucking stock in the country? No.
2258. You have a travelling gangway? Yes.
2259. Do you know that in the country they have none? No.
2260. Instead of your moving the truck you move the gangway? Yes.
2261. You have not to shunt every truck? Yes; we have to shift every truck by a horse or by our shoulders.
2262. If the difficulty of arranging the proper number of sheep is got over, the difficulty of end-loading will be overcome? I am afraid it will not be got over.
2263. Mr. McLaughlin.] With the end-loading trucks which you tried had you to drag down the first sheep to the end? Yes; I had to do that to make the others start.

TUESDAY, 19 JUNE, 1888.

Present:—

MR. HAYES,

MR. LYNE.

MR. KETHEL,

T. H. HASSALL, ESQ., IN THE CHAIR.

John McLaughlin, Esq., solicitor, appeared on behalf of the proprietors of the Evans Australian Combination Truck. W. B. Wilkinson, Esq., appeared in person.

Charles A. Goodchap, Esq., Commissioner for Railways, called in, sworn, and examined:—

2264. Mr. McLaughlin.] Did you receive the following letter from Mr. Evans in March last? Yes.

Dear Sir,

Sydney, 7 March, 1888.

As I expect to be examined by the Select Committee on the relative merits of combination trucks, and as the Government, as purchasers of my patent, will naturally be anxious to elicit all the facts, I shall be glad to be in a position to state the estimated cost of hauling 1 ton of additional tare per vehicle during twelve months' work of our present stock waggons.

C. A. Goodchap, Esq.

GEORGE T. EVANS.

2265. I believe you made a calculation? Yes; from the official records.

2266.

C. A.
Goodchap,
Esq.

19 June, 1888.

2266. And the result of your calculations is contained in this letter? Yes.

Sir,

Department of Railways, Sydney, 12 March, 1888.
In reply to the inquiry made in your letter of the 7th instant, I have the honor to inform you that the working expenses per ton per mile on the railways of this Colony were 305d. for the year 1886 (see railway report, page 139 of appendix). For 1887 the details are not yet worked out to give this information, but the difference will not be material.

On the south and west lines the mileage run for the year 1887 by live-stock vehicles was 11,127,868, and this mileage multiplied by the cost of running as given above (making allowance for certain standard expenses, which would not be affected by the increased weight) shows that if each vehicle had weighed 1 ton additional the extra cost to the Department for working that traffic would have been £11,521.

I have, &c.,

CHAS. A. GOODCHAP,
Commissioner for Railways.

C. A.
Goodchap,
Esq.
19 June, 1888.

G. T. Evans, Esq., Supt. of Stores, Eveleigh.

2267. *Mr. Lyne.*] Have you not some photographs in the Department showing the system of end-loading stock in South Australia or Queensland? I believe we have.

2268. Are there any means by which the Committee can see them? I will send them to you.

2269. Have you made any calculation as to the cost of the haulage of a ton over the whole of our railways? Yes; it will be found in the Railway Report for 1886. It is 305d. per mile for every ton taken over the lines.

2270. What would be the mileage per truck? It varies. Live-stock trucks run more than other trucks. Taking the trucks all round, I think 7,000 miles would be about the average.

2271. What is the difference in the cost of the haulage between an ordinary truck and a combination truck—take Evans', for instance, as being the lightest? It all depends on the weight. Live-stock trucks and ordinary D trucks are employed in different services, and the mileage is different in each case; but I think, putting them altogether, the average mileage would be about 7,000 miles.

2272. You say that the cost per mile per ton is about one-third of a penny? Not quite. I have given 250d. as representing the proper amount, because there are certain standard expenses which would not vary—the superintendence, signals, and all these things along the line, the cost of which would not vary whether the trucks used weighed 10 tons or 1 ton. Therefore, I make a reduction for that, and put it down at ¼d. per ton per mile.

2273. *Mr. Hayes.*] That is the actual cost of haulage, excluding the standard expenses? Yes.

2274. *Mr. Lyne.*] The net cost is about ¼d. per ton per mile, and, taking into consideration the difference in the weight between an ordinary D truck and a combination truck, it would be about £7 5s. extra haulage per annum? I do not see why you make a comparison, because the trucks are used in such different services.

2275. *Chairman.*] According to your report you are perfectly satisfied that the combination trucks have effected a great saving in the expenses of the Department? I am certain that they have; but they do not do all that is claimed for them.

2276. But they have, to a great extent, saved expense? They will effect a great saving.

2277. Have you had any experience of end-loading? I have seen it done.

2278. Not in New South Wales? Yes. Some years ago we attempted it.

2279. Can you give an opinion as to whether it would be a success or not? Our experience was rather against it; but where it has been brought into use they tell me it is very effective. They speak very highly of it in South Australia. I believe it is in use in Queensland.

2280. *Mr. Hayes.*] What does the saving consist of—is it in the conversion of a truck from a cattle to a sheep truck? It is saved in empty running. If we send these trucks to the country full of goods, and get them back loaded we save an immense amount of empty running. We shall not save the amount of empty running that has been claimed for these trucks. That has been given at a very outside figure, on the assumption that we should always be sending goods to particular places where trucks were required for sheep or cattle.

2281. What advantage is there in sending goods by a combination truck over sending them by an ordinary cattle truck? There is better shelter in the combination truck than there is in the cattle truck, and the cattle truck may be going to a place where sheep are coming from.

2282. What I want to know is is there any special advantage in a combination truck for the carriage of goods over an ordinary cattle truck? I should think that with good tarpaulins the cattle trucks might be nearly as effective as combination trucks.

2283. *Chairman.*] In sheep trucks you cannot load goods? No. You might load exceptional traffic, such as rabbit wire-fencing, or something like that; but, as a general rule, sheep trucks are not available for ordinary loading.

2284. So that it would be an advantage to the Department to have trucks built on the combination pattern? No question about it; that is, assuming that is a good truck, that its parts work evenly and are not likely to get out of order or break down. If we got a truck which was ineffective in this respect it might be more expensive than it was worth.

2285. From your knowledge of the Evans combination truck, do you think it will cost more to keep in repair than an ordinary truck? I am not aware that it will. I have made some inquiries in that direction, and I find that all the working parts have answered admirably during the time we have had the trucks in use, and that the trucks are not under repair as often as ordinary trucks.

2286. Evidently they answer the purpose for which they were intended? I should think so.

2287. Without putting the Department to extra expense for their repairs? Yes.

2288. Do you think that the Government would be justified in paying such a large price as £16,000 for the patent, in view of the saving which would be effected? I do not know what is the value of a patent—how it is to be calculated. For my part, I consider that £16,000 is a very large sum indeed to pay for the patent, viewed in regard to the amount of skill and the amount of thought involved in making the design; but if it is to be viewed from the standpoint of the benefit which it confers, then I am clearly of opinion that it is worth £16,000, and many £16,000 to the Department.

2289. *Mr. McLaughlin.*] Suppose the patentee had spent six or seven years, working night and day, preparing models and improving the design, until at last he brought it to its present state, do you think that that would be too large an amount then? I always thought that these things came as a sudden inspiration.

2290. *Mr. Wilkinson.*] If my truck were reduced to the same weight as Evans', there would be no need for the calculation as to the difference of the cost of hauling the two trucks? No.

2291. The conversion of the cattle truck into an Evans truck, and the building of fourteen of Evans' trucks were done at the expense of the Department? Yes.

2292. Has the Department contributed anything towards the construction of my truck? I believe not.

Mr.

Mr. Joseph Wilkins, junior, called in, sworn, and examined :—

- Mr. J. Wilkins, jun.
19 June, 1888.
2293. *Mr. Wilkinson.*] What are you? A waggon-builder, in the employ of Hudson Brothers.
2294. How long have you been in their employ? Six years.
2295. Does your father occupy any position there? He is foreman of the waggon department.
2296. Do you work under your father? Yes.
2297. Do Hudson Brothers construct certain rolling stock for the Government? Yes.
2298. What is the rolling stock? All covered goods and sheep vans, and cattle trucks.
2299. You constructed the truck known as Wilkinson's combination truck? I helped to construct it.
2300. Is it constructed in such a way as to conform as far as possible to the regulations of the Government with respect to other trucks? It is.
2301. How are the sides of the truck constructed? They are braced from floor to roof, and the upright bars go from the floor to the roof, which is not the case in any other trucks that are running.
2302. *Mr. Kethel.*] Are the braces diagonal? Yes.
2303. *Mr. Wilkinson.*] How many pillars are there? Five on each side.
2304. How many in the end? Two, besides the corner pillars.
2305. Are they tennoned? They are fastened into the headstock in the usual way, and to the arch rail.
2306. What is the size of the pillars? Four and a-half by three.
2307. Do they go from floor to roof? Yes.
2308. How is the roof of the truck tied? It is tied across the middle with an iron T beam, three by a half inch.
2309. Is the truck tied together as strongly as existing trucks in the roof? I think so.
2310. Are any existing trucks tied by an iron beam? No.
2311. Is the deck which goes up into the roof fixed tight when there? Yes.
2312. Is there any oscillation in the deck itself when in the roof? No.
2313. Do you know anything about the louvred meat vans? I helped to build most of them; they are louvred all the way round.
2314. Are there any braces in them? No.
2315. Do not they carry meat in the roof in these louvred vans? There are four bars running from one end of the truck to the other, on which meat is carried. I suppose they carry from 2 to 3 tons of meat in the roof in these vans.
2316. What would be the weight of the deck in the roof of my truck? Between 5 and 6 cwt.
2317. You say that they carry between 2 and 3 tons of meat in the meat vans which are not braced, but which are louvred all round? Yes.
2318. Does the meat hang from the roof? Yes.
2319. Then if there was any oscillation it would be bound to work? Yes.
2320. Was there any model or plan when my truck was being constructed? There was no model or plan; it was built from your idea.
2321. Was the weight of the truck considered when it was being constructed? No.
2322. The truck was built according to my instructions, and was altered at certain times when I saw an improvement could be made? Yes.
2323. Can you say anything about the hinges which were used? They were a lot heavier than was necessary.
2324. And the upright rods? They were of solid iron from floor to roof.
2325. You are now building a similar truck for the Victorian Government? Yes.
2326. In the construction of this new truck have you reduced the weight in the iron-work alone? Yes, by 9 cwt.
2327. Is the truck as strong as the original one? I think it is stronger.
2328. You state this of your own knowledge, having ascertained the weight of the two trucks? Yes.
2329. Do you know anything about the construction of Evans' truck? I had nothing to do with it. I have looked at it.
2330. Do you know whether there are any braces in it? None to the best of my knowledge.
2331. Do you know what the centre rail in Evans' truck is composed of? I think that it is a piece of angle-iron.
2332. If the Department allowed me to construct my truck in the same way, without braces, would that make my truck any lighter? Yes.
2333. Presuming that there is no advantage in a combination truck at all, or very little, has my truck any special advantage over the existing sheep trucks? Yes. One advantage is that the decks in the present sheep trucks are fixtures, whereas, in your truck, the deck goes to the roof; therefore, it would be a goods truck as well as a sheep truck. It also has provision for end-loading, which the existing trucks have not. It is better ventilated than the present trucks. With the deck raised to the roof you have the advantage of being able to walk about in the truck when loading the bottom deck. Then when you lower the deck you can open the roof, and walk about upright on the top deck.
2334. It has the advantage, as a natural consequence, that is a goods truck as well? Yes.
2335. If it were made merely a sheep truck would it be any lighter? Yes.
2336. Presuming that it were only a cattle truck, would it have any advantage over the existing cattle trucks? It has the advantage that it is better ventilated, and another advantage is that if a beast gets down you can see it from any part of the truck, whereas in the present trucks the sides are practically dead wood nearly to the roof, and you cannot look into the trucks without looking over the top. In the Wilkinson truck if a beast is down you can get at it anywhere.
2337. *Mr. Lyne.*] How does the ventilation in the Wilkinson truck compare with that in the Evans' truck? The Wilkinson is the better ventilated of the two.
2338. *Mr. Wilkinson.*] Are there many doors in my truck? There are a lot of doors—thirty I believe—but they are put there as a convenience.
2339. How many doorways are there? Two on each side and one on each end.
2340. Are these doorways put there as a convenience, or are they necessary in the construction of the truck? They are put in as a convenience. Some of them, I believe, can be done away with, if necessary.
2341. Are they essential as far as the system of the truck is concerned? They are not. They are there, not as a necessity, but as a convenience.

Mr. J.
Wilkins, jun.
19 June, 1888.

2342. Do you know why the two doorways are put in the side of the truck? They are put there to suit the present trucking yards, so that you can load the truck at the bottom at one place and at the top at another, or *vice versa*.
2343. How many doors are there in the side of the Evans truck? One at each corner.
2344. Could they put another door in the side conveniently if they wanted it? I do not see that they could, seeing that the flaps of the deck are hinged to the side.
2345. Is it not a fact that in the Evans truck some of the flaps have to be taken away and hung up in the ends of the truck? Yes.
2346. Would not the same thing occur if they were to put in another side door? Yes. They would have to make room for it somewhere else; they could not hang it on the side.
2347. In one of the trials of my truck something went wrong, will you state what it was? There is a groove in each side, in which the deck works, and in building the truck we did not put in a stop sufficiently long; therefore, when the way was on the truck the deck came out of the slot, and came down, and could not get back again.
2348. *Mr. Lyne.*] How much longer should the stop have been? About $\frac{3}{4}$ of an inch.
2349. *Mr. Wilkinson.*] You effected the repairs at Eveleigh? Yes.
2350. What did you do? I had the stops taken off and made longer, and I had a piece of angle-iron put across the middle deck just opposite the stops.
2351. Ought not that piece of angle-iron to have been in before? It would have been there if the truck had been constructed according to your orders.
2352. You have hauled the deck up and down a great many times? Yes.
2353. How long does it take you to haul it up, on an average? About 3 minutes.
2354. How long does it take you to lower it? Inside of a minute.
2355. *Mr. Kethel.*] With reference to the louvres in the present meat trucks, are they capable of being used as braces, are they bradded into the slots at the end, or are they simply fitted in without any brads? They are bradded in.
2356. In that case the louvres would act as braces? They are knocked in and nailed in.
2357. Being bradded in do they not help to strengthen the truck? Being continuous all round they would a little.
2358. I suppose you have a fair knowledge about the hardwood used in the construction of the frames of the various trucks? Yes.
2359. What kinds of wood are generally used? Mostly tallow-wood, blackbutt, and stringy-bark. Sometimes we use ironbark. There is a mixture.
2360. Suppose you were to use discrimination in selecting choice descriptions of timber, longer in the fibre and stronger than others, would it not be possible to reduce the weight of the frames of the trucks without decreasing the strength? I think it would.
2361. *Mr. Wilkinson.*] Is there any light wood in my truck which ought to be hardwood? None at all.
2362. *Mr. McLaughlin.*] Can you tell me the date when Wilkinson's truck was constructed? I cannot.
2363. Was it constructed from verbal instructions? Yes.
2364. How long was Mr. Wilkinson at the works? He came up in the morning perhaps, and stayed half-an-hour or an hour, and then went away.
2365. You say that you had no plan and no model, but that you made the truck from verbal instructions? Yes.
2366. Then, as far as the Committee are concerned, there is nothing to satisfy them that the invention is not as much yours or your father's as anyone else's. Did you not all assist in the manufacture of the truck? The idea is not mine. It is Mr. Wilkinson's all through.
2367. You cannot give us the slightest idea when the truck was built? I cannot tell you when we commenced it. I should think it was about twelve months ago when we first started it.
2368. Do you know how long the Evans truck had been running before that? I do not.
2369. Had you seen the Evans truck at that time? I had seen one of the patterns of Evans truck.
2370. I suppose that your fellow-workmen had seen it? I cannot answer for them.
2371. Was it not a fact that you tried to make an improvement on Evans truck, if possible? No.
2372. *Mr. Wilkinson.*] Is there anything in my truck like Evans'? Nothing at all.
2373. *Mr. McLaughlin.*] This new truck that you speak of is being made for exhibition purposes, is it not? It is being made to run on the Victorian lines, and it is to be sent to the Exhibition.
2374. Will you tell me in what way you have reduced the weight by 9 cwt. in the iron-work? In the hinges, in the running gear, on the side for the shutters, and in the iron-work generally. Then, in the place of solid bars on the sides, we have put in gaspipes.
2375. Did you ever hear of gaspipes being used in trucks before they were put in Evans' truck? I never used any before.
2376. Did you ever see gaspipes used in that way? No, not in any of the trucks.
2377. I suppose you approve of them? Yes.
2378. You say that the use of them affects a great saving in the weight? Yes.
2379. Do you know what the cost of construction per truck according to the Wilkinson pattern would be? I do not.
2380. Would it be as cheap as Evans'? I know nothing about the cost.
2381. *Chairman.*] You say that you have been connected with the construction of Wilkinson's truck from the time that it was initiated? Yes.
2382. How many times has it been altered or repaired since the commencement of this inquiry? A good many times.
2383. Have these alterations reduced the weight? They have not reduced the weight a bit.
2384. *Mr. Wilkinson.*] Do you know when this inquiry commenced? No.
2385. Did you not say in reply to the Chairman just now that the truck had been altered a good many times since the inquiry commenced? What I understood the Chairman to ask me was, if the truck had been altered many times since it was constructed.
2386. Do you remember when Mr. Badgery and two other gentlemen inspected the truck at the Clyde works? Yes.
2387. Was it complete then? No.

WEDNESDAY, 27 JUNE, 1888.

Present:—

MR. HASSALL,

MR. SUTHERLAND.

MR. BRUNKER,

T. H. HASSALL, ESQ., IN THE CHAIR.

John McLaughlin, Esq., appeared on behalf of the proprietors of the Evans Australian Combination Truck.

Hugh M'Lachlan, Esq., called in, sworn, and examined:—

H.
M'Lachlan,
Esq.
27 June, 1888.

2388. *Chairman.*] You are chief clerk in the Railway Department? Yes.

2389. Have you any papers relating to the combination trucks offered to the Government? The Commissioner received a summons from the Committee, but as it was not marked "personal attendance," he asked me to get out particulars of the different combination trucks which have been offered to the Government at various times, and I have prepared a brief statement showing the different designs of trucks submitted to the Department, not only up to the date of the appointment of this Committee, but also up to the present date. This statement which I have prepared is as follows:—

THE first of the combination trucks brought under notice (if we except one constructed by the Department in 1878, which was not a success) seems to have been that designed by Mr. Evans; it came prominently to the front at the time the Board was sitting on the carriage of live-stock by railway in 1884. This Board inspected a model of the truck, and were so impressed with the merits of the principle that the members recommended the Department to have a number of trucks built to practically test it.

The next is the Wilkinson truck. It seems to have been the outcome of the trial of the Evans truck, and at first Mr. Wilkinson's object seemed to be merely to suggest improvements on the original design. He first brought his ideas under notice in December, 1885, when he was asked to submit his suggestions. Subsequently he submitted plans and had a truck built to his design.

The Perry truck next submitted seems also to have been the outcome of the trials of the Evans design. There is no official notice of the Perry design prior to November, 1886, when the inventor submitted a model to the Commissioner.

The three above mentioned were those primarily referred to the Combination Car Commission, which reported in favour of the Evans design.

There is a record of a design for a combination truck having been received from Victoria in November, 1886, the inventors being Brazenor and Valentine. The truck was designed for either sheep or goods, but was not favourably received. The Chairman of the Board investigating the merits of the combined trucks wrote "that as it was only for sheep and merchandise, the truck does not meet the requirements of a combined stock and goods truck," and the General Traffic Manager of the Victorian railways also wrote "that after a fair trial my experience of Messrs. Valentine and Brazenor's convertible truck is not satisfactory."

A second Victorian design—inventor, Mr. D. Anderson, of Stawell—was also submitted to the Department. It was first brought under notice in January, 1887, but does not appear to have had much attention. The plan was submitted to the Board appointed to inquire into combination trucks, but too late apparently for them to consider it.

A Mr. Fowler also submitted, January, 1887, a design to the Combination Truck Commission, but they apparently thought little of it, as it receives no special mention, and it would be included in their remark. "That a number of other models and plans were submitted, but none of them possessed such improvements as would warrant the Board in suggesting the adoption of their principles."

The next is the "Mulholland," but it is doubtful if it comes within the category of combination trucks offered to the Government prior to 8th November, 1887. It was first brought under notice by the members of the Combination Car Commission, who sent in their report on 23rd January, 1887. They were asked to report on the relative merits of the three designs first offered to the Government, viz.; the Evans, Wilkinson, and Perry, but the Board widened the scope of their inquiry, and permitted any persons who had models or plans of new inventions pertaining to combination trucks to exhibit them. Amongst them was the design of Mr. Mulholland, and concerning it the Board stated—

"Mr. Mulholland submitted an imperfect model of a combination truck, available for sheep and cattle, embodying an ingenious system of end-loading, but inasmuch as he had made no provision for the smooth inside surface required for cattle, we considered his design defective."

The matter seems to have rested until 30th November last, when Mr. J. L. Barker wrote that he was desired by Messrs. Korff and Mulholland, to apply for two pairs of wheels and axles. These were supplied for model truck, which was built by Mr. Thomas Hearne. The truck would appear to have been completed in March last, as on the 16th March Mr. Hassall, M.P., Chairman of the Combination Truck Commission wrote, saying that Mr. Mulholland had invented a truck, and was anxious the same privileges should be granted to him as to other inventors, and desired a practical test, which was allowed.

A letter was received from Mr. Chanter on the 26th November last, submitting that a Mr. John Treacy, of Victoria, had invented a combination truck, and wanted it considered before any definite decision was arrived at. Mr. Chanter was asked to forward design, but nothing further has been done. On the 23rd April last a Mr. John M'Cook wrote, stating that he had an improved design of combination truck. He had taken out letter-patent, and submitted model; he was referred to the Select Committee, but in an interview with the Commissioner, he stated that the Chairman declined to have anything to do with his truck. He wrote, 15th instant, asking for Commissioner's opinion of his truck, and was asked to send in particulars and it would be reported upon. On the 6th June instant, another invention came to the front, viz., a sheep and goods truck, designed by Messrs. Sutton of Victoria. They intimated that they would forward models of truck if desired. They were informed that the Department was not at present prepared to consider any fresh designs.

2390. You say that the letter from Mr. Barker with reference to Mulholland's truck was received on the 30th November? Yes.

2391. That was after this Committee was appointed? Yes.

2392. There was no offer of sale of the truck to the Government? None.

2393. Have there been any definite offers to the Government of combination trucks, other than the Evans and the Wilkinson trucks? Those are the only two which have been offered. Designs have been submitted by other persons, but, as far as I can trace, they have made no definite offer.

COMBINATION TRUCKS.

APPENDIX.

[To the Evidence of G. T. Evans.]

A.

No. 1.

Sir,

"Adams' Exchange Hotel," 30 November, 1887.

I have the honor to apply to you for permission to run my truck to Dubbo next week and return with a consignment (say) of fifty sheep and four or five head of cattle to Homebush in the one trip.

In order that I may prove what it is capable of doing I have arranged for the stock to meet me at the Dubbo trucking yard.

I may state that the Minister for Works, in a conversation with me, stated that he would be glad to give my truck an opportunity of running on the railway lines.

I would prefer loading the truck up with goods to Dubbo.

Awaiting your reply,

I remain, &c.,

W. B. WILKINSON.

The Commissioner for Railways.

Inform Mr. Wilkinson that I am prepared at once to give his truck a trial in the way in which, if it belonged to the Department it would be practically used; but I do not see the use of testing it with a few cattle and a few sheep—a mode of use which will not be a practicable one. If he will hand over his truck to the Department I will test it in the same train and with the same loading, or similar loading, conveyed over the same length, with the "Evans" truck.—CH.A.G., 1/12/87.

No. 2.

Sir,

Department of Railways, 1 December, 1887.

In reply to your letter of the 30th ultimo, I have the honor to inform you that I am prepared at once to give your truck a trial in the way in which if it belonged to the Department it would be practically used; but I do not see the use of testing it with a few cattle and a few sheep—a mode of use which will not be a practicable one. If you will hand over your truck to the Department I will test it in the same train and with the same loading, or similar loading, conveyed over the same length with Evans' truck.

I have, &c.,

CH. A. GOODCHAP,

Commissioner for Railways.

W. B. Wilkinson, Esq.

No. 3.

Sir,

Gresham-street, 17 December, 1887.

My patent combination truck is now at Homebush, having delivered its freight of fifty sheep and five head of cattle all sound. I am willing that the patent should have further trial. In a letter to me a short time since you proposed that it should be run beside Evans' with similar loads or under similar circumstances, in answer to which I may state that you are at liberty to give it any trial that you wish, and I am anxious that it should be thoroughly tested.

I will be glad if you can let me know on Monday if you will permit the above, and the truck for the time being can be under the sole control of the Department (say) for four trips.

Before its going out again I would like to alter my half doors into whole doors, as I find the whole door is a great advantage for trucking cattle.

Yours, &c.,

W. B. WILKINSON.

The truck could be at your disposal (say) next Friday.
The Commissioner for Railways.

I learn that the sheep sent were very small, recently shorn, and that the cattle were of the smallest and tamest. I do not consider such a trial is convincing proof of the efficiency of the truck, nor do I think even if the stability of the truck is established by further test that the conclusions arrived at by the Board will be invalidated. I have no objection to the truck being tested in the way I first suggested. Evans' new truck to be on the same train, both trucks to be weighed empty and loaded. I should like also recorded the number of operations each truck requires to fit it for use and to convert it again. I understand that numerous alterations have been made in the Wilkinson truck since it was reported upon by the Board; even after the trial which Mr. Wilkinson refers to in his present letter some further alterations are found to be necessary, and it seems the nearer it can be brought to Mr. Evans' design the greater are its perfections. The floor I understand has now been made similar to that adopted by Mr. Evans originally.—CH.A.G., 20/12/87.

Mr. Wilkinson to be informed that if he will hand truck over to Traffic Branch it will be tested in accordance with conditions stated in our letter of 1/12/87.—D.C.M'L., 20/12/87.

Sir,

Department of Railways, 20 December, 1887.

In reply to the request contained in your letter of the 17th instant, I have the honor, by direction of the Commissioner for Railways, to inform you that if your truck be handed over to the Traffic Manager for the purpose of being tested this will be done in the manner described in my communication of the 1st instant.

I have, &c.,

A. RICHARDSON,

(For the Secretary of Railways.)

W. B. Wilkinson, Esq., "Aaron's Exchange Hotel," Sydney.

No. 4.

Trial reports of Messrs. Wilkinson's and Evans' Trucks.

I HAVE the honor to report, for your information, the results of the first trial of the Evans' and Wilkinson's combination trucks, carried out as directed by the Commissioner.

The trucks weighed empty, as follows:—

	Tons.	cwt.	qr.
Evans' truck	6	13	1
Wilkinson's truck	7	18	0

They were loaded on 29th December with the following weight of goods for Bourke:—

	Tons.	cwt.	qrs.
Evans'	5	0	1
Wilkinson's	4	17	2

They

They were unloaded on 2nd and reloaded at 6:30 a.m. on 3rd instant with nine head, each of weighty but rather quiet cattle. They would have each held another bullock, but as the load limit had not been definitely settled I considered it unwise to exceed the nine head.

The loading in both trucks was accomplished with wonderful celerity, occupying 5 minutes only for the two trucks, and the result conclusively proves the advantage of the doors being placed in the ends of the sides instead of in the middle. The weather was remarkably cool during the whole of the time the trucks were in transit, ranging between 70° and 80°, and in that respect the test as to ventilation, &c., was of no particular value. One of the thermometers having been detached before reaching Nyngan, I was unable to thoroughly settle the question as to its range in each truck, but I have made provision to secure them from interference on the next trip.

The trucks left Bourke at 7:40 a.m., and with the exception that the axle of the Evans' truck ran hot through a defective lubricator, which was remedied at Byrock, nothing of any particular moment occurred until reaching Bathurst, when the trucks were weighed with the following result:—

	Tons.	cwt.	qrs.	Tons.	cwt.	qr.	Tons.	cwt.	qrs.			
Evans' truck	Gross,	12	6	2;	tare,	6	13	1;	net,	5	13	1
Wilkinson's truck	"	13	8	2;	"	7	18	0;	"	5	10	2

After leaving Bathurst the cattle began to slip about considerably in the Wilkinson truck, and at Katoomba one bullock got down. At Lawson two were down but were able to get up again, as at Glenbrook they were all on their feet. On reaching Penrith three head were down. From Penrith to Homebush the run was made in 1 hour and 27 minutes, and on reaching the cattle-yards two of the cattle had regained their feet, the remaining one being in a very exhausted condition. The whole of the cattle in the Evans' truck were on their feet throughout the journey and were unloaded in 2½ minutes. Those in the Wilkinson truck, exclusive of the beast that was down, were 14½ minutes unloading, a fact the unloaders attribute to the van being too close to enable them to work the cattle. The remaining bullock had to be assisted to his feet.

It is of course premature to express any opinion on the facts disclosed, and I trust that three features, which it was impossible this time to secure, viz., hot weather, wild cattle, and a registration of the temperature will be available in the next trial.

I propose, with your approval, to load cattle again at Bourke and then sheep at Hay.

JNO. HARPER, 6/1/88.

Traffic Manager.

COMBINATION TRUCK TRIALS.

No. 2.

Cattle.

ON January 8th the two trucks were each loaded with 6 tons of goods for Bourke. A favourable opportunity occurring of obtaining heavy Queensland cattle at Byrock, I decided to load at that station. The cattle in question was a mixed lot, many being very large and weighty, while others were about medium size and quality.

They had been nine weeks travelling, and were hurried to Byrock in time for trucking. Nearly five hours were spent in yarding them, and the result was that with the thermometer at 101° in the shade they entered the trucks very much knocked about and footsore. At my request the trucking agent, Mr. Anderson selected as many as he could of the largest bullocks for the two trucks.

In the Evans truck eight of the largest cattle were loaded, and completely filled it. No reservation was made as to the condition of the stock, those that entered the race being allowed to load in precisely the same manner as with an ordinary cattle-waggon.

Before loading the "Wilkinson" truck that gentleman objected to a large and rather wild and sulky bullock, which in the ordinary course would have been loaded in his waggon, and at his request the beast was returned to the main mob.

This caused the balance of the heavy cattle which had been drafted to become mixed, and as we were late, four heavy cattle and five medium ones were loaded.

On reaching Narramine it was observed that a very large and prime bullock had laid down in the Evans truck and after attempting to get him up it became apparent that he was too footsore to stand and too sulky to get up. As his position did not endanger the other cattle he was left alone. During this part of the journey on several occasions the horns of the cattle in the Wilkinson truck became entangled amongst the bars and had to be released.

When Orange was reached, the bullock already referred to in the Evans truck was still down, and had got into such a bad position during the night that he would certainly have brought others down. We therefore unloaded the truck and got him on his feet, but he laid down again before we left the station.

It was observed at Orange that one of the pine louvres in the Wilkinson truck had been knocked out, and as it was probable that a bullock's horn might get into the space left and destroy the remainder, a batten was nailed over it.

At Bathurst the trucks were weighed with the following result:—

		Tons.	cwt.	qrs.
Evans truck, 8 cattle—Gross		12	17	0
Tare		6	13	1
	Net.....	6	3	3
Wilkinson truck, 9 cattle—Gross		13	17	2
Tare		7	18	0
	Net.....	5	19	2

As the same bullock was again down in a bad position in the Evans truck, and it was evident he would not stand up, and as in coming over the Mountains he would probably endanger the other cattle, I decided to take him out, which was done at Kelso, and he was subsequently sent on in another train. I may mention that owing to the condition of the cattle when trucked they were unable to stand, and that at Orange, Kelso, Wallerawang, and Mount Victoria we were compelled to unload the ordinary cattle-waggons to get cattle up, and the whole consignment of thirty-three trucks arrived at Homebush with about twenty-four head-down.

At Wallerawang another bullock had laid down in the Evans truck, but on being disturbed resumed his feet and remained standing till the end of the journey.

At Flemington the cattle were all standing in the Evans; one had laid down in the Wilkinson.

The time occupied in unloading was—

The Evans truck	7 minutes.
The Wilkinson truck	5 minutes.

During the whole journey thermometers were in two trucks, and I give the readings at different stations. It should, however, be stated that Mr. Wilkinson constantly adjusted his shutters, according to the direction of the sunlight. The Evans truck was in no way altered, but treated as I have already said as it would be in actual traffic, that is, as one of our cattle-waggons.

Thermometer Reading.

	Evans Truck.	Wilkinson Truck.
Byrock	101°	101°
Coolabah	102°	102°
Girilambone	103°	101°
Nyngan	100°	99°
Neverfire	96°	95°
Bathurst.....	84°	84°
Zigzag.....	88°	90°
Flemington	79°	82°

The Evans truck arrived intact, and was not touched. The Wilkinson truck had a new louver placed in it, the working parts oiled, decks raised and adjusted, and sundry alterations to the shutter fastenings.

JNO. HARPER, 17/1/88.

Traffic Manager,

COMBINATION

COMBINATION TRUCK TRIAL.

No. 3.

Sheep.

THE two trucks were loaded each with 6 tons of goods for Hay and Carrathool, being the only stations for which vans were ordered, the trucks were reloaded with sheep at that station. I have previously stated that the working parts of the Evans truck were in no way tried or oiled from the commencement of the first trial; those of the "Wilkinson" were attended to by a fitter from Hudson Brothers. The sheep provided were of medium quality, with about three months wool.

The Wilkinson truck was altered from a merchandise to a sheep waggon by Mr. Wilkinson, and 112 sheep having been drafted, 23 minutes were occupied in the whole process of altering and loading it.

The Evans truck was altered by myself and 112 sheep loaded, the time occupied being 27 minutes. The doors of each truck did not fit the race, and hence it was necessary to move them. Of the two less difficulty was experienced with the Evans truck than with the "Wilkinson," but the substitution of a different flap at the races would enable each to be worked with far less difficulty. The sheep were divided into four lots in either truck by means of the rails in the Evans truck and the doors in the Wilkinson.

The trucks left some two hours after being loaded and attached to the same train as sheep van 116, carrying 104 of the same class of sheep.

On reaching Darlington (34 miles from Carrathool) it was found that both of the upper decks in the Wilkinson truck had given way some 5 or 6 inches, being completely twisted and strained, and threatening at any moment to fall altogether. At Mr. Wilkinson's request, and in the interests of humanity, a wire was sent to Narrandera to provide screw-jacks and timber support the decks.

At Narrandera the jacks were used to lift and strenghten the decks, and two timber shores were placed underneath, taking the weight of the sheep.

At Junee Junction two additional shores were placed underneath, as the decks gave evidence of collapsing in the middle. At Junee the three trucks were weighed, coupled on the engine, with the following result:—

Evans, 112 sheep—Gross	Tons cwt. qrs.
Tare	11 2 1
Net.....	6 13 1
Wilkinson, 112 sheep—Gross	4 9 0
Tare	12 9 2
Net.....	7 8 0
Sheep-van 116, 104 sheep—Gross	4 11 2
Tare	10 13 3
Net.....	6 9 1
	4 4 2

I did not regard this weighing as a satisfactory one, owing to the trucks being coupled, and as I was anxious to ascertain what weight the sheep would lose in transit, I subsequently reweighed the trucks, standing uncoupled, on the bridge at Granville, with the following result:—

Weight at Granville.

Evans truck, 112 sheep—Gross	Tons cwt. qr.
Tare	11 0 0
Net.....	6 13 1
Wilkinson truck, 112 sheep—Gross	4 6 3
Tare	12 5 2
Net.....	7 18 0
Sheep-van 116, 104 sheep—Gross	4 7 2
Tare	10 10 3
Net.....	6 9 1
	4 1 2

The sheep were unloaded from each truck at Flemington in good order, the time occupied in doing so being—

- Evans truck, 10 minutes.
- Wilkinson truck, 11 minutes.
- Sheep van truck, 13 minutes.

Thermometers placed in the two trucks registered alike throughout the journey, ranging from 86° to 56°. Mr. Wilkinson, as in previous trials, adjusted the shutters of his truck as he chose. The Evans truck was left untouched.

The trucks were brought to Sydney, and, on Monday, morning, Messrs. Scott, Downe, and Kirkcaldie saw and examined them.

The upper deck of the Wilkinson truck, after all the gear had been adjusted, took 7¼ minutes to raise. The Evans truck was converted in 4½ minutes. The former was subsequently placed in the hands of mechanics to patch up the damaged decks, preparatory to being sent to the Centennial Show. The Evans truck was in as good condition as when it started, and was available for any class of traffic without a tool being used on it, or a drop of oil being applied to any of its working parts.

The empty trucks were reweighed on the Sydney bridge, with the following result:—

Evans truck	Tons cwt. qrs.
Wilkinson truck	6 12 2
	7 15 2

Traffic Manager.

JNO. HARPER, 25/1/88.

As directed by the Commissioner three trials have been made with the Evans' converted cattle-waggon and the Wilkinson combination truck, and I attach reports of the results of each of them. Mr. Rhodes representing the Evans truck, and Mr. Wilkinson his own, accompanied the waggons in their three trips; on the first one the latter gentleman left the train at Belaringah.

I have in reporting confined myself to stating the facts as observed without instituting any comparison as to the relative merits of the trucks upon which subject any impressions I had, may after seeing them running together nearly 3,000 miles, place me in a position to speak with conviction.

Briefly summarised the results are:—

The Evans truck is 6 tons 12 cwt. 2 qrs. in weight; will carry as many if not more stook than the other. It requires no particular attention, as is shown by the fact that it was not in any way nursed or attended to during the trials, and it is to-day as fit to run as when it started.

The Wilkinson truck is 7 tons 15 cwt. 2 qrs. in weight; has had most unremitting attention, such as could never be paid to ordinary stock vehicles; has been repaired, and is to-day unfit to carry sheep. My observations respecting it have of course extended beyond the range of my reports, but with your permission I will at present refrain from giving them in detail.

With reference to the number of operations necessary to alter the waggons I may state that they have no value in relation to the practical working of them. The Evans truck has seventeen to convert it to a sheep-van, the Wilkinson eight, but in each case they are principally of a minor character. At the conclusion of the trials the Evans truck was altered in 4½ minutes, the Wilkinson truck in 7¼ minutes.

Traffic Manager,

JNO. HARPER, 25/1/88.

[To the Evidence of W. B. Wilkinson.]

B.

Sir, 14 October, 1887.
Re my conversation this morning and my application to you to be allowed to run my truck into Redfern Railway Station or to a siding and your reply—I think that in the hurry of my application you must have misunderstood my motive in asking. You reply to me that you could not be a party to my manœuvring, or lend the railway premises for that purpose, I think must be placed as before stated to your not understanding the nature and object of my request. I, when asked by you for what purpose I required to bring the truck to Redfern, was in order to show the truck to people interested in stock—in answer to which you gave me the reply stated.

Now, sir, in justice to myself, I think I ought to point out to you that I was only asking for what was reasonable under the circumstances—in order to give my patent (which has cost me a great deal of money to develop) a fair criticism by those interested, and in submitting to such public inspection it was throwing the whole thing open to the criticism of the Department and public.

For this (I may point out) Mr. Evans in his patent was allowed the free use of the Government Railway Lines, not only to use his fourteen trucks, but they were built and altered at the Government expense, whereas my truck and the improvements suggested by members of your Department have been carried out at mine own.

I trust therefore that you will reconsider your decision, and allow me to run my truck into some side line on the railway premises at Redfern for forty-eight hours.

Yours, &c.,

W. B. WILKINSON,

"Aaron's Exchange Hotel."

C. A. Goodchap, Commissioner for Railways.

Sir, 15 October, 1887.
 Not hearing from you *re* your decision or rather reconsideration of your decision—"not allowing use of siding at Redfern railway premises"—I have now made arrangements with Messrs. Hudson Bros., who will allow me the use of their Redfern siding.

The truck will be there on Monday, and will be open to the inspection and criticism of all interested. I hope, sir, that you will find an opportunity to inspect it. It has now been considerably altered to meet the suggestions of members of the Stock and Works Department.

Yours &c.,

W. B. WILKINSON.

The Commissioner for Railways.

Sir, "Aaron's Exchange Hotel," 30 November, 1887.
 I have the honor to apply to you for permission to run my truck to Dubbo next week and return with a consignment (say) of fifty sheep and four or five head of cattle to Homebush in the one trip.

In order that I may prove what it is capable of doing, I have arranged for the stock to meet me at the Dubbo trucking yard.

I may state that the Minister for Works, in a conversation with me, stated that he would be glad to give my truck an opportunity of running on the Railway Lines.

I would prefer loading the truck up with goods to Dubbo.

Awaiting your reply,

I remain, &c.,

W. B. WILKINSON.

The Commissioner for Railways.

Sir, 2 December, 1887.
 In reply to yours of to-day, I have the honor to point out that in the request I made to be allowed to run my truck to Dubbo and return with a consignment of sheep and cattle, I am putting the patent to the severest test possible. I am aware that it is a test that is not practicable in any existing truck or patent, but in mine it is both practicable and useful, and it is for the information of the Select Committee now sitting that I ask it. *Re* the stock, I have secured them, and they will be carried at my own risk. I am quite satisfied that my truck will stand any ordinary test, and the lengths of distance will not affect it. And after the Committee have finished their sitting I shall be happy to hand my truck over to the Department, but at present it is at the disposal of the Committee, and it is with their approval I give it the practical test suggested. Of course any test that it can get under existing circumstances can only be from a side-loading point of view, carrying out the very important one of end-loading.

The Commissioner for Railways.

1887.

(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

COMBINATION TRUCKS.

(PETITION TO BE REPRESENTED BEFORE SELECT COMMITTEE—G. T. EVANS AND
AMBROSE THORNLEY.)*Received by the Legislative Assembly, 16 November, 1887.*To the Honorable the Speaker and Legislative Assembly of the Colony of New South Wales, in Parliament
assembled.The humble Petition of George T. Evans and Ambrose Thornley, of Sydney, in the Colony of New South
Wales,—

RESPECTFULLY SHOWETH:—

1. That a Select Committee of your Honorable House was, on Tuesday, the 8th day of November instant, duly appointed by your Honorable House, with power to send for persons and papers, "to inquire into and report upon the question of the combination trucks offered to the Government."

2. That the said combination trucks offered to the Government are constructed in accordance with a patent granted to Henry Hudson, William Hudson, Robert Hudson, and Ambrose Thornley.

3. That the said Ambrose Thornley assigned his right and interest in the said patent to the aforesaid Henry Hudson, William Hudson, and Robert Hudson.

4. That the said Henry Hudson, William Hudson, and Robert Hudson assigned their respective rights and interests in the said patent to George T. Evans and Ambrose Thornley, the present proprietors, and that therefore your Petitioners are directly interested in the results of such inquiry.

Your Petitioners therefore humbly pray as follows:—

That your Petitioners may be heard by counsel or solicitor before the said Select Committee, with liberty to adduce such evidence as may be advised concerning the subject matter of the said inquiry in the interests of your Petitioners.

And your Petitioners, as in duty bound, will ever pray.

Dated this 15th day of November, A.D. 1887.

GEORGE T. EVANS.
AMBROSE THORNLEY.

1887.

(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

COMBINATION TRUCKS.

(PETITION TO BE REPRESENTED BEFORE SELECT COMMITTEE—W. B. WILKINSON.)

Received by the Legislative Assembly, 16 November, 1887.

To the Honorable the Speaker and the Legislative Assembly of the Colony of New South Wales, in
Parliament assembled.

The humble Petition of W. B. Wilkinson, of Dubbo, in the Colony of New South Wales,—

RESPECTFULLY SHOWETH:—

1. That a Select Committee of your Honorable House was on Tuesday, the 8th day of November instant, duly appointed by your Honorable House with power to send for persons and papers to inquire into and report upon the question of the combination trucks offered to the Government.

2. That the said combination truck offered to the Government is constructed in accordance with a patent granted to W. B. Wilkinson and another.

3. That your Petitioner is directly interested in the result of the inquiry.

Your Petitioner therefore humbly prays as follows:—

That your Petitioner may be heard in person, or by counsel or solicitor, before the Select Committee, with leave to adduce such evidence as may be advised concerning the subject matter of the said inquiry in the interest of your Petitioner.

And your Petitioner, as in duty bound, will ever pray, &c.

Dated this 16th day of November, A.D. 1887.

W. B. WILKINSON.

1887.

(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

RAILWAYS.

(PARTICULARS OF SERVICE OF COMBINATION TRUCKS.)

*Ordered by the Legislative Assembly to be printed, 21 September, 1887.**[Laid upon the Table of the House in accordance with promise made in answer to Question No. 11 on Votes and Proceedings No. 115 of 24 August, 1886.]*

A RETURN of the Earnings and Mileage of the Combination Trucks now in use, from the 1st January to 30th June, 1886, distinguishing goods freight and live stock freight as compared with ordinary trucks.

EARNINGS and Mileage of the Combination Trucks as compared with other Live Stock Trucks during the period ended 30th June, 1886.

I ATTACH a return giving the information in as complete a form as it is possible to give it, without entailing a very great amount of extra time and labour to render it more complete.

The particulars supplied in regard to the combination cars, of which there are only fourteen, took a considerable time to compile, but it can readily be seen what labour was involved to get less complete information in regard to 272 sheep-vans and 300 cattle-wagons, while it must be apparent that the separation of the mileage run by these vehicles with live stock and goods traffic means an enormous amount of additional work.

W. V. READ, 24/8/87.

FOR the six months ended the 30th June, 1886.

No. of Trucks in use.	Live Stock.		Goods Traffic.		Totals.		Loaded Mileage. Per Mile.
	Loaded Mileage.	Earnings.	Loaded Mileage.	Earnings.	Loaded Mileage.	Earnings.	
Combination cars 14	55,232	£ 1,131 s. 11 d.	63,227	£ 4,203 s. 10 d.	118,459	£ 5,334 s. 12 d.	10½d.
Sheep-vans..... 272	.....	39,767 7 0	.....	.....	1,764,491	39,767 7 0	5½d.
Cattle-wagons 300	.....	36,311 11 4	.....	2,949 0 3	1,560,238	39,260 11 7	6½d.
	.....	77,210 0 3	.....	7,152 10 7	3,443,188	84,362 10 10	

Empty mileage run by combination cars ... 24,629, making gross 143,088 miles.

 " " sheep-vans ... 1,400,911, " 3,165,402 "

 " " cattle-wagons ... 1,250,794, " 2,811,032 "

2,676,334

6,119,522

It is impossible to give the separate mileage run by cattle-wagons and sheep-vans with live stock and goods traffic without entailing a very large amount of labour and time to do so.

The information was asked for in a question. No resolution was passed. Will Commissioner please say whether it is to be laid upon the table?—D.C.M'L., 26/8/87.

I do not know whether it is necessary to lay it upon the table, but the document itself tells a significant story in favour of the combination trucks. For empty and full running mileage they have earned nearly 9d. a mile, while the cattle and sheep trucks have earned only something less than 3½d. per mile for six months' running. The empty running with the combination trucks was 19 per cent. of the full running, while the empty running was 44 per cent. in the case of the other live stock wagons. If the ordinary live stock wagons had earned as much as the combined wagons per mile travelled, the revenue would have been, instead of £79,027, no less than £224,116, or £145,089 more. It is not likely, of course, that the traffic would have been so adjusted as to admit of this large extra amount being earned, but I think 20 per cent. of it would have been; and that is a very low estimate. Even this would show a profit of £29,018 in six months.—CH.A.G., 26/8/87.

1887.

(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

RAILWAYS.

(CORRESPONDENCE RESPECTING COMBINATION TRUCKS DESIGNED BY MESSRS. WILKINSON, PERRY, ANDERSON, AND BRAZENOR & VALENTINE.)

Ordered by the Legislative Assembly to be printed, 25 October, 1887.

NO.	SCHEDULE.	PAGE.
1.	Memo. by Chief Clerk, explaining that all papers embraced in Mr. Lyne's inquiry were laid upon the Table of the House. 19 October, 1887	2
2.	Letter from Mr. W. B. Wilkinson, stating he has heard the end-loading principle is to be adopted in the Evans Truck, and that, as at present constructed, they are unworkable. 9 December, 1885	2
3.	Minute by Secretary of Railways <i>re</i> an interview Mr. Wilkinson had with him. 16 March, 1886	3
4.	Supplementary Report of Board, respecting the end-loading principle of the Wilkinson Truck, and two enclosures. 1 February, 1887	3
5.	Letter from Mr. W. B. Wilkinson to Minister for Mines, asking for his assistance in introducing the truck. 14 February, 1887	3
6.	Letter from Mr. W. B. Wilkinson, stating that his truck was not completed in time for the Board to examine, and asking that its merits may be considered when dealing with the matter. 14 February, 1887	4
7.	Letter from Mr. W. B. Wilkinson, offering to supply three or six of his trucks at £170 each. 16 February, 1887	4
8.	Letter from Mr. W. B. Wilkinson <i>re</i> proceedings of Board. 16 February, 1887	4
9.	Letter from Mr. W. B. Wilkinson to Minister for Mines, asking him to interest himself on behalf of the Wilkinson Truck. 4 May, 1887	5
10.	Letter from Mr. W. B. Wilkinson, asking that five of his trucks may be built on trial. 5 May, 1887	6
11.	Letter from Mr. W. B. Wilkinson to Secretary of Railways asking that the adoption of a Combined Truck be deferred till one of his is in working order. 22 May, 1887	7
12.	Letter from Mr. W. B. Wilkinson to Secretary for Public Works. 23 May, 1887	7
13.	Report by Chief Inspector of Stock on the Wilkinson Truck 10 September, 1887	7
14.	Letter from Mr. W. B. Wilkinson, forwarding copy of communication addressed by him to the Secretary for Public Works, stating he is prepared to make alterations suggested, and asking that some of his trucks may be ordered, and reply thereto. 13 September, 1887	8
15.	Letter from T. Waddell, M.P., in favour of the Wilkinson Truck. 18 September, 1887	9
16.	Letter from Mr. W. B. Wilkinson, asking whether Department will build trucks to his design 24 September, 1887	9
17.	Letter from Hon. T. Garrett to Secretary for Public Works, with testimonials in favour of the Wilkinson Truck. 26 September, 1887	9
18.	Letter from Mr. W. B. Wilkinson asking that Department will make a few trucks to his improved plan. 6 October, 1887	10
19.	Letter from Mr. W. B. Wilkinson, offering his patent rights to the Government for £5,000. 7 October, 1887	10
20.	Do do do 19 October, 1887	10
21.	Letters and reports referring to Messrs. Brazenor & Valentine's combined Sheep and Goods Truck. 5 September, 1886	11
22.	Letter from Thos. Perry, furnishing particulars of his truck, with Minutes thereon. 3 November, 1886	12
23.	Letter from Mr. D. Anderson, submitting plans and description of his convertible truck, with Minutes thereon. 22 January, 1887	13
24.	Letter from Mr. D. Anderson, asking for a copy of Board's Report. 14th April, 1887	13
25.	Letter from Mr. J. A. Fowler, intimating that he has an inexpensive floor which could easily be attached to the existing stock trucks. 8 February, 1887	13

RAILWAYS.

. No. 1.

Memo. by The Chief Clerk.

WITH reference to the Minister's memo. of this morning on the subject of the papers alleged to be missing from the Return laid upon the Table of the House, referring to the Evans Combination Truck, I have to explain that on the 29th September, 1887, Mr. Lyne, in his place in the House asked certain questions relative to the Evans Combination Truck. The Minister replied to those questions, and promised that the papers should be laid upon the Table of the House.

The papers were prepared accordingly; every available document bearing, however remotely, on the question of "the Evans Combination Truck," was copied, and the papers were laid upon the Table of the House. In the course of copying the papers it was discovered that a paper was missing from the series (as a fact two other papers were deficient, but this was not discovered until afterwards). Every inquiry was made for the missing paper, but without success.

Subsequently Mr. Lyne stated in the House that other papers were missing. This led to further inquiry, and it was then found that owing to an unaccountable irregularity in the records of the Department two papers had been diverted from the proper channel and were not to be found, and the most exhaustive search for them has proved unavailing.

Yesterday Mr. Lyne again stated that papers other than those admitted to be deficient had not been laid upon the Table, and I am now informed that he refers to papers which are in existence relative to the Wilkinson and other combination trucks—a supplementary report alleged to have been made by the Board appointed to examine and report upon the designs of combination trucks, and a letter from Mr. Bruce, the Inspector of Stock, &c., &c.

But if these are the papers referred to by Mr. Lyne I would point out that the terms of that gentleman's questions and the Minister's undertaking did not embrace these particular documents. Mr. Lyne asked for information relative to the Evans combination truck, and the Minister promised to lay the papers relating to that particular truck on the Table of the House. That promise was fulfilled. As already stated, every paper bearing directly upon the Evans truck was copied and submitted.

Undoubtedly there are papers referring to other combinations trucks—Perry's, Wilkinson's, Anderson's, &c.—but to submit papers referring to those trucks would have been going beyond the terms of Mr. Lyne's inquiry and the Minister's promise, which was limited to the Evans truck.

As regards the supplementary report of the Board (or rather of two members of such Board, for the Board as a Board had already submitted their report and broken up), I may point out that that document (the supplementary report) did not in any way refer to the Evans' truck, nor even to the combination question, which alone was remitted for the consideration and report of the Board.

The supplementary report has reference purely to the Wilkinson truck—not to the combination features of it, but to an end-loading arrangement, which was a matter not coming within the scope of the action of the Board, and having nothing to do with the question at issue. This document, therefore, having, as here shown, no relation to the Evans' truck, nor even to the principle which was under inquiry, was not included with the papers submitted.

In like manner the letter from Mr. Bruce, the Inspector of Stock, referred exclusively to the Wilkinson truck, and having no connection with the Evans truck was properly, I submit, excluded from the submission.

I beg leave to state in conclusion that every paper recorded in our register having relation to the Evans' truck (except those admitted to be deficient) was copied and laid upon the Table.

D. C. M'LACHLAN, 19/10/87.

If possible I should like all papers referring to any combination truck. It is clear now that Mr. Lyne desires the papers respecting the Wilkinson truck, which, however, he has not asked for. If possible have them ready to lay upon the Table on Tuesday.—JOHN SUTHERLAND, 21/10/87.

No. 2.

Mr. W. B. Wilkinson to The Secretary for Public Works.

Dear Sir,

Re Evans' Trucks.

Dubbo, 9 December, 1885.

I see you are thinking of utilising them for carrying out your idea of loading stock continuously; if so, I hope the above will be improved upon first.

Some time since, upon the first trip these trucks made, which I loaded, I pointed out the defects, and how they could be very much improved upon. If requisite I will lay my suggestions before the Department, but with the understanding if my plan is approved of that I will be allowed a premium for the idea, for notwithstanding all has been said in their favour the trucks are most unworkable at present.

Yours, &c.,

W. B. WILKINSON.

I would not ask anything for contributing to the success of the Evans truck, but as report is so busy with the matter of the large royalty that Hudson, Brothers, or Mr. Evans gets for their invention, and knowing practically how unworkable the trucks are, I do not see why my suggestions if successful should not command some return.

I have asked Mr. Wilkinson to submit suggestions. No promise of remuneration.—W.J.L., 7/12/85. Has Mr. Wilkinson replied?—D.C.M'L., 4/1/86. Nothing further has been received from Mr. Wilkinson, 5/1/86.

No. 3.

No. 3.

Minute by The Secretary for Railways.

Mr. W. B. Wilkinson, of Dubbo, looked into my office yesterday and informed me that the Minister wished him to be informed when a certain test or experiment with the Evans trucks was to come off.

I cannot ascertain that anything of the kind has been arranged for.

Mr. Wilkinson further stated that he had a plan for arranging a sheep-truck superior to the "Evans" truck, and that the papers and plans were with the Minister. Mr. Wilkinson also expressed his willingness to hand over the right to his patent to the Government, provided he was allowed to protect himself in the other Colonies, and he would be quite content with any recognition the Department thought fit to make in the event of his plans being adopted.

Under these circumstances perhaps the Commissioner would prefer to postpone any further action for the present in the matter of purchasing the right to "Evans" patent.

D.V., 16/3/86.

The only thing yet authorised is to learn what price is demanded for "Evans" patent. That information is required prior to the question being considered in any way, and it must not be accepted as implying that the Department will purchase the patent, even if the price asked be very moderate.—C.A.G., 17/3/86.

No. 4.

Messrs. H. S. Badgery and J. Gill to The Commissioner for Railways.

Sir,

Sydney, 1 February, 1887.

We have the honor to report to you that we this day made arrangements to see Mr. Wilkinson have a trial of the end-loading system with his combination truck.

Several of the Department's trucks altered to the system were placed at either end of the new truck, the sheep were driven through, and every thing worked well, smoothly, and rapidly, and though we are of opinion that end-loading with the present trucks would be next to impossible, we believe Mr. Wilkinson's provisions for getting through the sheep, and regulating the numbers in each truck, will remove this objection. Another important point is that trucks have not to be moved till all are loaded.

Attached please find a note from Mr. Thallon, also one from Mr. Wilkinson.

We have, &c.,

HENRY S. BADGERY.
J. GILL.

Dear Mr. Badgery,

A.S.N. Co.'s Steamship "Eurimbla," 27 January, 1887.

As explained to you to-day, I have already remained longer in Sydney than I at first anticipated would be necessary, and considering the state of the weather in Queensland and condition of railways, I feel it incumbent upon myself to take the first opportunity of returning to my duties now that the Report of the Board has been submitted. I regret exceedingly that Mr. Wilkinson's truck was not sufficiently advanced to admit of the trial we had arranged for, and I shall only be too glad, even although impossible for me to be present, if other arrangements can be made to try it as we wished to do, and hear the result from you.

Yours, &c.,

J. F. THALLON.

H. S. Badgery, Esq.

Sir,

The "Exchange Hotel," Sydney, 31 January, 1887.

Re my "combination truck" and the trial this morning. In the matter of cattle-loading I believe the only defect lies in one of the sides (not covered by the partition doors) not presenting an even surface. I have the matter under consideration, and find, after consulting the builders, that I can alter my truck so that the outside sliding doors shall slide on the inside of the truck, thereby remedying the evil, and also giving the truck additional width of 2 inches on each side for sheep, and about 1 inch for cattle on each side. *Re the weight.* I may state that I can undertake to run the truck at a weight of not more than 6 tons 15 cwt. to 7 tons, instead of its present weight.

Yours, &c.,

W. B. WILKINSON.

H. S. Badgery, Esq., Chairman of the Combination Truck Commission.

P.S.—Will you please attach this letter to the papers connected with your Report.—W.B.W.

No. 5.

Mr. W. B. Wilkinson to The Minister for Mines.

Sir,

Dubbo, 14 February, 1887.

I have the honor to enclose a copy of a letter to your colleague, the Minister for Works, *re* my truck. Not knowing Mr. Sutherland personally, I cannot write to him as I do to you. But knowing your love of fair play, I am sure you will give me any assistance you can. And as the matter, to a certain extent, comes under your Department—viz., the Stock Branch—you will give it due consideration when the elections are over. I can get substantial assistance from Mr. J. T. Kelly, Mr. Waddell, Mr. Wilson, Mr. Wilkinson, Hon. W. Clarke of Orange, and others. But I am afraid that the Department may give their decision before my patent gets thoroughly represented.

Yours, &c.,

W. B. WILKINSON.

Will the Commissioner be good enough to state how this matter stands.—F. ABIGAIL, 19/2/87.
C. A. Goodchap.

No. 6.

Mr. W. B. Wilkinson to The Secretary for Public Works.

Sir,

Dubbo, 14 February, 1887.

I have the honor to draw your attention to a matter that perhaps may have in some degree been brought already under your notice. I allude to the result of the inquiry by the Commission appointed by the late Government to inquire into the relative merits of the various new patents which have been laid before the Works Department, viz., combination cars for the carriage of goods and live stock.

Owing to my patent truck not being finished when all the Board were sitting, and owing to the construction of the invention being so different to others (I refer to end loading), the Board took no evidence except my own as to the capabilities of the invention until, to a certain extent, their labors had ceased owing to the Queensland Commissioner having to leave this Colony before my truck got a practical test; but subsequently the Chairman of the Commission and the other member of the Board (Mr. Gill, of Victoria) tried my invention at Homebush, and they sent a subsequent report to the Commissioner for Railways, speaking in the most favourable terms of the trial and of the construction and utility of the patent. Mr. Badgery was also good enough to give me a memorandum to the daily papers—which speaks for itself—a copy of which I enclose.

Therefore, Sir, my object in writing is that the matter may receive your consideration, and that I may have a fair trial of my patent before the Government commit themselves to any particular invention.

I do not ask that my truck may be taken before all others, but I ask that the Department may see fit to order the construction (say) of six or more of them, and try them by putting them to a practical test for that term. When Mr. Evans laid his combination car before a previous Government, the latter ordered fourteen, which constitutes a train-load, and these trucks have been running for twelve months.

I say nothing derogatory of the Evans' patent, but only ask that mine may be granted a fair trial.

If you will delay your decision for a short time I can bring strong and influential representations before you as to the value of my system of loading.

But as a great number of these gentlemen and most people are so engaged over the elections, I have been obliged to wait until they have an opportunity of attending with me to lay the matter before you. I may say that all the stock agents in Sydney have signified their willingness and desire to petition you that a number of my trucks may be used. But I think it better to leave the matter entirely in your hands, believing, sir, with you at the head of the department, I will be treated fairly, and have the honor to be

Yours, &c.,

W. B. WILKINSON.

For report.—J.S., 15/2/87.

No. 7.

Mr. W. B. Wilkinson to The Commissioner for Railways.

Sir,

Dubbo, 16 February, 1887.

I have the honor to inform you that I can supply three to six of my Patent Trucks to the Department with my patent improvements and reduction of weight of about 1 ton at a figure not exceeding £170 per truck, perhaps less, and exclusive of the wheels and springs.

Yours, &c.,

W. B. WILKINSON.

No. 8.

Mr. W. B. Wilkinson to the Secretary for Public Works.

Sir,

Dubbo, 16 February, 1887.

I have to excuse myself for again troubling you, but as an important item to myself is at stake—and what I know will have more weight with you—an important matter for the stock-owning public, I hope you will pardon my importunity. I have heard this morning that the late commission of inquiry (as to the relative merits of certain combination trucks) appointed by the late Minister for Works have decided that the Evans' patent has a superiority over any others. I do not think, in justice to myself, that I ought to delay longer in advancing my views and facts. I have always refrained from saying anything derogatory of Mr. Evans' truck up to the last moment and while the matter was *sub judice*, even at my examination before the Commissioners I did not, though I could have done so, give most damaging evidence against them.

In the first place *re* the evidence taken by the Board, I most respectfully call your attention to the fact that not a single stock agent or stock owner gave evidence, who, I submit, are the most interested. The great fault lay I think in the composition of the Commission, and although a circular was sent by Mr. Badgery (the Chairman), to all his brother commission agents, not one responded. Not that they are not interested, but that I think they did not quite like the appointment of Mr. Badgery without their being consulted, seeing that by the appointment it was stated Mr. Badgery was to represent the stock agents and owners. I do not say this in any disparaging way of his ability, for I think had the owners and agents the choosing of their representatives they would have chosen Mr. Badgery. Then again, the evidence taken was not upon oath, and the Commission had not the power to compel witnesses to attend. Consequently the only evidence adduced was from officers in the railway department who could not give any valuable evidence from a stock point of view—further—to a certain extent their evidence was constrained on the one hand, and too pointed on the other as for or against Mr. Evans' truck. Mr. Evans being an officer holding a high position in the railway department, it became a case of quarrel right out, as some have done (notably) some officers on the railways, who, I believe, are now asking for a commission of inquiry on the very matter) or else a guarded manner in giving their evidence, lest they incur their displeasure. I have this fact from one of the members of the Commission. Further, Mr. Evans' trucks have been running for some time under the personal supervision of himself, who was

Traffic

Traffic Superintendent, and in the words of one of the Commission to me, they have been "nursed." As against this, my truck is a new idea; and so much prejudiced was the Department, even Mr. Badgery, the Chairman, against the end-loading system that up to the last moment prior to the trial of my invention at Homebush all were against it, and the evidence taken at the inquiry, which was all prior to my trial—a very important fact—went to show that end-loading was not a success, although it has been in use for years in Adelaide and Northern Queensland. And a statement of the Adelaide Inspector of Stock is appended to the papers of the Commission. Consequently, my trial, which in Mr. Badgery's own words worked "smoothly, rapidly, and satisfactorily," only appeared in a subsequent report, and after the departure of Mr. Thallon, one of the Commissioners, so that my invention cannot possibly have had due justice at their hands, neither can it have without a trial. Even the trial I did get was in great measure hampered, as I had to use trucks to try mine with, that I don't think would ever be a success from an end-loading point of view.

Further, my truck has advantages that until proved by a fair trial could not possibly transpire at any inquiry. I allude to the advantage in my truck by carrying half a load of any stock. For instance, if any small settler, of which class there are many, had, say fifty fat sheep and five head of cattle, he would only need order one of my trucks. Taking the serious consideration of the case, I think you will, Sir, agree with me it merits, I only ask that you will not come to any decision without giving me a further opportunity of proving my truth. I can, as before stated bring an influential deputation before you, as soon as the elections are over.

Praying that my truck may have a fair trial. The whole of the stock agents in Sydney are willing to sign a requisition to that effect. But I did not care to get their assistance just at the time, as I did not know what the Commission had done, nor did I want to step between them and the Commissioner for Railways, who I am sure is anxious to adopt the best truck and system. I know for a fact that the whole of western agents from Bathurst to Bourke are petitioning the Commissioner against the adoption of the Evans truck, which petition will, I understand, be presented in a few days. I have no doubt, Sir, that you will consider there is a good deal of selfishness in my letter to you, and I admit it. But my truck has cost me twelve months worry and thought and great expense. And being a practical man and having great faith in my invention, I don't like to see it go without a trial. I can supply three to six of the trucks, which will be enough to give the system a fair trial, at £170 each, exclusive of the under carriage, that is the wheels, &c., which I think the Government always supply.

Again apologizing for trespassing upon your time.

I remain, &c.,

W. B. WILKINSON.

No. 9.

Mr. W. B. Wilkinson to The Secretary for Mines.

Sir,

Dubbo, 4 May, 1887.

Re my combination truck: You have always taken some interest in the matter, and as it is more essentially in your Department, although it has to go through the Works Branch, I think you will do what you can in the interests of carriage of live stock. As far as the Works Department proper is concerned, they care very little how stock is carried as long as the wheels go round and traffic is not impeded. At the late Commission appointed by Mr. Lyne to consider the best truck for purposes of carriage of stock and goods not a single individual gave evidence outside the Works Department. No one interested in the carriage of live stock whatever gave any evidence, and as the Board had not the power to call witnesses they only called those in the Government employ and connected with the Railway Department, so that the evidence adduced was of very little use practically, and it was further hampered by the fact that one of the patentees of a truck now in use by the Government is an official high in the Department. As far as the evidence as to my truck was concerned, it was not finished by the contractors in time for the Board, and they only examined it in an unfinished state; but they suggested some improvements which I propose carrying out in any trucks I may have built for the future. My truck was finished the day the Commission broke up through one of its members, Mr. Thallon, of Queensland, having to return home. However, he requested the other members of the Board, viz., Mr. Badgery and Mr. Gill (of Victoria) to give my truck a practical trial with stock, and supplement the report they had sent in. This was done at Homebush the following day. I had to use some end-loading trucks Mr. Lyne, late Minister for Works, had converted by simply opening the ends. This, of course, did not do my truck the justice that it would have received if I had (say) four or five similar trucks to my own to use; but notwithstanding this the trial was a complete success, and Mr. Badgery reported that my truck had been tried, and it worked "satisfactorily, smoothly, and rapidly," and that "I had overcome all difficulties with regard to end-loading." This appears in the supplementary report.

Mr. Bruce, the Inspector of Stock, can also show you a report from the Chief Inspector of Stock in Adelaide, where they have been using the end-loading system for years, in which he states it is a great success. I think this in itself is sufficient reason why my plan should have a trial. Nothing could be more satisfactory than the practical tests it stood at Homebush. The only objection was the weight of the truck. This was a matter that was overlooked in the building of the truck; but after consulting the engineer I found I could reduce the weight a ton, doing away with this objection.

I have offered to build four or five trucks, improved on the last one, for £170 each, perhaps less, not including the under carriage, which the Government supply, and I think I do not ask too much. Even take away the end-loading system, my patent also loads from the sides, and as a side-loading truck I contend that mine is a more convenient sheep, cattle, or goods truck than any combined truck in use. Further, it does not entail the alteration of any of the existing cattle or sheep yards now used, which is a very important consideration.

When Mr. Evans showed the Government his patent, they ordered fourteen of them, to give them a fair trial. There are also in the yards at Eveleigh stock trucks and designs from all parts of the world, so it is not too much to ask for the same consideration on a smaller scale. The patent has cost me a great deal of money to perfect, and it was only in the course of construction I saw how many alterations were needed.

Your

Your colleague, Mr. Clarke, Minister for Justice, is a friend of mine, and has promised me to do what he can for me. Would you see him on the matter, and lay your ideas before the Minister for Works. I was in Sydney, and had arranged for a deputation and petition from the stock agents, but my health completely broke down, and I have had to return home, and am too unwell to take any other steps than leave the matter in the hands of the Ministry.

I will write to the Minister for Works to-morrow—I am not able to-day; and will you make inquiries on the matter, and I know you will do me justice. Will you also see Mr. Clarke?

Yours, &c.,

W. B. WILKINSON.

No. 10.

Mr. W. B. Wilkinson to The Commissioner for Railways.

Sir,

Dubbo, 5 May, 1887.

I have to-day written to the Minister for Works asking that the Government would build four or five of my trucks on trial. I regret that I am not well enough to write out a copy for you, but have no doubt that it will be laid before you, and trust for your favorable consideration. I have been in Sydney to push the matter but have been forced to return home through ill health.

I am, &c.,

W. B. WILKINSON.

W. B. Wilkinson to The Secretary for Public Works.

Sir,

Dubbo, 5 May, 1887.

Some little time since I had the honor of drawing your attention to a patent combination truck of mine. At that time I refrained from making any distinct request, as I thought I would have been enabled to present a petition to you in person, but my health has been so bad that I have had to relinquish any really personal application in the matter. A number of the leading stock agents were willing to petition you that a few of my trucks might have been built in order that the "end-loading" system might have a fair trial. These gentlemen are now willing to co-operate with me, but owing to my health I am quite helpless in the matter. I think you may be aware that a Commission was appointed by the late Minister for Works to inquire into the merits of the relative patents that might be laid before them. Unfortunately my truck was not finished by the builders prior to the Commission closing its sittings, which were brought to a close rather suddenly, owing to one of its members, Mr. Thallon, Queensland Traffic Manager, having to leave for Queensland owing to disastrous floods occurring in his Colony, requiring his attention. My truck was completed and ready for trial the day he left. He therefore requested the two remaining members of the Commission to give my patent a practical trial at Homebush, with stock, and furnish a supplementary report. (You will please bear in mind that the report of the Commission had then gone in.) This they did, and although I labored under a great disadvantage in the trial, inasmuch that the only trucks I could try mine with were some end loading trucks converted by Mr. Lyne. These trucks, I think myself, could not be a success. However, my patent was placed in the centre of these trucks, and sheep were passed through both ways, with the result that the Commission were well satisfied with the trial, and in a copy of the supplementary report the chairman showed me, they stated that it worked smoothly, rapidly, and satisfactorily, and that I had overcome all difficulties as to end loading. This in itself I think should merit my patent having a chance of asserting itself. You will see that with one of my trucks I could not take advantage of all the benefits I attribute to my invention—that is, as regards the end loading; I therefore ask that the Government would see fit to order (say) four or five of them, and run them together so that they may be tried upon their merits. Hudson Brothers offer to build them for myself or the Government at £170 each, exclusive of under carriage, which I think the Department always supply. I may here state that although I have made my invention an end-loading one it is also a side-loading truck, and I claim for it that it is more convenient, even as a side-loading car, for sheep, cattle, or goods, than any now in use, for then it has the advantage that no alteration is required for any of the sheep or cattle yards now in existence, either to load from end or side. The previous Minister for Works made me a promise that if I built a truck the Department would take it off my hands, so I presume that I could fall back upon his promise; but, as I before stated, one truck does not prove the end-loading system. In the trucks I have built no regard was paid to weight, and in any others I build the builders say they can reduce this 1 ton. There are a few minor alterations I would make that were suggested by the Commissioner, and some I propose myself. So the present truck does not do my patent full justice. You will be aware it is an expensive operation for a private individual, and I have spent all the money I can afford, otherwise I would build the five trucks at my own cost, and make them a present to the Government, so satisfied am I of the success of my invention.

Re the end-loading system: The chief inspector of stock (Mr. Bruce) has a report from the South Australian Inspector, where they have been end-loading for years, in which he states that it is a great success, and no one would revert to the side-loading after using the former. I don't know, Sir, what more I can say. I leave the matter in your hands, and hope that you will give it your consideration. I do not want an answer hurriedly. I have no doubt but that your time being so much engaged that you will leave the whole matter to the Commissioner for Railways. I think I may state that in the Evans patent the late Government on a late model ordered fourteen trucks. There are also in the yards patents from all parts of the world. So what patents, if any, will receive consideration? If the Department want any for their information I can refer to the truck now in the Clyde yards and point out the improvements I suggest.

I have devoted twelve months' thought, work, and money to the invention, and I have had years practical experience in loading of stock, so that I am no theorist. Neither do I ask for any exorbitant sum should the Government eventually accept the patent, but am content to reap my principal reward in the other Colonies. Trusting that I may be fortunate to enlist your sympathy,

I have, &c.,

W. B. WILKINSON.

For

For report.—Minister, 6/5/87.

Mr. Wilkinson's truck, if end-loading is to be adopted, has advantages over every other form of truck which we have cognizance of. I should like to see Wilkinson's truck.

I shall go early to-morrow morning to Clyde to look at it. Ask Traffic Manager to make arrangement for my seeing it. I will leave Sydney by 11 a.m. train.—CHAS. A. G., 6/5/87.

Submitted.—A.R., 9/5/87.

I have seen the truck—it is ingeniously designed, but the faults for practical working are very great:—1. There are too many working parts. 2. The bar is very heavy.—CHAS. A. G., 10/5/87.

No. 11.

Mr. W. B. Wilkinson to The Secretary of Railways.

Sir,

Dubbo, 22 May, 1886.

I have heard that the Government are about to give £8,000 to Evans for his patent. I sincerely hope this is not the case, not in any antagonism to Evans, but that the Government should not commit themselves before they have seen our truck tried. We are prepared to build a combination truck at once, and only ask that the matter be left in abeyance until we can submit ours in working order. If necessary I could get a petition signed by every stock agent in the western districts against the use of Evans' patent.

Knowing that you take an interest in the matter, I have taken the liberty of addressing you.

I am, &c.,

W. B. WILKINSON.

No. 12.

Mr. W. B. Wilkinson to The Secretary for Public Works.

Sir,

Dubbo, 23 May, 1886.

I have heard indirectly that the Department contemplate giving Evans £8,000 at once for his patent. I sincerely trust that this is not the case—not in any antagonism to Evans, but in order that our trucks may first be exhibited.

We are prepared to build a truck at once, and will push the matter on if the Government will await the issue.

I am, &c.,

W. B. WILKINSON.

No. 13.

The Chief Inspector of Stock to The Under Secretary for Mines.

Department of Mines, Stock Branch,

Sydney, 10 September, 1887.

Re Mr. Wilkinson's new truck for carrying sheep.

As it was Mr. Wilkinson's wish that Mr. Kirkcaldie, Assistant Traffic Manager, should accompany me in inspecting his improved Stock Truck, we yesterday visited Mr. Hudson's works at Granville, and made the required inspection together. Mr. Kirkcaldie will, however, make a separate report to the head of his own Department.

As regards the principle of "end on" loading, which is the leading feature in Mr. Wilkinson's truck, there can be no question but that, so far as sheep are concerned, it is very much the best, and it will be seen by my annual report for 1870 that I, at that time, strongly recommended its adoption for the reasons there given. In fact a few trucks were then made by the Railway Department on that principle, but it was not after all adopted, the reasons, so far as I could gather, being:—(1) That its adoption would entail an alteration of the sidings; (2) That the stock traffic was not then considered of much importance; and (3) That there was a difficulty in keeping a correct account of the sheep as they ran into the trucks, thereby causing some compartments to be overcrowded and others only partially filled.

With respect to these objections I would say, so far as the first, that provided the alteration was an improvement it was of no weight. The same might also be said with respect to the second objection, for the live stock traffic, if properly conducted, was bound to increase, as I then pointed out it would do, and as we see it has done. With the exception of coal, the live stock traffic is by far the heaviest (as it is also the most general) traffic on our railways, and that which mainly enables the railways to be extended into the interior. With respect again to the third objection, there appeared at the time some grounds for this objection, but we now see that this arose mainly, if not wholly, from the manner in which the loading was done, and not from the principle, for we find by Mr. Chief Inspector Valentine's letter on this subject (herewith) that the sheep in that Colony have for five or six years been loaded in this way in trucks constructed open at the ends exactly as ours were in 1870, with ease and despatch.

When suggesting the "end on" loading, however, I foresaw the objection under this head, and proposed that some arrangement, such as that now successfully carried out by Mr. Wilkinson (a movable upper floor and roof), should be adopted to allow the men to go into the trucks to assist the loading, and to see that while the compartments were not overcrowded they were properly filled.

If the alteration in Mr. Wilkinson's truck suggested by Mr. Kirkcaldie were made it would, I think, so far as sheep loading and carrying is concerned, be everything that could be desired, and with the movable upper floor would, if properly cleaned, be quite fit to carry back a good many kinds of goods, whereas it may be said that the sheep trucks, as now built, can carry none.

Mr. Wilkinson's truck can, as he claims, be also converted into a cattle truck, and if the Railway Department consider that it is in all its parts sufficiently strong for that purpose, when altered, I think it will also answer for that purpose, and its being convertible in that way would prove of great advantage to the Department and the public. Should it fail, as now constructed, to effect this, I have no doubt but it can eventually be made to answer for both cattle and sheep, as well as for a good many kinds of goods.

ALEX. BRUCE,

Chief Inspector of Stock.

[Enclosure.]

[Enclosure.]

Dear Sir,

South Australia, 9 June, 1886.

Re your inquiry as to loading trucks with sheep from the end, on the railways. Such a system has been in force for five or six years on our railways and has succeeded admirably. Indeed I can hardly understand any person accustomed to working sheep who would not adopt the system in preference to loading every truck separately. The sheep run in and out in one continuous stream, and the numbers can easily be regulated. It saves a great deal of trouble, and prevents the sheep from being knocked about, as they must be, if fresh trucks are continually being loaded from the side.

I am inclined to think that an improvement might be made to the advantage of the sheep by having a light partition running up the centre of the trucks, of battens, which would prevent sheep crushing each other.

I was pleased to see that your Railway Managers had determined to try the system, and am sure they will find it a success.

I am, &c.,

C. J. VALENTINE,

Chief Inspector of Sheep.

I would suggest that the Chief Inspector's report be forwarded for the information of the Department of Works.—W.H. Approved.—F.A., 13/9/87. Under Secretary for Works.—W.H., 13/9/87.

No. 14.

Mr. W. B. Wilkinson to The Commissioner for Railways.

Sir,

Dubbo, 13 September, 1887.

I enclose a copy of a letter I have sent to the Minister for Works *re* my truck. I hope it will meet with your approval.

Yours, &c.,

W. B. WILKINSON.

Mr. Wilkinson is not justified in saying that I approved of his truck in the sense that I approved of it on a competitive basis with other trucks. I concur with the conclusion arrived at by the Board in this matter.—Ch.A.G., 14/9/87.

Inform.—J.S., 22/9/87

[Enclosure.]

To the Hon. J. Sutherland, Minister for Works,—

Sir,

13 September, 1887.

Re my truck. It has now been inspected by Messrs. Goodchap, Kirkcaldie, Henson, and Mr. Bruce, the Chief Inspector of Stock, with the result that they have, I believe, approved of the truck with certain improvements they suggest and others I have suggested. It has been suggested to me by Mr. Kirkcaldie that I should alter my truck at once to conform to their ideas. This I am prepared to do if necessary; but I would respectfully submit that the Government would order some of my trucks to be built—say three to five—for this reason: that my truck is an end-loading one as well as side, and that one truck does not give any idea of the facility of loading, although the trial at Homebush with Mr. Lyne's primitive end-loading trucks was very successful. Then again, to alter the truck to my own view and those of the department, it would be narrower and more inconvenient than any new ones, so that it would only be a model, or serve the purposes of a model, and the suggestions offered do not alter the principle of the patents, but are just matters of detail that could be carried out in any new trucks, and it would be a pity to incur so much expense when it might be expended on new trucks. I will do anything that the Department have suggested, and include my own improvements too.

At the same time, if the Department do not see their way to do this, I will alter my truck at once. But I have been at very great expense already, and I would ask that I may receive some assistance, or rather, if possible, be saved some additional expense. Hoping the matter may receive your consideration,—

I remain, &c.,

W. B. WILKINSON.

In Mr. Bruce's office I saw a diagram of a movable deck in use in America, but I do not think it comes up to mine; it is not so simple, and it also debars one from using the truck as an end-loading waggon. I mention this as Mr. Bruce has included the diagram in his report on my truck.—W.B.W.

The Hon. William Clarke, Esq., Minister for Justice,—

Sir,

Dubbo, Sept. 13th, 1887.

Re my truck. It has been inspected by Mr. Goodchap, Mr. Kirkcaldie, Bruce, Henson, and several Members of Parliament, with the result that we deem the truck a very good one with a few suggested alterations. They have suggested to me my getting these alterations made at once. But I think the best plan would be for the Government to order (say) three, embodying all these suggested improvements and my own. One truck will not be of much service, especially from an end-loading point of view; and it would scarcely be fair for the Government to expect me to build any at my own expense. The present one has cost me a great deal, and I can improve on it greatly, for if I altered the present it would only be a model of the truck, as it would not be so wide or convenient as the new one. I want you to use your influence for me in getting the order for (say) three to five trucks built. I have made application to the Minister. Mr. Abigail and the Stock Department are all in my favour.

W. B. WILKINSON.

Hon. J. Sutherland. Submitted.—W. CLARKE. Seen by Minister, 22/9/87.

Sir,

Department of Railways, Sydney, 26 September, 1887.

With reference to your letter of the 13th instant, enclosing copy of a communication addressed by you to the Honorable the Minister for Public Works, respecting your truck, I have the honor, by direction of the Commissioner for Railways, to inform you that he does not consider you are justified in stating that he approved of your truck on a competitive basis, as he concurs with the conclusion arrived at by the Board in that matter.

I have, &c.,

D. VERNON,

Secretary of Railways.

W. B. Wilkinson, Esq., Dubbo.

To the Hon. J. Sutherland, Minister for Works,—

Sir,

Dubbo, 27 September, 1887.

I enclose letter from the Secretary of Railways, and my answer thereto. May I ask you to attach same to the papers.

Yours, &c.,

W. B. WILKINSON.

Sir,

Sir,

Dubbo, 27 September, 1887.

Your favour of yesterday to hand. I have not a copy of my letter to the Minister for Works beside me, but I am sorry if I inadvertently included the Commissioner for Railways' name as one who considered my truck on a competitive basis as superior to others. The mistake occurred in my mentioning the Commissioner's name amongst those who had inspected and those who had approved of my truck. Of course, never having interviewed the Commissioner on the subject, I could not say what his views are; neither having seen the report, could I say what the Board's, you mention, views were. I only know that the Board had finished its sittings, and one member left for Brisbane, when some members of it had a practical test of my truck at Homebush, and were satisfied with the results; and any report of theirs must necessarily be only a supplementary one, and confined only to those members who were present; and that those whom I have interviewed—namely, Messrs. Kirkcaldie, Bruce, and Henson, and others outside the Departments—have given my truck the preference, provided I carry out their suggestions in minor matters, and also the suggestions I have tendered myself.

Those improvements I have asked to be carried out in my new trucks; or, if the Department insists, then I will alter my present truck up to their views and my own.

And, in the meantime, pray that no decision be given either way until either the present truck is altered, or (say) three to five trucks after my patent, with the suggested improvements, are built.

Yours, &c.,

W. B. WILKINSON.

No. 15.

T. Waddell, Esq., M.P., to The Secretary for Public Works.

Sir,

Sydney, 18 September, 1887.

I have the honor to state that I have twice inspected Mr. W. B. Wilkinson's new model of a sheep truck, with the result that I can confidently recommend it as a great improvement on those now in use.

I would suggest if the alterations recommended by the officers of your Department and Mr. Bruce could be made by the Government in two or three new trucks—without putting Mr. Wilkinson to the great expense of building a new model—it would be well, as Mr. Wilkinson (like many who have introduced valuable inventions) is a man of limited means.

I have, &c.,

T. WADDELL.

No. 16.

Mr. W. B. Wilkinson to The Secretary for Public Works.

Sir,

Dubbo, 24 September, 1887.

I have the honor to again draw your attention to my truck; I am aware that the Department must shortly build some trucks; therefore I am anxious that I should know if the Government will build some of mine on the improved principle I have pointed out to Mr. Kirkcaldie, and with his suggestions also embodied, or whether I must alter the present truck now at the Clyde. Of course I prefer building others, as the present would only serve the purpose of a model.

Yours, &c.,

W. B. WILKINSON.

No. 17.

The Minister for Lands to The Secretary for Public Works.

Dear Mr. Sutherland,

Mr. Wilkinson, of Dubbo, who is the son of a very old personal friend of mine, has written asking me to submit the enclosed testimonials to you, referring to his truck for stock, which I do with the expression of a hope and belief that you will consider them in coming to a decision upon the matter in a manner fair to him and the public.

26/9/87.

Yours, &c.,

THOS. GARRETT.

Please let me see papers.—J.S., 26/9/87.

[Enclosures.]

Dear Wilkinson,

Parliament House, 17 September, 1887.

I have again inspected your truck, and am much pleased with it.

I will again recommend its adoption to the Government, also that they do not put you to the expense of making the alterations recommended, but that they do as you suggest.

Yours, &c.,

T. WADDELL.

Dear Sir,

Animals Protection Society,

53 Elizabeth-street, 15 September, 1887.

In reference to yours of July 8, re "Improved Sheep and Cattle Truck," our Committee have directed me to inform you that, in compliance with their instructions, our Inspector, Mr. G. Webber, recently visited Clyde and inspected your "Improved Truck," which he has very favourably reported on.

As far as lies in the power of our Society, you shall have our cordial co-operation in furthering the adoption of it on our railways, in the place of the old trucks, to which it is so much superior.

Yours, &c.,

J. SIDNEY, Secretary,
per T.P.

W. B. Wilkinson.

No. 18.

Mr. W. B. Wilkinson to The Secretary for Public Works.

Re Combination Truck.

Sir,

Gresham-street, 6 October, 1887.

I have decided to alter my combination truck at once to the views of Mr. Kirkcaldie and the officers who inspected also; I will carry out the alterations that I suggested to the Department some time since, and those also suggested by the Board who tried the car at Homebush. I shall have it finished by Tuesday or Wednesday next for inspection. I have decided to take this course as the Department are so long in giving me the answer I sought, of whether I should alter the present truck, or they would order the construction of say three to five on the improved plan, or rather with the suggested improvements, and I shall be happy at any time to learn that the Department will carry out what I request.

Yours, &c.,

W. B. WILKINSON.

No. 19.

Mr. W. B. Wilkinson to The Secretary for Public Works.

Sir,

Aaron's Exchange Hotel, 7 October, 1887.

I have just returned from Clyde, and the men there are now at work at my truck so as to embody the slight suggestions of Mr. Bruce, the Chief Inspector of Stock, and Messrs. Kirkcaldie and Henson of your Department. The whole matter I hope to have on Tuesday next, and I am so satisfied with the result that I have the honor to offer, if your Government will accept, to hand over the truck together with the patent and all rights thereto in this Colony. I will leave matter as to what it is worth entirely in your hands and as to what you may be inclined to pay me. Neither do I expect any payment for twelve months from this date, presuming that in that time your Department will then be well able to judge if it is of any value or not. As before stated, I have every confidence in its success from my practical knowledge in the trucking of stock and backed up by the opinion of practical men.

I have, &c.,

W. B. WILKINSON.

P.S.—On reconsideration of the above offer, lest the Government should think they would be placed in a false position in accepting my patent without my mentioning a price I consider the invention is worth, I may state that if the truck proves itself to be all I say that I consider £5,000 would be a fair price.—W.B.W.

No. 20.

Mr. W. B. Wilkinson to The Secretary for Public Works.

Re Combination Cars.

Sir,

Sydney, 19 October, 1887.

I have the honor to enclose letters received from various firms of Stock Agents in Sydney, also report from the Inspector of Cruelty to Animals Society to his Board, also letter from Mr. J. de V. Lamb, of Sydney, who is Chairman of the Metropolitan Stock Board, and also one of the Committee of the Agricultural Society, Sydney. All the above speak in the highest terms of my patent. There is also a report from the Chief Inspector of Stock, of September 10th, to his Department that I can refer you to; also I would draw your attention to the supplementary report of the late Board, signed by Mr. Badgery and Mr. Gill, after a trial of my truck at Homebush with sheep in January or February last.

I think with such weighty testimony my truck will naturally recommend itself, and as I am not inclined to leave the offer open I made to your Department last week to give the Government twelve months to pay for the patent if they decide to take it, I will now take £5,000 cash upon acceptance, and for that sum will assign the patent in this Colony to your Government.

Yours, &c.,

W. B. WILKINSON,

Dubbo.

[Enclosures.]

Dubbo, 18 October, 1887.

WE, the undersigned Stock and Station Agents of Dubbo, hereby state, that in our former petition against Evans' stock truck, signed in our own names, we merely used the names of Sydney firms to show the amount of stock trucked by us, thereby showing we were qualified to give an opinion on the subject.

WILSON & DE LAURET.

JAS. HEAM.

Dear Sir,

5 Spring-street, Sydney, 19 October, 1887.

I have inspected your combination truck; I consider it is the best that I have seen. Its advantages are that you load stock from the end, and can thus fill up a train load of ten or fourteen trucks without pushing and labour with the trucks, also that part can be loaded with cattle and part sheep—a part stock and part goods all at same time. It appears to me to be about perfect.

W. B. Wilkinson, Esq., Dubbo.

I remain, &c.,

WARDEN HARRY GRAVES.

Pastoral Exchange, 91, Pitt-street, Sydney, 20 October, 1887.

I YESTERDAY inspected Mr. W. B. Wilkinson's "Combined Sheep, Cattle, and Goods Truck," and carefully examined its capabilities for carrying, loading, and unloading stock. The facilities for loading sheep quickly and continuously into all the trucks, without the usual drudgery and labour of filling each truck separately, appear to have been worked out and perfected with such skill and knowledge in all details that only a practical man could have accomplished, or that men accustomed to yarding and working among stock could appreciate.

The arrangements for dividing the trucks will be found useful, but the division doors might be made of round iron bars, so as to give better ventilation.

The facilities for expeditiously converting the truck to receive stock of either kind or goods, appear to be all that is desirable.

P. N. TREBECK.

Dear

Dear Sir,

Your Combination Truck would be a great boon to those actually engaged in loading sheep, and the divisions prevent destruction to the animals by reducing the pressure upon them. It seems well ventilated, and carrying different classes of stock must give it great value in providing accommodation for small consignments. Whether the gear for lowering the top deck is of proper construction I cannot determine.

I think the truck should commend itself to the authorities.

Sydney, 19 October, 1887.

Yours, &c.,
J. DE V. LAMB

The end-loading is the great feature in your truck.

W. B. Wilkinson, Esq., Sydney.

Dear Sir,

I have pleasure in stating that I have inspected your combination stock and goods truck, and I consider it the best stock truck that I have yet seen, and particularly useful for small consignments. It has many advantages over the trucks at present in use, one of the most important being end ventilation.

Sydney, 20 October, 1887.

Yours, &c.,
T. J. WEAVER.

I believe that end-loading trucks for sheep will be found to answer well in practice.—T.J.W.
W. B. Wilkinson, Esq., Dubbo.

Dear Sir,

I have inspected the stock truck made under your patent, and now at Messrs. Hudson's works, Redfern. I have much pleasure in stating that in my opinion it embraces everything that we require for mixed trucks of stock, a want that has been long felt, especially by the senders of small lots of cattle, sheep, lambs, calves, and pigs, along both the Southern and Western lines of railway. The fittings are strong, and so arranged that the stock can be carried with safety. I particularly admire your system of slides on the outside to prevent stock from being frightened and rushing in the trucks when standing at any station. The opening in the tops of the truck is a great advantage, as it can be utilized in hot weather for ventilation.

244, Pitt-street, Sydney, 20 October, 1887.

I am, &c.,
WILLIAM INGLIS,

Mr. W. B. Wilkinson, Sydney.
Sir,

Stock Agent.
Sydney, 6 September, 1887.

I have the honor to report that on the 9th August last, in accordance with your instructions, I proceeded to Clyde for the purpose of examining the cattle and sheep truck invented by Mr. Wilkinson, and was very much pleased with the design.

There can be no question about its being a vast improvement on any of those in use at the present time, so far as trucking sheep is concerned, but am not prepared to give an opinion as to cattle, and would like to see two or three loaded together before in any way advising the Committee.

The truck is loaded from a side corner, and the rest of the train being attached, a door is dropped in the centre of the end, and another opens at the side of each truck, forming a race or run throughout. The mode of loading is to fill the lower part of the train first, the capacity of each floor being calculated to accommodate fifty sheep, divided by doors on hinges, which are closed on each twenty-five head as they are loaded. This having been completed, the upper floors throughout the train are dropped, and the same process is gone through.

There are no projections inside to injure the animals; and the ventilation is provided for at the end of each truck, curtains being provided at the sides to prevent annoyance to the animals while in transit.

I have, &c.,
GEORGE WEBBER,
Inspector.

E. Fosbery, Esq., Chairman, Animals Protection Society.

No. 21.

Minute by The Commissioner for Railways.

Messrs. Brazenor and Valentine's Combined Sheep-truck and Goods-waggon.

Has Traffic Manager seen this model. He might make some inquiries about it.—CH. A.G., B.C., 5/9/86.

I have not seen the model. Write Mr. Anderson for particulars.—W.V.R., 11/9/86.

I have not seen the model referred to, but have communicated with the Traffic Manager of the Victorian railways, who informs me that this convertible truck has been built under the supervision of the patentees, Messrs. Valentine and Brazenor, and will be put in use on trial for a period of six months, until which time he does not care to pass an opinion on it. I will forward to the Commissioner any information I receive.—W.V. READ, 2/11/86.

Commissioner.—Shall we write to the patentees for a drawing of this car.—A.R., 11/11/86. Yes, please.—D.V., 12/11/86. Messrs. Brazenor and Valentine written to on 15/11/86.

Gentlemen,

Department of Railways, Sydney, 15 November, 1886.

With reference to the working model of your newly-invented combined sheep-truck and goods-waggon, exhibited at the wool warehouses of the Australasian Mortgage and Agency Company in August last, I shall be glad if you can make it convenient to send me a drawing of the design.

I have, &c.,
CHAS. A. GOODCHAP,
Commissioner for Railways.

Messrs. Brazenor and Valentine,
Care of Australasian Mortgage and Agency Co., Melbourne.

Charles A. Goodchap, Esq., Commissioner for Railways, New South Wales.

Sir,

Ballarat, 25 November, 1886.

We have the honor to receive your letter of the 15th instant, requesting us to send you a drawing of our Patent Convertible Sheep and General Merchandise Railway Wagon.

We have great pleasure in sending you the two accompanying lithograph sheets; and if you desire it, we will bring over the working model, and wait upon you at your convenience in Sydney.

The trial wagon recently built by order of the Commissioners of the Victorian Railways has been in active use, having performed four journeys between Melbourne and Echuca with sheep and goods alternate. Also, with 8 tons of sugar and other goods from Melbourne to Ballarat, and from thence up and down to Murton, and to-morrow will bring sheep from Dunkeld.

We

We may mention that, in carrying sheep, the flooring keeps perfectly clean, the sheep themselves assist in doing so, making a great contrast to the old sheep-waggons. Our waggon having been used both for sheep and goods without being washed, and we find it will only require the ceiling under the lifting floor to be occasionally cleaned.

We shall be glad to hear from you again on this matter, and shall be most happy to furnish you with any further particulars you may require.

We have, &c.,
BRAZENOR & VALENTINE.

Send to Mr. Husk for the information of Live Stock Comb. Truck Board.—A.R., 21/1/87.

Memo. of Chairman of Board:—This being only sheep and merchandise, truck does not meet the requirements of a combined stock and goods truck.—H.S.B., 28/1/87.

Ballarat, 5 February, 1887.

C. A. Goodchap, Esq., Commissioner for Railways, Sydney.

Re Brazenor and Valentine's convertible sheep and merchandise railway-waggon.

Dear Sir,

In November last we sent at your request drawings of the above waggon with an offer to send the model of same for your further inspection.

We saw in the papers that a Commission had been appointed by your Government to report on designs for waggons of the same character as ours.

We sent on Monday, 24th ultimo, a telegram to Mr. Badgery, Sydney, asking for information, and received reply, signed "Chairman of the Commission," stating "he hoped to send in report on the following day of all models of trucks submitted by Commissioner."

If we had been aware in time we should certainly have sent our model and been in attendance to have given any further information that the Commissioners may require.

The waggon built by the Victorian Railway Commissioners is in constant work, and we have closely watched its working, and can confidently affirm "it is a perfect sheep waggon," carrying the sheep clean and in comfort at the same time. One man in four minutes converts it into a suitable goods-waggon for grain, wool bales, and general merchandise.

We should have communicated with you before if we had received a report from the Victorian Railway Commissioners anent truck. We have not been able to get one yet, but have made application for same.

Several stock owners, stock agents, and others interested in the carriage of sheep, and who have observed the working of the waggon, are prepared to give certificates of the superior advantages the waggon possesses both for the carriage of sheep and goods.

We again offer to send the model of waggon to Sydney for your further inspection.

We are, &c.,
BRAZENOR & VALENTINE.

Combined Sheep Truck and Goods Waggon.

MR. ANDERSON, General Traffic Manager of the Victorian Railways, writes me under date of 25th April, as follows, viz., "I beg to inform you that, after a fair trial, my experience of Messrs. Valentine & Brazenor's convertible truck is not satisfactory."

For the Commissioner's information.
Commissioner.

W. V. READ, 29/4/87.

No. 22.

Mr. T. Perry to The Commissioner for Railways.

Sir,

Dubbo, 3 November, 1886.

I wish to state that the dimensions of truck will be as under as near as possible:—

			ft.	in.
1st.	Length of body in the clear... ..		18	0
	Width do do		8	0
	Height do do (centre)		7	6
	Do do in the sides... ..		7	0
	Do do over all in centre		8	0

2nd. The timber to be used in the construction of truck will be hardwood framing, with the exception of the eight top folding doors, which framework will be pine; also the bottom floor, deck, and all lining boards will be pine, the same as now being used. The bottom of the deck will be covered with light sheet iron to catch the droppings from top sheep. The under frame, also the top framing of truck, will be slightly lighter.

3rd. By mounting the truck on the Ashbury principle we save something like 6 cwt., by doing away with the side spring scroll, irons and fixings attached to same, and by using the new style of buffer. Having noticed that some of the present cattle-waggons weigh from 6 tons 1 cwt. to 6 tons 10 cwt. I consider that by allowing our deck to weigh 5 cwt., and the end blinds or weights to weigh another 5 cwt., which makes (say) 10 cwt., and by us saving the 6 cwt., as mentioned, that, after taking everything into consideration, our truck, when ready for use, will not weigh more than 6 tons 15 cwt.

4th. The estimated cost of truck I consider to be about £175. I can only get at this by seeing in the paper what the present cattle-waggons cost—£165 each; and by us saving in the mounting on the Ashbury principle, which does away with both labour and material, and allowing say £20 for cost of deck and end blinds, I have every reason to believe that we will be within bounds in saying that it will not cost more than we say, £175.

5th. The advantages we claim for our truck are, that it can be loaded at both top and bottom compartments at the same time without having to be moved from the sheep races, which means a great saving of time to the Department in getting trains away to time.

Also

Also the present sheep races will not be required to be altered for loading or any other purpose. As to the time it will take to convert it from sheep to cattle waggon I need not dwell, as the model shows itself. There are several advantages in the truck, such as the floors to prevent stock from slipping down, and also the droppings getting away out of trucks.

Having considered everything in connection with our truck, I don't think that I can improve on what I have said as to cost, &c., which I hope will meet with your favourable consideration.

I have, &c.,
THOS. PERRY.

Are there not other papers about the "Perry" truck?—D.C.McL., 11/11/86. No other papers re "Perry" truck.—L.P.I., 25/11/86. It appears that this truck is to weigh 6 ton 15 cwt. when ready for use. Evans' weighs 6 ton 12 cwt. 3 qr.—A.R., 25/11/86. The Minister said he would inspect the model. It is in my room.—Ch.A.G., 27/11/86. I will examine it to-morrow.—W.J.L., 29/11/86.

No. 23.

Mr. D. Anderson to The Secretary for Public Works.

Sir, "Fairview," Stawell, Victoria, 22 January, 1887.

I have the honor to submit plans and description of my convertible sheep, cattle, and goods truck, and shall be glad if you will look carefully over them yourself before handing them to the Board recently appointed to look into the matter.

Permit me to point out that by my plan *no new stock* is required, and that my frame for carrying the floors and screws will cost very little.

A variety of circumstances which I need not detail here prevented me taking out my patent in your Colony sooner, but I can with perfect confidence hand my plans to you.

I have, &c.,
DAVID ANDERSON.

D. Anderson's Combination Truck.—Although this truck is not included in the list of competitive trucks now under the consideration of the Board, I see no objection to the plan being forwarded to the Board to be considered with the others.—Ch. A. G., 25/1/87.

Forward at once please.—A.R., 27/1/87. Minute of Chairman of Board:—Seen; but too late to embody in report.—H.S.B., 28/1/87.

No. 24.

Mr. D. Anderson to The Commissioner for Railways.

Sir, "Fairview," Stawell, 14 April, 1887.

The Victorian Railway Commissioners are here to-day and to-morrow, I am to submit to them drawings of my truck, altered to carry cattle as well as sheep and goods. Did you receive the tracings of my convertible sheep and goods truck, sent through Mr. A. D. Hunter, and which I wished to be submitted to the Board of experts appointed to decide upon the merits of competing combination trucks? I learnt to-day from Mr. Ford and Mr. Anderson, our General Traffic Manager, that this Board has reported upon the trucks, and, at the suggestion of the former, I beg you to favour me with a copy of the report at your earliest convenience.

I have, &c.,
D. ANDERSON.

No. 25.

Mr. J. A. Fowler to The Commissioner for Railways.

Sir, 5 Elsie-street, Burwood, 8 February, 1887.

A short time ago I saw that a Commission was sitting to decide the merits of the different combination trucks, with a view to select the most efficient, with a view to reducing what is considered by stock-owners as excessive rate. I communicated with the Board, stating that I had an easy, inexpensive floor that could be easily attached to existing stock-trucks, and would make but little difference in the cost of new, and a tarpaulin as now would make them a goods. Of course, I was keeping economy in view. I received an invitation to attend with a model, which I did, and while they were watching the working of the model I was watching the working of their faces, and I could see as plain as if they had spoken, why the deuce did not somebody else think of this before; however, I was plied with a lot of side questions such as how I intended to drain it, how clean and so forth, also that for the future all cattle trucks must be smooth inside and comparatively dark, winding up with what I considered at first as an impossibility, *i.e.*, they wanted a truck with the following attributes for cattle—smooth inside, well ventilated, and comparatively dark; for sheep, the two decks as well ventilated as the bird-cage sheep truck now in use, and perfectly water-tight for goods, without tarpaulins. Possibly, this was a witty way of getting rid of me, but it takes a lot to extinguish a Scotch pedler, when he knows his wares are good and he has a chance of a buyer. I therefore went to work and designed a truck that more than fulfilled these demands, and which I am sure, if I am not superseded by some one else, will yet become the favoured truck of the day; its cost of construction over the others would be but trifling. This truck comprises a thorough open sheep truck, a smooth well-ventilated dark cattle truck, a goods truck as close as a "C" van, end or side entrance for sheep (place blunt eye-bolts in beams for hooks), and as a dead meat, farm or dairy produce van, it would be unequalled—in fact, I call it the universal truck. When I had finished it, I communicated to Mr. Badgery the fact, but so far he has not noticed it. I was at Homebush and saw the Wilkinson truck, and as a cattle and goods truck it is good, although it is not perfectly smooth inside; as a ventilated sheep truck it is a failure, being much more confined than the

the "Evans," I was present at the launch of it and that was the fault a great number of practical men had to it; and now, I find by the Press, that two of the Commissioners have recommended the truck to your notice, at the same time knowing there is far better in the Colony if they only got a chance to develop. This is no time to waste money on what, at a future day, will be condemned, or cost the country a lot of money in compensation for dead sheep, which undoubtedly would be the case if the Wilkinson is extensively used for that purpose. I possibly write strongly on the matter, but what with political influences and prohibitory patent laws, it makes an inventor, possessed of neither, feel keenly. You will observe in the Press that the Commissioners refer only to the end loading—that was introduced by Mr. Lyne when Minister for Works. Well, history repeats itself—when one Minister went out of power they sold his bed; in this case they give away his tail-board across the Hume. If you want a fair impartial opinion *re* the Wilkinson truck, interview the expert truckers at Homebush. Trusting that this will meet with your favourable consideration, and possibly lead to business,

I remain, &c.,

J. A. FOWLER.

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(FURTHER CORRESPONDENCE RESPECTING WILKINSON'S COMBINATION TRUCK.)

Ordered by the Legislative Assembly to be printed, 4 April, 1888.

Mr. W. B. Wilkinson to The Secretary for Public Works.

Sir,

Gresham-street, 28 February, 1888.

My attention has been drawn to a report by a Mr. Harper, successor to Mr. Evans as Goods Superintendent. I should not have taken any notice of it, but that it has become public property, as the *Herald* of to-day publishes it *in extenso*. As your personal remarks to me have led me to believe that you are solely guided by a desire to do justice to all concerned, and only have at interest the Department you have the honor to represent, I have taken this opportunity of affirming that the report now laid before the House is not an impartial relation of facts that have occurred, but a plea of a member of the Department on the behalf of a superior officer.

In so far as the report goes, I may state that I have had four trials—not three.

2. The Evans truck will not carry more stock than mine.

3. The weight of the trucks is not correct.

4. The Evans truck required more attention than mine, notably when I had to unload it twice on a trip from Byrock. I say "I" advisedly, as those travelling in charge of the Evans truck (Mr. Harper and another) were practically helpless.

5. The time of alteration named is only known to the writer of the report.

The Select Committee themselves knew in how much less time (than Evans') mine can be altered.

I have the honor to request that you will lay this correspondence on the Table of the House.

Yours, &c.,

W. B. WILKINSON.

I should like immediate report.—J.S., 29/2/88. Traffic Manager, B.C., 2/3/88.

I send Mr. Harper's report herewith. It is quite true that Mr. Scott, Mr. Downe, and I were present and examined the Evans and Wilkinson trucks after they returned from their last trial, particularly the latter, the upper deck of which had given way during transit, but I cannot recall to mind the time being taken in the alteration of the trucks from cattle to sheep vehicles, nor can Mr. Downe, to whom I have spoken on the subject. I have no doubt that Mr. Harper took the time of converting each vehicle, although our attention was not drawn to it. I am informed that since the trucks were last weighed, wheels, axles, and journal-boxes, equal in weight to those under the Wilkinson truck, have been put under the Evans truck.—D.K., 5/3/88. Commissioner.

Report by Mr. J. H. Harper.

I HAVE the honor to state, in reply to the several matters brought under the notice of the Minister by Mr. R. B. Wilkinson,—

That the impartiality or otherwise of my report on the trials of the combination waggons is purely a matter of opinion, which I am content to leave to that sense of justice to which the writer appeals.

My instructions were to conduct three trials with the trucks under absolutely similar conditions. Mr. Wilkinson's truck has carried stock four times, but not in competition, nor in any sense under the supervision of myself, or, as far as I am aware, under that of any other officer of the Department. It was, therefore, not my business to refer to the first occasion on which it was loaded.

The Evans truck will carry "as many or more stock" as compared with the Wilkinson. The following measurements of the two vehicles are my authority for saying so.

As a cattle truck the several dimensions of the Evans truck are—Length, 17 feet 3 inches; width, 7 feet 8 inches; height, 7 feet 7 inches; giving a floor area of 132 feet, and a space of 1,002 cubic feet.

The Wilkinson truck is—Length, 17 feet 6 inches; width, 7 feet 9 inches; height, 7 feet; giving a floor area of 135 feet, and a space of 949 feet.

The latter truck has thus 3 feet more floor area as a cattle waggon than the Evans. But taking nine cattle as the load it will be seen that 15 feet is required for each beast, so that this 3 feet difference is practically valueless as affecting the carrying capacity of the vehicles.

As a sheep-van the Evans truck measures—Length, 17 feet 6 inches; width, 7 feet 11 inches; height, 3 feet 5 inches, and 4 feet 1 inch; giving a floor area of 277 feet, and a space of 1,039 cubic feet.

The Wilkinson truck measures—Length, 17 feet 6 inches; width, 7 feet 9 inches; height, 3 feet 10 inches, and 3 feet 5 inches; its floor area is 271 feet, and cubic space 983 feet. The Evans truck has 6 feet more floor area, and as a sheep requires but 2½ feet it is evident it must carry at least two more.

The weight of the trucks given in my report is that arrived at on our weigh-bridges by competent weighers. The first tares are those obtained by weighing, carefully standing, on the Sydney goods bridge. The weigher was Foreman Carlisle, and Mr. Braid of the Locomotive Department was present with me when the weights were taken.

The final retaring was performed by Weigh-clerk Farrell under precisely similar conditions. The Acting Manager and Mr. Wilkinson were both present.

It is, of course, a matter of opinion as to which trucks received most attention. I still hold to mine.

The reference made by Mr. Wilkinson to the valuable assistance he rendered at Orange and Kelso in assisting to unload and reload the animal in the Evans truck is beside the mark.

I willingly admit that he did assist very effectively, and I have no hesitation in saying that his large practical experience in trucking stock enabled him to suggest and carry out a plan for raising the beast referred to.

He will, however, surely admit on reflection that this was attention paid to the beast and not to truck, and that he extended the same willing aid in getting up cattle in other wagons during the journey.

The alteration of the trucks was effected in the presence of Mr. Wilkinson and Messrs. Kirkcaldie, Scott, and Downe, and if none of these gentlemen took the time that is not my fault. It was my duty to do so, and I did.

I am not aware in what time or under what conditions the trucks were altered before the gentlemen of the Select Committee, but I can safely assert that the one I made was the most actual one, as it occurred after the trucks had completed their journey with sheep, and without any oiling or adjusting of parts, and I am firmly satisfied the result would be the same to-morrow under the same conditions.

Traffic Manager.

J.H., 3/3/88.

Mr. W. B. Wilkinson to The Secretary for Public Works.

Sir,

Dubbo, 10 March, 1888.

I have heard that you have stated in the House that my last letter to you, *re* Mr. Harper's report of trial of combination trucks, is not to hand. I think there must be some mistake, as I presented the letter myself at the door of your room, and it was taken in by your messenger, and I waited some time to see if you desired to see me on the matter.

While on the subject I may state that I overlooked that portion of Mr. Harper's report, *re* the present condition of my truck and its present unfitness to carry stock.

The only repair my truck needs is a new bolt, or slot, an inch longer than the present, and strengthened by a cross-piece of angle iron, all of which can be done at the cost of 20s.

The first trial that the Evans truck made, the top deck broke and killed twelve sheep, so surely a small matter like mine did not need such a sweeping condemnation.

The truck is now at Redfern in the state that it was in when Mr. Harper reported, and I will ask the Select Committee to inspect it.

Will you please lay this letter on the table, with the other correspondence.

I think, sir, you will see the justice of what I ask. A certain report has been published which I state is untrue, or with only just enough truth in it to do me harm, and I can prove the writer was biassed, by several witnesses.

W. B. WILKINSON.

I informed Mr. Wilkinson that I had received the letter and would lay it on the Table when I obtained Mr. Harper's report. I should like report *re* statements contained in this letter.—J.S., 12/3/88. Traffic Manager.—A.R., 13/3/88. Mr. Wilkinson's letter, respecting Mr. Harper's report on his truck: Please peruse the enclosed letter from Mr. Wilkinson, and let me have your report upon it as early as possible.—W. V. READ, 15/3/88.

Report by Mr. J. Harper.

IN compliance with the instructions of the Minister, I have the honor to reply to those portions of Mr. Wilkinson's letter which have reference to my report. In doing so I desire to enter a strong protest against the position assumed by the writer.

I understand the whole question of these trucks is being investigated by a Select Committee of the House. I am summoned as a witness to give evidence before this body, and I respectfully submit that it is unfair to myself and disrespectful to the Committee that one of the interested parties should endeavour to anticipate my evidence in the manner Mr. Wilkinson is doing.

Surely he will have ample opportunity of obtaining my opinion and the value of that opinion when the proper time arrives, and he will also be in a position, if he can, to disprove the facts represented by me in the report.

The Department has not called upon me for an opinion, and I purposely refrained from expressing one, strictly confining myself to recording various tests as between the two trucks. I am not aware of having passed "a sweeping condemnation" on Mr. Wilkinson's truck; I at all events did not originate the expression, and if he considers the fact of my report stating that his truck was unfit to carry sheep at the conclusion of the trials as conveying that impression, he has at least admitted its truth by saying his truck will carry sheep after certain repairs and alterations are made.

I

I said it would not at the time of my report, and it is purely a matter of opinion as to whether it would with the alterations he suggests. I think it will be granted that in my position as a witness before the Select Committee I should not be required by Mr. Wilkinson to express what I think or why I think it. I will there place on record whatever my impressions are and whatever my observations may have been, unless the superior officers of my Department think it best in the interests of the Service to do it sooner.

Mr. Wilkinson has again seen fit to insinuate bias towards the inventor of the rival truck as actuating my report. He says he can prove it by several witnesses. Would it not have been more satisfactory and more manly had he proved this to the Minister by the evidence of these witnesses. I should then be called upon again to fight a shadow. As it is, I can only refer any impartial judge to the report in question, and absolutely deny the allegation of Mr. Wilkinson. I am not aware of any interests I have in settling this question beyond those of the Department, but that gentleman may rely upon it that I regarded these as of sufficient importance to call upon me to place the whole facts gathered during these trial trips before the head of it. If they involve "a sweeping condemnation" of Mr. Wilkinson's truck, his course is surely to disprove them. Any honorable man would at all events think so.

I presume the Minister does not desire me to reply to that portion of the letter referring to the breaking of the bar in the Evans truck some two years since. If I am not mistaken that matter was fully gone into and reported upon by the Commission on Combination Truck. Their opportunities were necessarily far greater than mine of learning its causes and judging of its effect on the value of the truck.

As, however, their decision, despite this incident, was in favour of the Evans truck, I presume it was not considered of much importance. My report simply covers the ground of the three trials. The bar did not break, and whatever sheep might have been killed by the giving way of Mr. Wilkinson's truck floor were saved by the timely use of screw-jacks and props. Possibly, if the same means had been adopted when the Evans bar broke, the record of sheep killed might have been less.

Mr. Wilkinson says that his truck is in the same condition as it was when the trial was finished, and that it is his intention to show it to the Select Committee. I distinctly deny that it is in the same condition, and if the gentleman of that body require proof I will undertake to find it.

I have no desire to impute any motives in the matter, but I desire in justice to and in protection of myself to state that, on or about the 5th of the present month, the truck was adjusted and oiled preparatory to a visit of the Committee. When it had completed its third trial I took the precaution of seeing that neither it nor the Evans Truck were oiled or adjusted, and I have reported the result of that trial. I knew the Department did not want a truck for show purposes, and endeavoured to make the test as thorough as possible, and this, in my opinion, is one of the most important features in a combination vehicle. If the members of the Select Committee view and test the trucks, I only ask that it shall be under the same conditions.

JNO. HARPÈR,
Traffic Manager.

17/3/88.

1887.

(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(FURTHER CORRESPONDENCE RESPECTING EVANS' PATENT COMBINATION TRUCK.)

Ordered by the Legislative Assembly to be printed, 5 October, 1887.

[Continuation of Correspondence respecting the Evans' Patent Combination Truck, laid upon the Table of the House in accordance with promise made in answer to Question No. 8, on Votes and Proceedings, No. 7, of the 4th October, 1887.]

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[The previous Correspondence was laid upon the Table of the House, and ordered by the Legislative Assembly to be printed, 14th October, 1886.]

No. 1.

The Locomotive Engineer to The Commissioner for Railways.

Centre-bar of Combination Truck No. 15—broken.

I HAVE to report, for your information, that combination truck No. 15 arrived at Dubbo by No. 68 up, on the 16th instant, loaded with sheep. When examining the train, it was discovered that the centre-bar, which hold the flaps of top deck, was broken, which allowed the flaps and top sheep to fall to the bottom.

The truck was taken to the cattle-yards, and the sheep unloaded, when it was found that twelve sheep were dead. The remaining sheep were loaded into sheep-van No. 220, and went on by No. 70 up on the same day.

W. SCOTT, 18/11/86.

Do nothing to the van till it is returned to Sydney.—CHAS. A. G., 18/11/86. I wish a searching investigation to be made into the cause of this failure.—CHAS. A. G. Loco. Engineer.—D.C.M'L., 19/11/86.

Accident—Combination Car 15.

THIS car arrived at Dubbo from Bourke at 7:30 p.m. on the 16th instant, loaded with sheep, and it was observed that the main support of the top deck had broken in two, and the flooring resting on the sheep below, which were released as quickly as possible, but twelve of them were dead. The remainder were reloaded into a spare sheep-van and forwarded to destination.

I shall be glad to be informed when the inquiries are completed what caused the breakage.

There were sixty sheep on each deck when despatched from Bourke.

This is the vehicle that was a cattle-truck and was altered under Mr. Evans' supervision into a combination truck.

W. V. READ,
(Per D.K.,) 18/11/86.

Loco. Engineer.—D.C.M'L., 19/11/86.

MEMO.

MEMO.—This is the truck that was altered under Mr. Evans' supervision, at a cost of £95.—W.S. (per R.J.S.), 18/11/86.

Minute of Secretary for Works.—Should like a thorough examination to be made of this truck by some disinterested person outside the Department.—W.J.L., 20/11/86. Who can be recommended?—21/11/86. Locomotive Engineer.—CHAS. A. G.

Two gentlemen occur to me as qualified, viz., Mr. Ritchie and Mr. Brodie, both of whom have had experience of rolling-stock work, but at present have nothing to do with the Department in any way.—W. SCOTT, 23/11/86. The Commissioner.

Mr. Ritchie is, I think, managing for Hudson Brothers—the rival firm. To appoint him would be out of the question. Ask Mr. Brodie to see me.—CHAS. A. G., 25/11/86. Mr. Ritchie is not now managing for Hudson Brothers. He severed his connection with the firm some time ago.—D.C.M'L., 25/11/86.

I have seen Mr. Brodie. He used to manage for P. N. Russell & Co., and built for us the first railway carriages made in the Colony. Mr. Brodie afterwards, on his own account, constructed a large number of D trucks for the Department. He is not now engaged in the business, but has taken to bricks and mortar. He is well qualified to conduct this inquiry.—CHAS. A. G., 29/11/86.

Minute of Secretary for Public Works.—Approved.—W.J.L., 29/11/86.

Letter to Mr. Brodie. Send copy, with these papers, to Mr. Scott, and ask him to give Mr. Brodie every facility for the examination of the car.—CHAS. A. G., 30/11/86. Attended to. Locomotive Engineer.—D.C.M'L., 1/12/86. Assistant Locomotive Engineer.—W. SCOTT, 3/12/86. Arrangements made, and every facility was rendered Mr. Brodie.—G.D., 4/12/86.

The Commissioner for Railways to Mr. D. Brodie.

Sir,

Department of Railways, Sydney, 30 November, 1886.

With reference to your recent interview with me, I have the honor to request that you will be good enough, at your earliest convenience, to make an examination of a truck known as combination truck No. 15, now standing in the Redfern yard, and to report thereon.

The following statement of facts is necessary to enable you to comprehend fully the nature of the duty which I ask you to perform, and the direction which your inspection will have to take.

There is in existence, as you are doubtless aware, a patented truck, styled the "Evans Combination Truck." The proprietors of this truck have been pressing the Department to purchase the patent, and, with a view to show the adaptability of the design to our present stock, and how easily and cheaply the stock could be converted, they some time ago obtained permission to alter one of our cattle-vans to the combination type, the understanding necessarily being that it should be made *in all respects* like a combination truck. The alteration was carried out by Mr. Wearne, under the supervision of Mr. Evans; and it is the altered truck which I now ask you to report upon.

The truck in question made its first journey, laden with sheep, on the 16th instant; and, on being examined on arrival at Dubbo, it was discovered that the centre bar, which supports the upper deck, was broken in two, causing that deck, with the sheep upon it, to fall down upon the sheep beneath, no less than twelve of which were killed.

It is highly important that the real cause of the accident should be discovered, and it is in this view that I have asked you to inspect the truck.

I shall be glad if you will subject it to a searching examination, and let me have your independent and unbiassed opinion as to the origin of the accident. In the event of your requiring any evidence, Mr. Scott, the Locomotive Engineer, will no doubt furnish it. Mr. Wearne, who made the alterations in the truck, Mr. Evans, who superintended the work, and Mr. Braid, who inspected the truck when completed, might perhaps be called; but in this you will of course exercise your own judgment.

I have, &c,

CHAS. A. GOODCHAP,
Commissioner for Railways.

Mr. D. Brodie to The Commissioner for Railways.

Sir,

Anmandale, 8 December, 1886.

In accordance with your instructions of 30th ultimo, I went to Redfern Railway Station and examined the truck known as "Combination Truck No. 15," and find the centre bar, which was broken, the cause of the accident. This bar, being 17 feet 4 inches in length, and only 4 in. x 4 in. square of Oregon pine, without any supports between the ends, was, in my opinion, too weak for the purpose. Added to this, I find a flaw in this centre bar which may have escaped the notice of Mr. Wearne or his men, but which tended to make it still weaker. I may state, in company with Mr. Scott, I saw the combination truck No. 13, and find, had No. 15 truck, when being altered, have had a partition similar to the one in No. 13 combination truck which acts as a support of the longitudinal bar, the accident would not have occurred. I may, in conclusion, state that I consider No. 13 combination truck, in certain details as to flats, hinges, &c., a superior truck, and that the workmanship in No. 15 truck was badly done.

I have, &c.,

DAVID BRODIE.

For the Minister's information.—CHAS. A. G., 17/12/86. Seen.—W.J.L., 18/12/86. What is to be done with this waggon? It is useless in its present form. I propose that it be strengthened, so as answer the purpose for which it was constructed.—CHAS. A. G., 20/12/86.

Minute of Secretary for Works.—Yes; let it be repaired and strengthened.—W.J.L., 24/12/86.

Locomotive Engineer.—D.C.M'L., 29/12/86. To Assistant Locomotive Engineer.—W. SCOTT, 30/12/86. Instructions given for the work to be done. Locomotive Engineer.—GEO. DOWNE, 5/1/87.

No. 2.

Minute by The Commissioner for Railways.

THE Minister is desirous of having an independent investigation into the merits of the various stock-cars that have been submitted for adoption on our railways. They are—

1. The Evans' car.
2. The Wilkinson car.
3. The Perry car.

The Minister considers that if a good traffic man, an experienced waggon builder and designer, and a practical stock agent were appointed a Board to investigate the question and report upon the designs of car under offer, the real merits of the case would be ascertained.

For this purpose, as regards two of the three members of the Board, he wishes telegrams sent to the Commissioner for Railways, Queensland, asking for the services of Mr. Thallon, Traffic Manager, and to the Board of Commission, Melbourne, for the services of their Chief Designer of Rolling Stock.

Please send telegrams accordingly.

CH. A. G., 7/12/86.

Telegrams sent.—D.C.M'L., 7/12/86.

Combination Stock and Goods Trucks.

ON 7th December, 1886, the Commissioner directed that an independent inquiry should be made respecting the relative merits of the various trucks of the above design submitted to the Department—

1. Evans.
2. Wilkinson.
3. Perry.

And to this end suggested the appointment of the following gentlemen:—

- Mr. Thallon, Traffic Manager, Queensland Railways.
Mr. Badgery, Stock and Station Proprietor.
Mr. Gill, Foreman of Waggon Shops, Victorian Railways.

The services of these gentlemen have been secured, and arrangements have been made for their first sitting on the 20th instant, of which the parties interested are to-day being duly advised.

A. RICHARDSON, 11/1/87.

For Minister's information.—CH. A. G., 11/1/87.

Minute of Secretary for Works.—Approved.—W. J. L., 11/1/87.

Combination Car Commission.—Report of Board, Friday, 28th January, 1887.

THE Board held nine meetings from the 19th to the 28th January inclusive. Fifteen witnesses were examined, comprising the inventors, men experienced in loading and unloading and travelling with stock, as well as officers of the Railway Department skilled in the construction of rolling-stock.

The Board visited the unloading station at the saleyards, Flemington, on the 19th instant, to witness unloading of stock and examination of Evans's truck, which is the only combination truck in use.

On the 22nd instant the Board visited the works of Messrs. Hudson Brothers, at Clyde, to inspect a truck in course of construction, the invention of Mr. W. B. Wilkinson, of Dubbo; and on 27th instant the same truck was again inspected at Flemington.

The instructions to the Board by the Commissioner for Railways were:—To inquire into the relative merits of three designs of combined stock and goods trucks for use on the Railways of this Colony, to take evidence thereon, and to make a report and a recommendation; but the Board, believing the great object in view was to recommend the truck most suitable for the conveyance of all classes of stock, as well as merchandise, permitted a number of persons who had models or plans of new inventions pertaining to combination trucks to exhibit them, and explain the mode of working and advantages they claim for their inventions. The great difficulty in providing a truck suitable for sheep and cattle lies in the fact that for sheep in upper and lower decks there must be abundant ventilation, and for cattle, as near as possible, a perfectly smooth surface inside to avoid injury, and to prevent cattle from seeing out.

The Board desires to express an opinion that it will not be possible to adopt a combined truck to thoroughly answer all the requirements of a stock truck, and at the same time possess the advantages of a merchandise waggon to such an extent as to supersede the present D trucks; but the models submitted prove that it is possible to construct a waggon suitable for both sheep and cattle, and, to some extent, for merchandise as well, thus enabling the Department to utilize it for up-country loading, instead of returning it empty, as has been the practice hitherto with the ordinary sheep-trucks.

The trucks and models submitted may be briefly described as follow:—

No. 1.—*Mr. George T. Evans* submitted two combination trucks, both of which he claimed were suitable for sheep, cattle, or merchandise. In one truck there is a division in the centre, thus forming four compartments for sheep, or two for cattle, and the other having no division; otherwise the chief features in these trucks are the same, viz.: that the top deck necessary for the sheep-van is formed of several parts, and supported by a beam lowered from the roof, and by hinges at the sides of the truck which admit of the top deck, when not required for sheep, being lowered so as to form the sides of a cattle or merchandise waggon.

The weights of the trucks are—with the division, 7 tons 7 cwt. 1 qr.; without the division, 6 tons 12 cwt. 3 qr.

No. 2.—*Mr. Thomas Perry* submitted a model of a combination truck, the principle of which was that the upper deck required for sheep was balanced by weights on the outside of each end, and lowered to the middle of the truck, or raised to the roof as required, for sheep or cattle; no alteration being made in the sides of the truck in either case. Mr. Perry claimed certain advantages in the under-frame of his truck which would reduce its weight, but it appeared this did not affect the combination principle, as the same, if considered an advantage by the Department, was equally applicable to all classes of waggons. It was impossible to arrive at the weight of the truck from the model submitted; but we are of opinion the movable floor and balance-weights could not be less than 16 cwt., which would have to be added to the weight of the cattle-truck. It appeared also that as the truck was necessarily close for cattle sufficient

sufficient provision could not be made for ventilation in the case of sheep. A commendable feature in this truck is that provision is made for draining the top deck, and also the rapidity with which the top deck can be raised or lowered.

No. 3.—*Mr. W. B. Wilkinson* submitted a combination truck, the chief feature of which was its adaptability to the system of end as well as side loading. Although the bulk of the evidence taken goes to show that end-loading is not the great advantage its advocates claim for it, we desire to point out that the witnesses examined have had only a very limited experience, and even that has been confined to trucks of the present pattern with fixed floors. In *Mr. Wilkinson's* truck provision has been made for the loader to walk from end to end of the train in an upright position on both floors, thus giving him control of the sheep, and a better opportunity of regulating the number in each truck. On the other hand, he has not overcome the difficulty of providing ample ventilation for sheep, or a smooth surface for cattle, and we consider his invention defective in these respects.

The weight of this truck is 7 tons 15 cwt. 2 qr.; the floor area is 270 feet, or 65 lb. per square foot for sheep, and 135 feet for cattle.

Mr. Wilkinson stated in his evidence that the weight could be greatly reduced, but making every allowance for the alterations he mentioned, the truck must still remain very considerably heavier than the present sheep-van. It is impossible to say what the expense of this truck, if adopted, would amount to; but the Board is of opinion, judging from the number of parts, that the cost must be excessive compared with the present design of sheep-van or cattle-truck, and considerably higher than either of the other two combination designs.

The Board was desirous of testing *Mr. Wilkinson's* truck as to end-loading, and arrangements were made with the Department, stockowners, and others to have the end-loading trucks now in use and a sufficient number of sheep at Homebush on Wednesday, 26th instant, but in consequence of *Mr. Wilkinson's* truck not being sufficiently advanced this had to be abandoned.

No. 4.—*Mr. Mulholland* submitted an imperfect model of a combination truck, available for sheep and cattle, embodying an ingenious system of end-loading, but inasmuch as he had made no provision for the smooth inside surface required for cattle, we considered his design defective.

A number of other models and plans were submitted, but none of them possessed such improvements as would warrant the Board in suggesting the adoption of their principles.

The Board intimated to the principal stock and station agents in the city the purpose for which it was sitting, and invited them to come forward with any suggestions they had to offer, but no one took advantage of the opportunity.

After inspecting the trucks, models, and plans submitted, and after carefully considering all the evidence, the Board is unanimously of opinion that the converted truck, without division, submitted by *Mr. Evans*, combines more advantages than any of the others. As a sheep-truck it gives more head room than the present pattern, while the ventilation at the sides and ends is all that could be desired. Compared with the sheep-trucks now in use, it gives a floor area of 280 feet for 6 tons 12½ cwt., or one square foot for every 53 lb.; whereas the sheep-truck has a floor area of 241 feet for 6 tons 17 cwt., or 1 square foot for every 63½ lb.

As a cattle-truck it gives considerably more head room, which is a decided advantage, as can be seen by the marks of the cattle's horns on the roof of the present trucks; on the other hand, it is 8½ cwt. heavier than the cattle-truck now in use.

As a merchandise truck it certainly is much heavier than the ordinary goods-waggon; but the evidence of the Department goes to prove that it has been largely used for the conveyance of all classes of goods to stations beyond Dubbo, and gives every satisfaction.

Another special advantage this truck possesses over other trucks is the fact that the floor of the upper deck, instead of being raised to the roof, thereby increasing oscillation, and straining the frame of the truck by unnecessarily adding to the top weight when the waggon is used for merchandise or cattle, is lowered, and forms a smooth side for cattle or merchandise. None of the parts, with the exception of the beam for supporting the top deck, are out of use at any time in the conveyance of sheep, cattle, or merchandise.

It is a question with the Board whether the flaps forming the top deck would be strong enough to withstand the tear and wear they would be subjected to if largely used for cattle; but in any case instructions should be given to all concerned, in the event of this truck being adopted, to lower them steadily, instead of allowing them to fall, when converting from a sheep to a cattle waggon.

The Board is also of opinion that the longitudinal beam should be supported by a prop fitted into a socket in the bottom floor when the truck is used for sheep, and which, when not required, could be carried up by the beam, to which it should be attached by hinge and loop.

A drawback to this design is the position of the doors for sheep, one being directly above the other, which necessitates the two decks being loaded or unloaded separately; but this would be overcome by inserting a door for sheep in the centre of the top deck.

Another disadvantage mentioned by several witnesses is that the floor of the top deck is higher than the present sheep-races, but this could easily be met by a movable board in the race.

To place the relative merits of the three best designs of combination cars more clearly before the Department the Board submits the following table:—

	Points considered separately.	Evans's Truck without division.	Perry.	Wilkinson.
Compared with the trucks now in use in the Department, and assuming their value at 10 points each.	Cattle-truck	9	7	5
	Sheep-van	12	4	8
	Goods-van	7	4	6
	Cost of combination parts	4	5	3
	Simplicity and strength of combination parts.	4	5	4
Considerations of secondary importance, assuming 5 points as the maximum.	Weight per foot of floor area.....	5	4	3
	Facility for converting.....	4	5	4
	For end-loading .....	.....	.....	5
			45	34	38

The Board desires to express its opinion that the division inserted in Evans's Combination Truck is a decided disadvantage in the case of cattle or merchandise; while in the case of sheep the advantage, if any, is very questionable, and causes great inconvenience and loss of time in loading and unloading. The workmanship upon the truck without division is certainly inferior in some respects, but that could be remedied without materially adding to the weight or cost, and in no way affects the design.

The question of cost of the different models could not be accurately ascertained; but Mr. Evans's Combination Truck without division is, in the opinion of the Board, the most economical and suitable in every way for the conveyance of sheep, cattle, and merchandise, and we recommend accordingly.

HENRY S. BADGERY.
J. F. THALLON.
J. GILL.

The Hon. John Sutherland,
Minister for Public Works, Sydney.

No. 3.

H. Halloran, Esq., to The Commissioner for Railways.

Sir,

54, Wentworth Court, Sydney, 3 March, 1887.

I have the honor, on behalf of the proprietors of the patent for Evans' Australian Combination Trucks, and with reference to my letter of the 18th December last, to request to be favoured, at your earliest convenience, with a settlement of the important matter therein involved.

As I understand that the Board appointed by the late Government reported in favour of the Australian Combination Truck to which I refer, I would suggest that a decision may be speedily arrived at.

I have, &c.,
HENRY HALLORAN.

Minute of the Commissioner for Railways.—There is some considerable doubt as to what the Board did recommend. I think it would be well to send a copy of the Board's report to the press in the first instance, before any final action is taken.—CHAS. A. G., 8/3/87.

No. 4.

H. Halloran, Esq., to The Commissioner for Railways.

Sir,

54, Wentworth Court, 18 April, 1887.

I do myself the honor to invite your attention to my letter of the 3rd ultimo, in the matter of Evans' Australian Combination Truck, and the purchase by the Government of the right of patent for the same, and to say that the gentlemen whom I represent in the matter are very desirous of a settlement of the important question now before you.

I have, &c.,
HENRY HALLORAN.

No. 5.

H. Halloran, Esq., to The Secretary for Public Works.

Sir,

Wentworth Court, 16 August, 1887.

On behalf of the proprietors of the patent for Evans' Combination Truck, and with reference to the correspondence which has taken place, extending over a great many months, to the personal interview with which you favoured me, and the decision which I had hoped it might have been possible for you thereafter to arrive at, the report of a Board appointed and continuing at a very considerable cost, absolutely in favour of the Evans' Combination Truck over the other inventions of a similar character, I have now the honor to express a hope that you may be in a position soon to come to a decision in the matter.

Knowing how strongly interested you have shown yourself to be in matters of progress and public prosperity, and that the adoption of the offer of the patent belonging to the gentlemen whom I represent herein will be to the advantage of the public, and a saving to the revenue and a great general convenience—a matter in which I personally feel no small interest as a colonist and a citizen—and knowing, further, that the gentlemen concerned in the patent, though they have stated a price, are quite open to meet the Crown by the acceptance of such a price, equitable and considerate, as may be offered to them, for the great advantage which the legal use of their patent will secure to the Department, the revenue, and the public, I beg to express a hope that the question may be soon decided in such a way as may appear to you fair to all interests involved under the circumstances.

I have, &c.,
HENRY HALLORAN.

Minute of the Secretary for Public Works.—I require all the papers on this subject, with a *précis* of the whole case, by Monday next, that the Commissioner and I consult on what is best to be done in this important matter.—J.S., 17/8/87.

REPORT of the Committee appointed to inquire into the relative merits of certain designs of combined Goods and Live Stock Trucks.

WHEN the Live Stock Board was sitting in 1884, the Evans Combination Truck was brought under the notice of the Board, and in their report they referred to it in terms of commendation, and recommended that four of the trucks should be built for trial.

The Commissioner had already formed a favourable opinion of the truck, and he, with a view to a perfect trial being made, recommended that fourteen trucks should be obtained, which Mr. Secretary Wright approved.

In due course the fourteen trucks were put into use, and after trial were reported upon by the Traffic Manager in terms which, on the whole, were favourable.

In

In March, 1886, Mr. Halloran, on behalf of the patentee, offered the entire patent of the truck to the Government for the sum of £17,000.

The merits of the truck, however, were not so well established as to warrant so large an expenditure at present, and moreover the enormous cost of introducing new stock, or altering the existing stock, was a point which required grave consideration.

Subsequently, Mr. Halloran intimated that the patentees were open to an offer.

Mr. Halloran made an offer to convert our existing stock of trucks to the Evans' pattern at the following prices:—For the old narrow trucks, £140 each; for the wide trucks, £130 each.

About this time, Mr. T. Perry and Mr. W. B. Wilkinson brought rival designs of combination trucks under the notice of the Commissioner, and on the 9th December, 1886, the Minister decided that a Board, consisting of a traffic expert, an experienced waggon builder, and a practical stock agent, should be appointed to inquire into and report upon the relative merits of the three designs; and Mr. Thallon, Traffic Manager of the Queensland Railways, Mr. Gill, of the Waggon Department, Victorian Railways, and Mr. H. S. Badgery were appointed accordingly.

It appears that the only one of the competing trucks the Board had an opportunity of seeing in actual use was the Evans' truck, and this was due to the circumstance of a number of them having been built by the Department.

After examining a large number of witnesses, the conclusion arrived at by the Board was that the Evans' improved truck was the most economical and the most suitable in every way, and they made their recommendation accordingly.

Mr. Thallon (being urgently required at home) quitted Sydney immediately after signing the report.

Mr. Halloran has written from time to time, pressing the Minister to come to a speedy decision with regard to the offers made on behalf of the patentees of the Evans' truck.

He now again writes, referring to the decision of the Board in favour of the Evans' truck, and to the offers made by the patentees to the Government. He says that although a definite sum has been asked for the patent, the persons interested are prepared to accept such a price, equitable and considerate, as may be offered them, and he (Mr. Halloran) hopes that a decision will be speedily arrived at.

Mr. Secretary Sutherland asks for the papers, with a *précis*, in order that he and the Commissioner may consult as to what is best to be done in this important case.

C.A.B., 19/8/87.

No. 6.

Mr. A. Wilson to The Secretary for Public Works.

Dear Sir,

7, Bent-street, 27 August, 1887.

As I believe it will shortly be necessary to build a number of stock-waggons, and also probably to improve some of the old ones, I wish to bring under your notice the fact that on several occasions my firm have been requested to secure the use of those known as Evans' Combination Truck. On all sides I have heard the most encouraging reports as to their general convenience.

You have doubtless at your command a mass of information referring to various patents, but I feel sure the merits of that referred to speaks for itself.

I have, &c.,
ALEX. WILSON.

No. 7.

Mr. A. Wilson to The Secretary for Public Works.

Sir,

"Asche's Royal Hotel," Sydney, 29 August, 1887.

I beg to address you on the Evans' Combination.

I have been asked by many large and practical stockowners to bring under your notice the above-mentioned truck, and ask you if there is any likelihood of its being adopted by your Department.

They know I am one of the shareholders, and advise me to push the matter, saying that the work done by the fourteen now in use (two years) speaks for itself. Mr. Samuel M'Caughey, one of our largest stockowners and most practical men, was positive of its success the first day he saw it. He wrote several letters to this effect to the daily prints some time ago when the matter was before the Department, he being absolutely disinterested. His opinions should carry weight, as also will the fact that many stockowners instruct their agents to secure these trucks instead of the old ones. It is the only real combination truck before your Department.

I have, &c.,
A. C. WILSON.

No. 8.

Phillip, Somer, & Co. to The Commissioner for Railways.

Sir,

Nevertire, 4 September, 1887.

We, the undersigned Stock Agents, seeing by the *Daily Telegraph* of the 3rd instant that there is a likelihood of the truck known as "Evans' Patent Combination" being accepted by the Department as the truck for carriage of live stock throughout the Colony, hereby enter a protest, upon the grounds that we have used the truck for both sheep and cattle, and find the patent inconvenient and impracticable, and not so good as the present sheep or cattle trucks now in use.

PHILLIP, SOMER, & CO.,
Agents for Nevertire.

No. 9.

Railways.—Particulars of Service of Combination Trucks.

A RETURN of the Earnings and Mileage of the Combination Trucks now in use, from the 1st January to 30th June, 1886, distinguishing goods freight and live stock freight as compared with ordinary trucks.

EARNINGS and Mileage of the Combination Trucks as compared with other Live Stock Trucks during the period ended 30th June, 1886.

I ATTACH a return giving the information in as complete a form as it is possible to give it, without entailing a very great amount of extra time and labour to render it more complete.

The particulars supplied in regard to the combination cars, of which there are only fourteen, took a considerable time to compile, but it can readily be seen what labour was involved to get less complete information in regard to 272 sheep-vans and 300 cattle-waggons, while it must be apparent that the separation of the mileage run by these vehicles with live stock and goods traffic means an enormous amount of additional work.

W. V. READ, 24/8/87.

For the six months ended the 30th June, 1886.

No. of Trucks in use.	Live Stock.		Goods Traffic.		Totals.		Loaded Mileage. Per Mile.
	Loaded Mileage.	Earnings.	Loaded Mileage.	Earnings.	Loaded Mileage.	Earnings.	
Combination cars 14	55,232	£ 1,131 1 11	63,227	£ 4,203 10 4	118,459	£ 5,334 12 3	10½d.
Sheep-vans..... 272	.....	39,767 7 0	.....	.....	1,764,491	39,767 7 0	5½d.
Cattle-waggons..... 300	.....	36,311 11 4	.....	2,949 0 3	1,560,238	39,260 11 7	6½d.
.....	.....	77,210 0 3	.....	7,152 10 7	3,443,188	84,362 10 10	

Empty mileage run by combination cars ... 24,629, making gross 143,088 miles.

„ „ sheep-vans ... 1,400,911, „ 3,165,402 „

„ „ cattle-waggons ... 1,250,794, „ 2,811,032 „

2,676,334

6,119,522

It is impossible to give the separate mileage run by cattle-waggons and sheep-vans with live stock and goods traffic without entailing a very large amount of labour and time to do so.

The information was asked for in a question. No resolution was passed. Will Commissioner please say whether it is to be laid upon the table?—D.C.M'L., 26/8/87.

I do not know whether it is necessary to lay it upon the table, but the document itself tells a significant story in favour of the combination trucks. For empty and full running mileage they have earned nearly 9d. a mile, while the cattle and sheep trucks have earned only something less than 3½d. per mile for six months' running. The empty running with the combination trucks was 19 per cent. of the full running, while the empty running was 44 per cent. in the case of the other live stock waggons. If the ordinary live stock waggons had earned as much as the combined waggons per mile travelled, the revenue would have been, instead of £79,027, no less than £224,116, or £145,089 more. It is not likely, of course, that the traffic would have been so adjusted as to admit of this large extra amount being earned, but I think 20 per cent. of it would have been; and that is a very low estimate. Even this would show a profit of £29,018 in six months.—CH. A. G., 26/8/87.

NOTE.—The above was submitted to Mr. Secretary Sutherland, together with all the papers bearing upon the offer of the patentees of the truck to confer their rights upon the Government, in consideration of the payment of the sum of £17,000. In view of the highly satisfactory results disclosed in this statement, in respect of economy from working the traffic with this truck, the Minister minuted to ask the patentees if they were prepared to accept the sum of £15,000.

The Commissioner for Railways to Henry Halloran, Esq., C.M.G.

Sir,

Department of Railways, Sydney, 3 September, 1887.

With reference to your letter of the 16th ultimo and previous communications, offering, on behalf of the proprietors of the patent of "Evans' Australian Combination Truck," to sell to this Department the legal right to such invention, I have the honor, by direction of the Honorable the Minister for Works, to inquire whether the proprietors will accept the sum of fifteen thousand pounds (£15,000) for the right to use their patent and all improvements effected therein.

I have, &c.,

C. A. GOODCHAP,

Commissioner for Railways.

Henry Halloran, Esq., C.M.G., to The Commissioner for Railways.

Sir,

54, Wentworth Court, 5 September, 1887.

I have the honor to acknowledge the receipt of your letter of the 3rd instant, inquiring, with reference to previous correspondence, whether the proprietors of the patent of Evans' Australian Combination Truck are willing to accept the sum of fifteen thousand pounds (£15,000) for the right to use their patent and all improvements effected therein; and in reply I am directed to submit, for the consideration of the Honorable the Minister for Public Works, that considering the great superiority of this invention over any other of the like sort, as unanimously reported by the Board appointed by the Government to investigate, and who strongly recommends its adoption, and the great financial saving which its adoption will secure—considering also the time that has elapsed since the patent was put under offer to the Government, and that the loss thereby occasioned to the proprietors—the offer of £15,000 appears an

an inadequate one; but that, as the Government bore all the cost of the Board appointed to test its superiority, they are willing to split the difference, and to accept the sum of £16,000, a sum which it is hoped, in the interests of the public, may be allowed to them, and which sum I am authorized to accept, and do hereby formally accept on their behalf, if the Government concur therein without further delay, for the legal right of patent and all improvements hereafter made therein in the Colony of New South Wales.

I have, &c.,

HENRY HALLORAN,

Agent for the Proprietors of Evans' Australian Combination Truck.

If the Minister approves of this amount being paid for the patent, I would recommend that no time should be lost in having our present live stock vans converted into combination trucks, and that tenders for this service be invited.—CH.A.G., 6/9/87.

Approved. I understand there are some eighty trucks lying at Wallerawang sidings, and others which have been condemned which require reconstruction. Let these first be taken in hand, if they can be reconstructed. There are documents in the Department to show which trucks require to be done, but whether new or old trucks are taken in hand they must be made according to the model now in the contractor's yard (Mr. Glasson). This truck should now be taken out and placed in the railway yard as a sample.—J.S.

The Crown Solicitor to draw up agreement for use of patent for New South Wales Railways; the consideration money, £16,000.—CH.A.G., 7/9/87. The Crown Solicitor.—A.R. (for Commissioner for Railways).

The Commissioner for Railways to H. Halloran, Esq.

Sir,

Department of Railways, Sydney, 8 September, 1887.

With reference to your letter of the 5th instant, stating that the proprietors of the Evans' Australian Combination Truck design will accept the sum of £16,000 for their legal right therein, I have the honor to inform you that the Secretary for Public Works has approved of the acceptance of the terms named in your communication; but, before final settlement is made, it is necessary that an agreement should be drawn up and executed, conferring upon the Government patent rights for the use of the invention.

Instructions will be at once given to the Crown Solicitor for the preparation of the necessary document.

I have, &c.,

CH. A. GOODCHAP,

Commissioner for Railways.

Mr. A. Richardson to The Crown Solicitor.

THE HONORABLE the Minister for Public Works having decided to accept a proposal made to him by the proprietors of the Evans' Australian Combination Truck to purchase the patent for New South Wales of that vehicle for the sum of £16,000, I have to request that the Crown Solicitor will be so good as to prepare, at his early convenience, the necessary deed of assignment of the patent.

The proprietors are to assign to the Government the patent right in the truck and any improvements which may hereafter be made in it.

I enclose the Letters of Registration in favour of Henry, William, and Thomas Hudson and Ambrose Thornley; assignment by Thornley of his right in the patent to the Messrs. Hudson; and final assignment of the patent by the Messrs. Hudson to G. T. Evans and A. Thornley, the present proprietors; also, letter of 5/9/87 from Mr. Halloran.

A. RICHARDSON, 12/9/87.

The Crown Solicitor to The Commissioner for Railways.

Sir,

Crown Solicitor's Office, Sydney, 21 September, 1887.

In compliance with your verbal request, I have the honor to return herewith Mr. Halloran's letter to you of date 5th September instant (S7-3,757 D-59) with reference to the proposed assignment to the Government of the invention entitled, "Evans' Australian Combination Truck."

I have, &c.,

JOHN WILLIAMS,

Crown Solicitor.

The Crown Solicitor to The Commissioner for Railways.

Sir,

Crown Solicitor's Office, 23 September, 1887.

I am directed by the Honorable the Attorney-General to return the papers referring to the purchase from Messrs. Evans & Thornley of the "Evans' Australian Combination Truck" to you, as it is understood that they are to be laid before the Cabinet for further consideration.

I therefore return the papers herewith.

I have, &c.,

JOHN WILLIAMS,

Crown Solicitor.

1887.

(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

RAILWAYS.

(FURTHER PAPERS IN REFERENCE TO EVANS'S COMBINATION TRUCKS.)

Ordered by the Legislative Assembly to be printed, 13 October, 1887.

Evans's Combination Truck.

Précis.

WITH the view to avoid the empty running, which is so serious a drawback upon the profits of a railway, the attention of the Department was given many years ago to the question of the production of a vehicle which would answer for the conveyance either of sheep or cattle or goods, as the exigencies of the traffic might require, the object in view being to obtain a truck which could be used for the conveyance of stock to Sydney, and which, instead of being sent back empty, could be utilised in the conveyance of general merchandise going from Sydney to the country.

So far back as 1878 a truck was constructed by the Department to effect this object, but it failed of its purpose.

In 1883 Mr. Wilkinson, M.L.A., carried a resolution in the House that a Board should be appointed to inquire into the live stock traffic, for the purpose of finding out and removing the causes of the existing irregularities and delays in such traffic.

To this Board a model of a combination cattle truck, sheep van, and goods truck, designed by Mr. Evans, was submitted, and although it was perhaps outside the limits of the enquiry remitted to the Board, they dealt with this model in their report, speaking of it in strong terms of approval, as likely to effect the object the Department had so long been endeavouring to attain, and they recommended the construction of four or five of the trucks, with a view to their capabilities being tested in practice.

The Commissioner had already made a critical examination of Mr. Evans's model, and had formed so favourable an impression of the design that he endorsed the recommendation of the Board with an amplification. He recommended that a sufficient number of the trucks to form a train load (fourteen) should be built, as in that way only could an effectual trial be given to them.

The Minister (Mr. F. A. Wright) approved of fourteen trucks being constructed, and they were built accordingly, and for two years have been exhibiting their capabilities in working the traffic of our railways.

The success of Mr. Evans's invention brought out a number of imitators, or perhaps it would be more correct to say rivals. Several inventions having the same object in view were brought under the notice of the Department, but only two of them were of sufficient merit, or were presented in such a shape as to justify a consideration of them.

These were designs (1) by Mr. Wilkinson, (2) by Mr. Perry.

The matter was brought by the Commissioner (who, after his experience of the Evans car, was anxious that the best of the rival designs should be selected for use on our railways) under the notice of the Minister.

The Minister was fully alive to the importance of the subject, and he decided that a Board should be appointed to inquire into and report upon the relative merits of the Evans truck, the Wilkinson truck, and the Perry truck, and that the Board should consist of a good traffic man, an experienced waggon builder and designer, and a practical stock agent, to be selected (with a view to secure strict impartiality) from outside the Department.

The following gentlemen were appointed accordingly:—Mr. Thallon, Traffic Manager of the Queensland Railways; Mr. Gill, Waggon Constructor of the Victorian Railways; and Mr. H. S. Badgery, Stock and Station Agent of Sydney.

The Board, after careful consideration of the rival designs, and taking the evidence of the inventors and other witnesses, arrived at the following decision:—"Mr. Evans's truck is * * * the most economical and suitable in every way for the conveyance of cattle, sheep, and merchandise, and we recommend accordingly."

The saving which has accrued to the Department from the use of the combination truck, as an earnest of what may be expected in the future is set forth in a return which was laid upon the table of the House and ordered to be printed, 21st September, 1887. In commenting upon that return the Commissioner minuted that it would be seen that in the six months work the fourteen combination trucks had earned nearly 9d. a mile on the full and empty runnings, while the sheep and cattle trucks had earned something less than 3½d. a mile, and that if the latter had earned as much per mile travelled as the combination trucks the revenue would have been £145,089 more than it actually was. The Commissioner admitted that it was not likely that the traffic could have been so adjusted as to admit of that large extra amount being earned, but he thought that at a very low estimate 20 per cent. of it would have been, which would show a profit of £29,018 in six months. The price asked for the patent of this truck (£16,000) would therefore be recouped to the Department nearly four times over by the traffic of a single year.

If the whole of our stock of sheep and cattle trucks were altered to the combination pattern—the cost would be, say, £110,000—the interest on which at 4 per cent. would be £4,400.

The certain saving by the use of the combination truck would, as shown by the Commissioner, be, per annum, at least	...	...	...	...	...	...	...	£58,036
If from this we take the interest, as above	...	...	...	...	...	...	...	4,400
It leaves	...	...	...	...	...	...	...	£53,636
From that deduct sum to be paid for the patent	...	...	...	...	...	...	...	16,000

Leaving a net profit on the year's working of £37,636

while for succeeding years, interest on capital would be the only charge on the extra earnings of the truck.

It must not be forgotten that empty running, which, while involving the same cost as full running, gives no return, is an increasing evil, and that in the same proportion as the traffic augments, such empty running increases, and that any measure which tends to diminish this empty running means an addition to the revenue.

Railways.—Particulars of Service of Combination Trucks.

A RETURN of the Earnings and Mileage of the Combination Trucks now in use, from the 1st January to 30th June, 1886, distinguishing goods freight and live stock freight as compared with ordinary trucks.

EARNINGS and Mileage of the Combination Trucks as compared with other Live Stock Trucks during the period ended 30th June, 1886.

I ATTACH a return giving the information in as complete a form as it is possible to give it, without entailing a very great amount of extra time and labour to render it more complete.

The particulars supplied in regard to the combination cars, of which there are only fourteen, took a considerable time to compile, but it can readily be seen what labour was involved to get less complete information in regard to 272 sheep-vans and 300 cattle-waggons, while it must be apparent that the separation of the mileage run by these vehicles with live stock and goods traffic means an enormous amount of additional work.

W. V. READ, 24/8/87.

FOR the six months ended the 30th June, 1886.

No. of Trucks in use.	Live Stock.		Goods Traffic.		Totals.		Loaded Mileage. Per Mile.
	Loaded Mileage.	Earnings.	Loaded Mileage.	Earnings.	Loaded Mileage.	Earnings.	
Combination cars	14	£ 1,131 1 11	63,227	£ 4,203 10 4	118,459	£ 5,334 12 3	10½d.
Sheep-vans.....	272	39,767 7 0	.....	.....	1,764,491	39,767 7 0	5½d.
Cattle-waggons	300	36,311 11 4	.....	2,949 0 3	1,560,238	39,260 11 7	6½d.
.....	.....	77,210 0 3	.....	7,152 10 7	3,443,188	84,362 10 10	

Empty mileage run by combination cars	...	24,629, making gross	143,088 miles.				
"	"	sheep-vans	...	1,400,911,	"	3,165,402	"
"	"	cattle-waggons	...	1,250,794,	"	2,811,032	"
				2,676,334		6,119,522.	

It is impossible to give the separate mileage run by cattle-waggons and sheep-vans with live stock and goods traffic without entailing a very large amount of labour and time to do so.

The information was asked for in a question. No resolution was passed. Will Commissioner please say whether it is to be laid upon the table?—D.C.M'L., 26/8/87.

I do not know whether it is necessary to lay it upon the table, but the document itself tells a significant story in favour of the combination trucks. For empty and full running mileage they have earned nearly 9d. a mile, while the cattle and sheep trucks have earned only something less than 3½d. per mile for six months' running. The empty running with the combination trucks was 19 per cent. of the full running, while the empty running was 44 per cent. in the case of the other live stock waggons. If the ordinary live stock waggons had earned as much as the combined waggons per mile travelled, the revenue would have been, instead of £79,027, no less than £224,116, or £145,089 more. It is not likely, of course, that the traffic would have been so adjusted as to admit of this large extra amount being earned, but I think 20 per cent. of it would have been; and that is a very low estimate. Even this would show a profit of £29,018 in six months.—CH. A. G., 26/8/87.

Précis of Case—Re Combination Truck.

THE question of obtaining a live stock waggon which would be suitable for the carriage of either sheep, cattle, or goods, has been under the consideration of the Department for years. So far back as 1878, a truck was constructed by the Department to effect this object, but it failed of its purpose. The conduct of the live stock traffic had become a matter of serious complaint, and at length, in December, 1883, Mr. R. B. Wilkinson, M.P., carried a Resolution in the Legislative Assembly—"That, in the opinion of this House, it is desirable that the Government should, without delay, appoint a Board to inquire into the live stock traffic on the Railways, for the purpose of finding out and removing the causes of the existing irregularities and delays in the transit of live stock."

The Board appointed by the Government consisted of—Mr. R. B. Wilkinson, M.P.; Mr. A. Gee, General Manager, Sydney Meat-preserving Company (Limited); Mr. D. Kircaldie, Assistant Traffic Manager, New South Wales Railways; Mr. T. Midelton, Locomotive Overseer, New South Wales Railways; Mr. F. M. Avern, M. Inst. C.E., and District Engineer, Western Railway, New South Wales.

The Board amongst other things stated that:—

"77. The Board had submitted to it a model, with description of a combined cattle-truck, sheep-van, and goods-truck, designed by Mr. Evans, the Goods Superintendent of the New South Wales Railways. In this truck the boxing-in of the sides is made as flaps hinged half-way up the sides, and capable of being raised into a horizontal position so as to form an upper deck for sheep. The flaps in this position are supported in the centre by a beam the length of the truck, which is lowered by means of a handle at the top of the truck, working a worm wheel and screw.

"78. The Board believes that the invention of a good and simple convertible sheep-van and cattle-truck is of the greatest importance and worthy of every encouragement by the Department, as being likely to materially economise the quantity of rolling stock, and as offering greater facilities for the conduct of the stock traffic.

"79. The Board considers Mr. Evans to be deserving of great credit for having gone far towards realizing the idea, and for the display of considerable ingenuity in his proposed truck.

"80. The Board recommends the construction by the Department of four (4) or five (5) of Mr. Evans' trucks."

The Commissioner for Railways in dealing with this report endorsed the recommendation, with the addition that a sufficient number of these trucks should be built to form a train load (say, fourteen trucks), as in this way a more effectual trial can be given to them; and he added—"It seldom happens that there is a large cattle and sheep traffic at the same time, and a suitable combination truck would therefore effect an immense saving to the Department; indeed, some years ago, so satisfied was I on this point that I obtained the Minister's approval for the construction of a combination car, designed by an officer of the Engineer for Existing Lines Branch; but it failed, owing to the imperfection of some of the working parts. Mr. Evans, in his design, seems to have overcome this difficulty."

The Minister approved of fourteen trucks of Mr. Evans' design being constructed, and they have been running on the Railways for a period of about two years. During that time several designs of combination trucks were brought under the attention of the Department, and the Secretary for Public Works, with a view of determining which of them was best entitled to be adopted, appointed a Board to inquire into the matter. The following minute was then written by the Commissioner for Railways on the subject:—

"The Minister is desirous of having an independent investigation into the merits of the various stock cars that have been submitted for adoption on our railways. They are:—

"1. The Evans car.

"2. The Wilkinson car.

"3. The Perry car.

"The Minister considers that if a good traffic man, an experienced waggon builder and designer, and a practical stock agent were appointed a Board to investigate the question and report upon the designs of car under offer, the real merits of the case would be ascertained.

"For this purpose, as regards two of the three members of the Board, he wishes telegrams sent to the Commissioner for Railways, Queensland, asking for the services of Mr. Thallon, Traffic Manager, and to the Board of Commissioners, Melbourne, for the services of their Chief Designer of Rolling Stock. Please send telegrams accordingly."

The services of these gentlemen having been secured, Mr. H. S. Badgery was added, as carrying out the condition that a practical stock agent should be included. The Board made their report on the 28th January last, and stated that "Mr. Evans' combination truck is, in the opinion of the Board, the most economical and suitable in every way for the conveyance of sheep, cattle, and merchandise, and we recommend accordingly."

As has already been stated, fourteen trucks on Mr. Evans' design had been in use on the railway lines, and a return was asked for in the Legislative Assembly, on the 24th August, 1886, to show the earnings and mileage of these trucks from the 1st January to 29th June, 1886, distinguishing goods from live stock freight, as compared with ordinary trucks. The return was laid upon the Table of the House on the 21st September last, and the Commissioner for Railways said, in his report thereon—"The document tells a significant story in favour of the combination trucks. For empty and full running mileage they have earned nearly 9d. a mile, while the cattle and sheep trucks have earned only something

Mr.
F. A. Wright.

Mr. W. J. Lyne.

Board appointed
by Mr. Secretary
Lyne, December,
1886.

something less than 3½d. per mile for six months' running. The empty running with the combination trucks was 19 per cent. of the full running, while the empty running was 44 per cent. in the case of the other live stock waggons. If the ordinary live stock waggons had earned as much as the combined waggons per mile travelled, the revenue would have been, instead of £79,027, no less than £224,116, or £145,082 more. It is not likely, of course, that the traffic would have been so adjusted as to admit of this large extra amount being earned, but I think 20 per cent. of it would have been; and that is a very low estimate. Even this would show a profit of £29,018 in six months."

When this matter came before the Minister, he had then under attention an offer from the proprietor of Evans' patent to convert our trucks into combination trucks at an average of £135 each—which would include the royalty—or to sell the patent to the Government for £17,000. As the contract would involve the expenditure of over £100,000, the Minister thought that a work of such magnitude should be open to public tender, and, therefore, his determination was necessarily confined to the proposal for purchasing the patent rights. He directed that inquiry should be made as to whether the patentees were willing to accept £15,000 for the patent. In reply, their agent pointed out the great superiority of the invention over any other of the kind, as unanimously reported by the Board appointed to investigate the question, who strongly recommended its adoption; and, secondly, the financial saving its adoption would secure. He further referred to the lapse of time since the patent was put in offer to the Government, and the loss thereby occasioned to the proprietors. He considered, under these circumstances, the offer of £15,000 was inadequate; but, as the Government had borne all the costs of the Board appointed to test its superiority, they were willing to split the difference, and to accept £16,000 if it were agreed to without further delay.

The Minister thought it desirable to at once close with the offer.

Combination Car Commission.—Report of Board, Friday, 28th January, 1887.

THE Board held nine meetings from the 19th to the 28th January inclusive. Fifteen witnesses were examined, comprising the inventors, men experienced in loading and unloading and travelling with stock, as well as officers of the Railway Department skilled in the construction of rolling-stock.

The Board visited the unloading station at the saleyards, Flemington, on the 19th instant, to witness unloading of stock and examination of Evans's truck, which is the only combination truck in use.

On the 22nd instant the Board visited the works of Messrs. Hudson Brothers, at Clyde, to inspect a truck in course of construction, the invention of Mr. W. B. Wilkinson, of Dubbo; and on 27th instant the same truck was again inspected at Flemington.

The instructions to the Board by the Commissioner for Railways were:—To inquire into the relative merits of three designs of combined stock and goods trucks for use on the Railways of this Colony, to take evidence thereon, and to make a report and a recommendation; but the Board, believing the great object in view was to recommend the truck most suitable for the conveyance of all classes of stock, as well as merchandise, permitted a number of persons who had models or plans of new inventions pertaining to combination trucks to exhibit them, and explain the mode of working and advantages they claim for their inventions. The great difficulty in providing a truck suitable for sheep and cattle lies in the fact that for sheep in upper and lower decks there must be abundant ventilation, and for cattle, as near as possible, a perfectly smooth surface inside to avoid injury, and to prevent cattle from seeing out.

The Board desires to express an opinion that it will not be possible to adopt a combined truck to thoroughly answer all the requirements of a stock truck, and at the same time possess the advantages of a merchandise waggon to such an extent as to supersede the present D trucks; but the models submitted prove that it is possible to construct a waggon suitable for both sheep and cattle, and, to some extent, for merchandise as well, thus enabling the Department to utilize it for up-country loading, instead of returning it empty, as has been the practice hitherto with the ordinary sheep-trucks.

The trucks and models submitted may be briefly described as follow:—

No. 1.—*Mr. George T. Evans* submitted two combination trucks, both of which he claimed were suitable for sheep, cattle, or merchandise. In one truck there is a division in the centre, thus forming four compartments for sheep, or two for cattle, and the other having no division; otherwise the chief features in these trucks are the same, viz.: that the top deck necessary for the sheep-van is formed of several parts, and supported by a beam lowered from the roof, and by hinges at the sides of the truck which admit of the top deck, when not required for sheep, being lowered so as to form the sides of a cattle or merchandise waggon.

The weights of the trucks are—with the division, 7 tons 7 cwt. 1 qr.; without the division, 6 tons 12 cwt. 3 qr.

No. 2.—*Mr. Thomas Perry* submitted a model of a combination truck, the principle of which was that the upper deck required for sheep was balanced by weights on the outside of each end, and lowered to the middle of the truck, or raised to the roof as required, for sheep or cattle; no alteration being made in the sides of the truck in either case. Mr. Perry claimed certain advantages in the under-frame of his truck which would reduce its weight, but it appeared this did not affect the combination principle, as the same, if considered an advantage by the Department, was equally applicable to all classes of waggons. It was impossible to arrive at the weight of the truck from the model submitted; but we are of opinion the movable floor and balance-weights could not be less than 16 cwt., which would have to be added to the weight of the cattle-truck. It appeared also that as the truck was necessarily close for cattle sufficient provision could not be made for ventilation in the case of sheep. A commendable feature in this truck is that provision is made for draining the top deck, and also the rapidity with which the top deck can be raised or lowered.

No. 3.—*Mr. W. B. Wilkinson* submitted a combination truck, the chief feature of which was its adaptability to the system of end as well as side loading. Although the bulk of the evidence taken goes to show that end-loading is not the great advantage its advocates claim for it, we desire to point out that the witnesses examined have had only a very limited experience, and even that has been confined to trucks of the present pattern with fixed floors. In Mr. Wilkinson's truck provision has been made for the loader to walk from end to end of the train in an upright position on both floors, thus giving him control of the sheep, and a better opportunity of regulating the number in each truck. On the other hand, he has not overcome the difficulty of providing ample ventilation for sheep, or a smooth surface for cattle, and we consider his invention defective in these respects. The

The weight of this truck is 7 tons 15 cwt. 2 qr.; the floor area is 270 feet, or 65 lb. per square foot for sheep, and 135 feet for cattle.

Mr. Wilkinson stated in his evidence that the weight could be greatly reduced, but making every allowance for the alterations he mentioned, the truck must still remain very considerably heavier than the present sheep-van. It is impossible to say what the expense of this truck, if adopted, would amount to; but the Board is of opinion, judging from the number of parts, that the cost must be excessive compared with the present design of sheep-van or cattle-truck, and considerably higher than either of the other two combination designs.

The Board was desirous of testing Mr. Wilkinson's truck as to end-loading, and arrangements were made with the Department, stockowners, and others to have the end-loading trucks now in use and a sufficient number of sheep at Homebush on Wednesday, 26th instant, but in consequence of Mr. Wilkinson's truck not being sufficiently advanced this had to be abandoned.

No. 4.—*Mr. Mulholland* submitted an imperfect model of a combination truck, available for sheep and cattle, embodying an ingenious system of end-loading, but inasmuch as he had made no provision for the smooth inside surface required for cattle, we considered his design defective.

A number of other models and plans were submitted, but none of them possessed such improvements as would warrant the Board in suggesting the adoption of their principles.

The Board intimated to the principal stock and station agents in the city the purpose for which it was sitting, and invited them to come forward with any suggestions they had to offer, but no one took advantage of the opportunity.

After inspecting the trucks, models, and plans submitted, and after carefully considering all the evidence, the Board is unanimously of opinion that the converted truck, without division, submitted by Mr. Evans, combines more advantages than any of the others. As a sheep-truck it gives more head room than the present pattern, while the ventilation at the sides and ends is all that could be desired. Compared with the sheep-trucks now in use, it gives a floor area of 280 feet for 6 tons 12½ cwt., or one square foot for every 53 lb.; whereas the sheep-truck has a floor area of 241 feet for 6 tons 17 cwt., or 1 square foot for every 63½ lb.

As a cattle-truck it gives considerably more head room, which is a decided advantage, as can be seen by the marks of the cattle's horns on the roof of the present trucks; on the other hand, it is 8½ cwt. heavier than the cattle-truck now in use.

As a merchandise truck it certainly is much heavier than the ordinary goods-waggon; but the evidence of the Department goes to prove that it has been largely used for the conveyance of all classes of goods to stations beyond Dubbo, and gives every satisfaction.

Another special advantage this truck possesses over other trucks is the fact that the floor of the upper deck, instead of being raised to the roof, thereby increasing oscillation, and straining the frame of the truck by unnecessarily adding to the top weight when the waggon is used for merchandise or cattle, is lowered, and forms a smooth side for cattle or merchandise. None of the parts, with the exception of the beam for supporting the top deck, are out of use at any time in the conveyance of sheep, cattle, or merchandise.

It is a question with the Board whether the flaps forming the top deck would be strong enough to withstand the tear and wear they would be subjected to if largely used for cattle; but in any case instructions should be given to all concerned, in the event of this truck being adopted, to lower them steadily, instead of allowing them to fall, when converting from a sheep to a cattle waggon.

The Board is also of opinion that the longitudinal beam should be supported by a prop fitted into a socket in the bottom floor when the truck is used for sheep, and which, when not required, could be carried up by the beam, to which it should be attached by hinge and loop.

A drawback to this design is the position of the doors for sheep, one being directly above the other, which necessitates the two decks being loaded or unloaded separately; but this would be overcome by inserting a door for sheep in the centre of the top deck.

Another disadvantage mentioned by several witnesses is that the floor of the top deck is higher than the present sheep-races, but this could easily be met by a movable board in the race.

To place the relative merits of the three best designs of combination cars more clearly before the Department the Board submits the following table:—

	Points considered separately.	Evans's Truck without division.	Perry.	Wilkinson.
Compared with the trucks now in use in the Department, and assuming their value at 10 points each.	Cattle-truck	9	7	5
	Sheep-van	12	4	8
	Goods-van	7	4	6
	Cost of combination parts	4	5	8
Considerations of secondary importance, assuming 5 points as the maximum.	Simplicity and strength of combination parts.	4	5	4
	Weight per foot of floor area.....	5	4	3
	Facility for converting.....	4	5	4
	For end-loading .....	.....	.....	5
		45	34	38

The Board desires to express its opinion that the division inserted in Evans's Combination Truck is a decided disadvantage in the case of cattle or merchandise; while in the case of sheep the advantage, if any, is very questionable, and causes great inconvenience and loss of time in loading and unloading. The workmanship upon the truck without division is certainly inferior in some respects, but that could be remedied without materially adding to the weight or cost, and in no way affects the design.

The question of cost of the different models could not be accurately ascertained; but Mr. Evans's Combination Truck without division is, in the opinion of the Board, the most economical and suitable in every way for the conveyance of sheep, cattle, and merchandise, and we recommend accordingly.

HENRY S. BADGERY.
J. F. THALLON.
J. GILL.

The Hon. John Sutherland,
Minister for Public Works, Sydney.

Minute by The Commissioner for Railways.

I SEE by the newspaper that representation is made, that in the *précis* drawn up no reference is offered to the adverse criticism of these trucks made by persons outside the Department. Such side issues it was not necessary to introduce into the *précis*. No letters commenting upon the value of the truck from outsiders were referred to either, but the correspondence laid upon the table should contain everything. If anything has been omitted it must be supplied to-day. Please see to this at once.

CH. A. G., 7/10/87.

Please see explanation herewith.—D. C. M'L., 8/10/87.

Minutes by The Chief Clerk.

Parliamentary Return respecting Evans' Combination Trucks.

BEFORE this Return was checked by me and submitted to the Commissioner I took the precaution to send the whole of the originals to the Record Branch to have them compared with the entries in the books, with a view to secure that the papers were complete. They were checked by Mr. Hayman, who reported that they were complete, with one exception, viz., the paper which is explained in a footnote on the Return, showing the earnings of these trucks, and upon receiving this assurance the papers were finally made up and submitted. Upon observing the paragraph in this morning's paper I caused the records to be again searched, when Mr. Hayman discovered (see his explanation herewith) that two papers had been separated from the file, and had consequently not been included in the return. I have made a most exhaustive search for the missing papers throughout all the offices, but I regret to say it has ended resultlessly.

D. C. M'LACHLAN, 7/10/87.

Evans' Combination Trucks.

I ASKED Mr. Hayman to check the papers with the Record Books before the Return was finally made up, and was assured by him that every paper on the subject had been included. It is stated in a paragraph in this day's *Sydney Morning Herald* that several letters sent to the Department objecting to the truck have been omitted. I wish Mr. Hayman to check the papers with the books again, and say whether the statement is correct as to any paper being missing from the return.

D. C. M'L., 7/10/87.

I very carefully checked the papers with the Record Book as desired by you, and found that the file of papers exactly agreed with the Register. On being again urged by you this morning, I made a further search, and discovered in another book two letters—protests from stock owners and stock agents against the adoption of this vehicle—which, by some inadvertence, were not connected in the books with the main and larger file of papers. They were not put with the papers proper referring to these combination trucks, and not being connected by numbers in the Record Book I did not observe they were missing when I first checked the papers. A most thorough search has been made for these protest papers but they cannot be traced. It was solely owing to the oversight referred to that the two letters in question were not produced with the rest of the correspondence which was submitted to Parliament the other evening.—W. HAYMAN, 7/10/87.

Minute by The Chief Clerk.

THE two missing papers are—

1st. Messrs. Coulson & Naylor, Orange, writing as agents for Messrs. Pitt, Son, & Badgery, Goldsborough & Co., P. Burke & Co., A. Jones (trucker), and H. Lawrence (dealer), protesting against the use of the Evans Truck; and

2nd. Stock, station, and trucking agents, Dubbo, also protesting against the use of the truck for the carriage of either cattle or sheep.

The Commissioner is under the impression that some of the persons whose names are attached to the first quoted document were affixed without their knowledge or consent; he feels confident that Mr. Badgery communicated with the department to this effect. If he did so the letter must be attached to the two missing papers. Some one should interview Mr. Badgery to see if it be a fact that he sent in such a communication. Mr. Husk, who acted as Secretary to the Board, should do so at once.

D. C. M'L., 11/10/87.

Minute by A. J. Husk to The Chief Clerk.

IN accordance with your directions I called upon Mr. Badgery with reference to the copy of the letter he sent to the Department, respecting his signature being attached to a protest against the use of the "Evans' Truck." He was good enough to hunt up the matter high and low, but could not find any copy. He believes no press copy was taken by his copying clerk at the time the original was sent. However, he assured me that he would look up his papers to-day if possible, to see if by any chance he may have an impression of the paper required.

A. J. HUSK, 11/10/87.

I again waited on Mr. Badgery this morning as directed, and after a deal of trouble on his part he found a rough draft which he wrote at the time, a copy of which I now attach.—A. J. H., 12/10/87.

[Copy.]

[Copy.]

I have the honor to make the following remarks regarding documents which have been forwarded to you protesting against Evans' Combination Truck.

It seems to me that some of those persons who are protesting have signed as agents for a number of stock firms, and as none of those have any permission so to use the name of Pitt, Son, and Badgery, it may be that they have taken a similar liberty with others. It appears to me also that the Petitioners are opposed to the Evans' Combination Truck of which there are some fourteen in use,* and as the Board did not recommend the adoption of that truck it would be advisable to publish the report furnished to you by the Board. No date given
to letter.

I wish also to add that as the petition presented to you and alluded to above has been written under a misapprehension, it is unnecessary for me to further refer to any remarks therein.

I have, &c.,

H. S. BADGERY.

The above is a rough copy that I have found, and may not be an exact one in accordance with the original letter.—H.S.B.

* NOTE.—The Board recommended the "improved" Evans' Truck, which is a design somewhat different to that to which the fourteen trucks were built.

Memo. by The Chief Clerk.

In the report of the proceedings in to-day's newspapers of the Parliamentary proceedings of last night, Mr. Lyne, in referring to the papers laid upon the Table on the subject of the Evans' combination truck, mentions that some reports made by you have been omitted from the Return.

We have searched the records, but no document or report written by you on the subject can be found. The Commissioner wishes you to examine the copies of the printed papers herewith, and say whether any document written by you has been omitted.

The Assistant Traffic-Manager.

D. C. M'L., 12/10/87.

I have looked carefully through the original as well as the printed papers, and can only conclude that the minutes to which Mr. Lyne referred in the Legislative Assembly are those in the printed papers which I wrote for the Traffic Manager, and to which his initials are affixed. I am not aware of the existence of any Minute of mine which is not with the printed papers.—DAVID KIRKCALDIE, 12/10/87.

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(FURTHER CORRESPONDENCE RESPECTING WILKINSON'S AND THE EVANS' COMBINATION TRUCKS.)

Ordered by the Legislative Assembly to be printed, 28 February, 1888.

SCHEDULE.

NO.	PAGE.
1. Letter from Mr. Wilkinson to Commissioner for Railways, requesting that a trial be made of his truck, with Commissioner's minute. 30 November, 1887	1
2. Letter from Commissioner for Railways to Mr. Wilkinson in reply to above. 1 December, 1887.....	1
3. Letter from Mr. Wilkinson to Commissioner for Railways agreeing to conditions named by Commissioner for test of truck, with Commissioner's minute and letter to Mr. Wilkinson. 17 December, 1887	2
4. Trial reports (3) of Messrs. Wilkinson's and Evans' trucks, with Goods-Superintendent's minute thereon. 25 January, 1888	2

No. 1.

W. B. Wilkinson, Esq., to The Commissioner for Railways.

Sir,

"Adams' Exchange Hotel," 30 November, 1887.

I have the honor to apply to you for permission to run my truck to Dubbo next week and return with a consignment (say) of fifty sheep and four or five head of cattle to Homebush, in the one trip.

In order that I may prove what it is capable of doing I have arranged for the stock to meet me at the Dubbo trucking yard.

I may state that the Minister for Works, in a conversation with me, stated that he would be glad to give my truck an opportunity of running on the railway lines.

I would prefer loading the truck up with goods to Dubbo.

Awaiting your reply, .

I remain, &c.,

W. B. WILKINSON.

Inform Mr. Wilkinson that I am prepared at once to give his truck a trial in the way in which if it belonged to the Department it would be practically used; but I do not see the use of testing it with a few cattle and a few sheep, a mode of use which will not be a practicable one. If he will hand over his truck to the Department I will test it in the same train and with the same loading, or similar loading, conveyed over the same length, with the "Evans" truck.—CH. A. G., 1/12/87.

No. 2.

The Commissioner for Railways to W. B. Wilkinson, Esq.

Sir,

Department of Railways, 1 December, 1887.

In reply to your letter of the 30th ultimo, I have the honor to inform you that I am prepared at once to give your truck a trial in the way in which if it belonged to the Department it would be practically used; but I do not see the use of testing it with a few cattle and a few sheep—a mode of use which will not be a practicable one. If you will hand over your truck to the Department I will test it in the same train and with the same loading, or similar loading, conveyed over the same length, with Evans' truck.

I have, &c.,

CH. A. GOODCHAP,
Commissioner for Railways.

No. 3.

No. 3.

W. B. Wilkinson, Esq., to The Commissioner for Railways.

Sir,

Gresham-street, 17 December, 1887.

My patent combination truck is now at Homebush, having delivered its freight of fifty sheep and five head of cattle all sound. I am willing that the patent should have further trial. In a letter to me a short time since you proposed that it should be run beside Evans' with similar loads or under similar circumstances, in answer to which I may state that you are at liberty to give it any trial that you wish, and I am anxious that it should be thoroughly tested.

I will be glad if you can let me know on Monday if you will permit the above, and the truck for the time being can be under the sole control of the Department (say) for four trips.

Before its going out again I would like to alter my half doors into whole doors, as I find the whole door is a great advantage for trucking cattle.

Yours, &c.,

W. B. WILKINSON.

The truck could be at your disposal (say) next Friday.

I learn that the sheep sent were very small, recently shorn, and that the cattle were of the smallest and tamest. I do not consider such a trial is convincing proof of the efficiency of the truck, nor do I think even if the stability of the truck is established by further test that the conclusions arrived at by the Board will be invalidated. I have no objection to the truck being tested in the way I first suggested. Evans' new truck to be on the same train, both trucks to be weighed empty and loaded. I should like also recorded the number of operations each truck requires to fit it for use and to convert it again. I understand that numerous alterations have been made in the Wilkinson truck since it was reported upon by the Board; even after the trial which Mr. Wilkinson refers to in his present letter some further alterations are found to be necessary, and it seems the nearer it can be brought to Mr. Evans' design the greater are its perfections. The floor I understand has now been made similar to that adopted by Mr. Evans originally.—C.N.A.G., 20/12/87.

Mr. Wilkinson to be informed that if he will hand truck over to Traffic Branch it will be tested in accordance with conditions stated in our letter of 1/12/87.—D.C.M'L., 20/12/87.

Sir,

Department of Railways, 20 December, 1887.

In reply to the request contained in your letter of the 17th instant, I have the honor, by direction of the Commissioner for Railways, to inform you that if your truck be handed over to the Traffic Manager for the purpose of being tested this will be done in the manner described in my communication of the 1st instant.

I have, &c.,

A. RICHARDSON,

(For the Secretary of Railways.)

W. B. Wilkinson, Esq., "Aaron's Exchange Hotel," Sydney.

No. 4.

Trial reports of Messrs. Wilkinson's and Evans' Trucks.

I HAVE the honor to report, for your information, the results of the first trial of the Evans' and Wilkinson's combination trucks, carried out as directed by the Commissioner.

The trucks weighed empty, as follows:—

	Tons	cwt.	qrs.
Evans' truck... ..	6	13	1
Wilkinson's truck	7	18	0

They were loaded on 29th December with the following weight of goods for Bourke:—

	Tons	cwt.	qrs.
Evans'	5	0	1
Wilkinson's	4	17	2

They were unloaded on 2nd and reloaded at 6.30 a.m. on 3rd inst. with nine head, each of weighty but rather quiet cattle. They would have each held another bullock, but as the load limit had not been definitely settled I considered it unwise to exceed the nine head.

The loading in both trucks was accomplished with wonderful celerity, occupying 5 minutes only for the two trucks, and the result conclusively proves the advantage of the doors being placed in the ends of the sides instead of in the middle. The weather was remarkably cool during the whole of the time the trucks were in transit, ranging between 70° and 80°, and in that respect the test as to ventilation, &c., was of no particular value. One of the thermometers having been detached before reaching Nyngan, I was unable to thoroughly settle the question as to its range in each truck, but I have made provision to secure them from interference on the next trip.

The trucks left Bourke at 7.40 a.m., and with the exception that the axle of the Evans' truck ran hot through a defective lubricator, which was remedied at Byrock, nothing of any particular moment occurred until reaching Bathurst, when the trucks were weighed with the following result:—

	Tons	cwt.	qrs.	tons	cwt.	qrs.	tons	cwt.	qrs.
Evans' truck... ..	Gross, 12	6	2;	tare, 6	13	1;	net, 5	13	1
Wilkinson's truck	„ 13	8	2;	„ 7	18	0;	„ 5	10	2

After leaving Bathurst the cattle began to slip about considerably in the Wilkinson truck, and at Katoomba one bullock got down. At Lawson two were down but were able to get up again, as at Glenbrook they were all on their feet. On reaching Penrith three head were down. From Penrith to Homebush

Homebush the run was made in 1 hour and 27 minutes, and on reaching the cattle-yards two of the cattle had regained their feet, the remaining one being in a very exhausted condition. The whole of the cattle in the Evans' truck were on their feet throughout the journey and were unloaded in $2\frac{1}{2}$ minutes. Those in the Wilkinson truck, exclusive of the beast that was down, were $14\frac{1}{2}$ minutes unloading, a fact the unloaders attribute to the van being too close to enable them to work the cattle. The remaining bullock had to be assisted to his feet.

It is of course premature to express any opinion on the facts disclosed, and I trust that three features, which it was impossible this time to secure, viz., hot weather, wild cattle, and a registration of the temperature will be available in the next trial.

I propose, with your approval, to load cattle again at Bourke and then sheep at Hay.

Traffic Manager.

JNO. HARPER,
6/1/88.

COMBINATION TRUCK TRIALS.

No. 2.

Cattle.

On January 8th the two trucks were each loaded with 6 tons of goods for Bourke. A favourable opportunity occurring of obtaining heavy Queensland cattle at Byrock, I decided to load at that station. The cattle in question was a mixed lot, many being very large and weighty, while others were about medium size and quality.

They had been nine weeks travelling, and were hurried to Byrock in time for trucking. Nearly five hours were spent in yarding them, and the result was that with the thermometer at 101° in the shade they entered the trucks very much knocked about and footsore. At my request the trucking agent, Mr. Anderson, selected as many as he could of the largest bullocks for the two trucks.

In the Evans truck eight of the largest cattle were loaded, and completely filled it. No reservation was made as to the condition of the stock, those that entered the race being allowed to load in precisely the same manner as with an ordinary cattle-waggon.

Before loading the "Wilkinson" truck that gentleman objected to a large and rather wild and sulky bullock, which in the ordinary course would have been loaded in his waggon, and at his request the beast was returned to the main mob.

This caused the balance of the heavy cattle which had been drafted to become mixed, and as we were late, four heavy cattle and five medium ones were loaded.

On reaching Narramine it was observed that a very large and prime bullock had laid down in the Evans truck, and after attempting to get him up it became apparent that he was too footsore to stand and too sulky to get up. As his position did not endanger the other cattle he was left alone. During this part of the journey on several occasions the horns of the cattle in the Wilkinson truck became entangled amongst the bars and had to be released.

When Orange was reached, the bullock already referred to in the Evans truck was still down, and had got into such a bad position during the night that he would certainly have brought others down. We therefore unloaded the truck and got him on his feet, but he laid down again before we left the station.

It was observed at Orange that one of the pine louvres in the Wilkinson truck had been knocked out, and as it was probable that a bullock's horn might get into the space left and destroy the remainder, a batten was nailed over it.

At Bathurst the trucks were weighed with the following result:—

				Tons.	cwt.	qrs.
Evans truck, 8 cattle—Gross	...	...	...	12	17	0
Tare	...	...	...	6	13	1
Net	...	...	...	6	3	3
Wilkinson truck, 9 cattle—Gross	...	...	...	13	17	2
Tare	...	...	...	7	18	0
Net	...	...	...	5	19	2

As the same bullock was again down in a bad position in the Evans truck, and it was evident he would not stand up, and as in coming over the Mountains he would probably endanger the other cattle, I decided to take him out, which was done at Kelso, and he was subsequently sent on in another train. I may mention that owing to the condition of the cattle when trucked they were unable to stand, and that at Orange, Kelso, Wallerawang, and Mount Victoria we were compelled to unload the ordinary cattle-waggons to get cattle up, and the whole consignment of thirty-three trucks arrived at Homebush with about twenty-four head down.

At Wallerawang another bullock had laid down in the Evans truck, but on being disturbed resumed his feet and remained standing till the end of the journey.

At Flemington the cattle were all standing in the Evans; one had laid down in the Wilkinson.

The time occupied in unloading was—

The Evans truck	...	...	...	...	7 minutes.
The Wilkinson truck	...	...	...	...	5 minutes.

During the whole journey thermometers were in the two trucks, and I give the readings at different stations. It should, however, be stated that Mr. Wilkinson constantly adjusted his shutters, according to the direction of the sunlight. The Evans truck was in no way altered, but treated as I have already said as it would be in actual traffic, that is, as one of our cattle waggons.

Thermometer

Thermometer reading.

	Evans Truck.	Wilkinson Truck.
Byrock	101°	101°
Coolabah	102°	102°
Gerelambone	103°	101°
Nyngan	100°	99°
Nevertire... ..	96°	95°
Bathurst	84°	84°
Zigzag	88°	90°
Flemington	79°	82°

The Evans truck arrived intact, and was not touched. The Wilkinson truck had a new louvre placed in it, the working parts oiled, decks raised and adjusted, and sundry alterations to the shutter fastenings.

JNO. HARPER, 17/1/88.

Traffic Manager.

COMBINATION TRUCK TRIAL.

No. 3.

Sheep.

THE two trucks were loaded each with 6 tons of goods for Hay and Carrathool, being the only stations for which vans were ordered, the trucks were reloaded with sheep at that station. I have previously stated that the working parts of the Evans truck were in no way tried or oiled from the commencement of the first trial; those of the "Wilkinson" were attended to by a fitter from Hudson Brothers. The sheep provided were of medium quality, with about three months wool.

The Wilkinson truck was altered from a merchandize to a sheep waggon by Mr. Wilkinson, and 112 sheep having been drafted 23 minutes were occupied in the whole process of altering and loading it.

The Evans truck was altered by myself and 112 sheep loaded, the time occupied being 27 minutes. The doors of each truck did not fit the race, and hence it was necessary to move them. Of the two less difficulty was experienced with the Evans truck than with the "Wilkinson," but the substitution of a different flap at the races would enable each to be worked with far less difficulty. The sheep were divided into four lots in either truck by means of the rails in the Evans truck and the doors in the Wilkinson.

The trucks left some two hours after being loaded and attached to the same train as sheep-van 116, carrying 104 of the same class of sheep.

On reaching Darlington (34 miles from Carrathool) it was found that both of the upper decks in the Wilkinson truck had given way some 5 or 6 inches, being completely twisted and strained, and threatening at any moment to fall altogether. At Mr. Wilkinson's request, and in the interests of humanity, a wire was sent to Narrandera to provide screw-jacks and timber to support the decks.

At Narrandera the jacks were used to lift and straighten the decks, and two timber shores were placed underneath, taking the weight of the sheep.

At Junee Junction two additional shores were placed underneath, as the decks gave evidence of collapsing in the middle.

At Junee the three trucks were weighed, coupled on the engine, with the following result:—

				Tons	cwt.	qrs.
Evans, 112 sheep,	gross	...	...	11	2	1
	Tare	...	...	6	13	1
	Net	...	...	4	9	0
Wilkinson, 112 sheep,	gross	...	...	12	9	2
	Tare	...	...	7	8	0
	Net	...	...	4	11	2
Sheep-van 116, 104 sheep,	gross	...	...	10	13	3
	Tare	...	...	6	9	1
	Net	...	...	4	4	2

I did not regard this weighing as a satisfactory one, owing to the trucks being coupled, and as I was anxious to ascertain what weight the sheep would lose in transit, I subsequently reweighed the trucks standing uncoupled, on the bridge at Granville, with the following result:—

Weight at Granville.

				Tons.	cwt.	qrs.
Evans truck, 112 sheep,	gross	...	...	11	0	0
	Tare	...	...	6	13	1
	Net	...	...	4	6	3
Wilkinson truck, 112 sheep,	gross	...	...	12	5	2
	Tare	...	...	7	18	0
	Net	...	...	4	7	2
Sheep-van 116, 104 sheep,	gross	...	...	10	10	3
	Tare	...	...	6	9	1
	Net	...	...	4	1	2

The

The sheep were unloaded from each truck at Flemington, in good order, the time occupied in doing so being—

Evans truck, 10 minutes.
Wilkinson truck, 11 minutes.
Sheep van truck, 13 minutes.

Thermometers placed in the two trucks registered alike throughout the journey, ranging from 86° to 58°. Mr. Wilkinson, as in previous trials, adjusted the shutters of his truck as he chose. The Evans truck was left untouched.

The trucks were brought to Sydney, and, on Monday morning, Messrs. Scott, Downe, and Kirkcaldie saw and examined them.

The upper decks of the Wilkinson truck, after all the gear had been adjusted, took $7\frac{1}{4}$ minutes to raise. The Evans truck was converted in $4\frac{1}{2}$ minutes. The former was subsequently placed in the hands of mechanics to patch up the damaged decks, preparatory to being sent to the Centennial Show. The Evans truck was in as good condition as when it started, and was available for any class of traffic without a tool being used on it, or a drop of oil being applied to any of its working parts.

The empty trucks were reweighed on the Sydney bridge, with the following result :—

						Tons	cwt.	qrs.
Evans truck...	...	...	...	...	...	6	12	2
Wilkinson truck	...	...	...	...	...	7	15	2

Traffic Manager.

JNO. HARPER, 25/1/88.

As directed by the Commissioner three trials have been made with the Evans' converted cattle-waggon and the Wilkinson combination truck, and I attach reports of the results of each of them. Mr. Rhodes, representing the Evans truck, and Mr. Wilkinson his own, accompanied the waggons in their three trips; on the first one the latter gentleman left the train at Belaringah.

I have in reporting confined myself to stating the facts as observed without instituting any comparison as to the relative merits of the trucks upon which subject any impressions I had, may after seeing them running together nearly 3,000 miles, place me in a position to speak with conviction.

Briefly summarized the results are :—

The Evans truck is 6 tons 12 cwt. 2 qrs. in weight; will carry as many if not more stock than the other. It requires no particular attention, as is shown by the fact that it was not in any way nursed or attended to during the trials, and it is to-day as fit to run as when it started.

The Wilkinson truck is 7 tons 15 cwt. 2 qrs. in weight; has had most unremitting attention, such as could never be paid to ordinary stock vehicles; has been repaired, and is to-day unfit to carry sheep. My observations respecting it have of course extended beyond the range of my reports, but with your permission I will at present refrain from giving them in detail.

With reference to the number of operations necessary to alter the waggons I may state that they have no value in relation to the practical working of them. The Evans truck has seventeen to convert it to a sheep-van, the Wilkinson eight, but in each case they are principally of a minor character. At the conclusion of the trials the Evans truck was altered in $4\frac{1}{2}$ minutes, the Wilkinson truck in $7\frac{1}{4}$ minutes.

JNO. HARPER, 25/1/88.

Traffic Manager.

1887-8.

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

RAILWAYS.

(CORRESPONDENCE, &c., IN REFERENCE TO CONTINUOUS BRAKE FOR GOODS TRAINS.)

*Ordered by the Legislative Assembly to be printed, 23 July, 1888.**[Laid upon the Table of the House in accordance with promise made by the Honorable the Secretary for Public Works in answer to Question No. 4 on Votes and Proceedings No. 120 of the 23rd July, 1888.]*

The Commissioner for Railways to The Secretary for Public Works.

Continuous Brake for Goods Trains.

BEFORE determining finally the question of referring to a Board of two engineers outside the Department the matter of the best brake for goods trains, I think it would be desirable to consider whether the subject could not be satisfactorily dealt with by Officers *within* the Department.

It is partly an engineering question and partly—and perhaps the greater part—a question for practical railway men (not necessarily engineers), possessing sound knowledge of traffic requirements, and the peculiarity of our roads.

I think a Board of Officers, consisting of Mr. Vernon, the Secretary, who was for many years Traffic Manager of the South and West Lines, and during that time went fully into and discussed the brake question, Mr. Scott, the Locomotive Engineer, and Mr. Read, the Traffic Manager, would be able to deal with the question in all its aspects.

CH.A.G., 31/12/86.

Re brake trials it seems to me that two—Mr. Thallon and Mr. Gill—of the three gentlemen who have been appointed a Commission to inquire into the best design of combination truck, might at the same time extend their inquiries and report as to the relative merits of the brakes submitted for goods-trucks, Mr. Pritchard assisting them in the latter matter.—W.J.L., 13/1/87.

If the Commissioner finds Mr. Pritchard a suitable person for the purpose of the above Commission, let him be appointed with the other two gentlemen named.—W.J.L., 14/1/87.

I HAVE seen Mr. Pritchard; he is not an engineer, but has had considerable practical experience as a Contractor for railways and other public works; is a carriage builder by trade, and has a good knowledge of the purposes and advantages of continuous brakes.

If Mr. Secretary Sutherland endorses Mr. Secretary Lyne's decision, that Mr. Pritchard and Mr. Thallon, Traffic Manager of Queensland, and Mr. Gill, of the Victoria Railway Department (Rolling Stock Department), are to form the Board, telegrams should be sent to Queensland and Victoria, asking that the services of Mr. Thallon and Mr. Gill should be allowed to extend to the investigation of the relative merits of the brakes submitted to test.

I am of opinion that the officers of the Department are as well qualified as those named to make the test and recommendation. (See my minute of 31/12/86.)

CH.A.G., 24/1/87.

Mr. Thallon returns to-day to Queensland, and Mr. Gill to Victoria on Monday. I still think the inquiry should be conducted by the officers of the Department, as proposed in my Minute of 31/12/86 herewith.—CH. A.G., 28/1/87.

I concur with the Commissioner, and wish the Board to deal with the matter as early as possible, reporting fully as to the relative merits of the brakes, their relative cost and efficiency, and the saving in wear and tear and safety that would be effected over our present practice.—J.S., 18/2/87.

Report of the Board appointed to inquire into the question of Continuous Brakes for Goods Trains.

IN accordance with instructions conveyed by Commissioner's M.P. 87/3,386, the subject of continuous brake-power for our goods trains has received the fullest and most careful consideration at our hands, and we have now the honor to submit the result.

In dealing with this very important question it may be as well, in the first place, to offer some remarks upon the advantages to be gained by the introduction and use of a continuous brake in connection with our goods rolling stock.

The special conditions under which our lines of railway have to be worked, particularly in regard to the frequency and steepness of the inclines, render the question of brake-power a peculiarly important one. The amount of loading, or the number of trucks a driver can take, depends in many instances entirely upon the extent of the brake-power he has at his disposal. With an efficient continuous brake he would have the maximum supply of this power, and could consequently take a much heavier load than it would be possible for him under other circumstances to control on descending inclines. The advantage to be gained in this respect would be particularly felt for instance between Penrith and Katoomba on the Western line, upon which section with a continuous brake no greater number of engines would be required to bring the traffic down to Penrith than would be necessary to work the same traffic up to Katoomba. It is otherwise at present.

A second advantage to be gained by the provision of an effective continuous brake would be the saving of many a collision between goods' trains or engines.

Another advantage would be a considerable saving in wear and tear; at present the brake power on our goods trains cannot, as a whole, be put on or released at the will of the driver, or to the exact extent it may be required. Pinned-down brakes oftentimes unnecessarily, although unavoidably, retard a train, and cause extra work for the engine, as well as injury to tires and rails. A continuous brake is, however, immediately and at every moment under the control of the driver, who can consequently apply it when, and just to the extent, it is actually required. Again, the engine and tender brakes have at present to bear the constant and principal strain in working down our gradients, whereas with a continuous brake the power would be evenly distributed throughout the train, and the engine would be, as a rule, entirely relieved of this undue strain. This brake-power being evenly and equally distributed throughout the train, its application does not result in that knocking together of the trucks which arises from the application of brake-power when it exists only on the engine and tender, or at one end only of a train. This would save not only the damage which must be caused to the rolling stock by such a process, but that which must also be more or less sustained by the contents of the waggons. In the case of live stock, for example, the gain would be very great.

Another advantage to be derived from the use of this large and distributed brake-power would be a saving in time. We could considerably increase the speed of our goods trains, and this means not only the promotion of public convenience but a saving to the department of fuel and wages. It is generally admitted that it costs less proportionately to travel at the rate of 20 miles an hour than at 12 or 14. And besides this the perfect control over a train which a large brake-power gives to a driver would enable him to utilise the momentum acquired by the train to an extent which in many instances would be impossible under other circumstances, all of which means saving of fuel.

And further, it must not be overlooked that the quicker the speed at which trains can be run the greater the number that can be put on the road, and this means an increase of the capacity of a line of railway.

As previously observed, the possession of a maximum amount of brake-power, providing it be always available and is to be relied upon, will furnish the means of preventing many a collision or other accident, but on the other hand it will also be perceived that if either the load or the speed of a train be increased on the strength of such a provision, and the brake appliances should fail when most required, then the consequences might be all the more disastrous; and this brings us to a question which is perhaps the first which calls for determination in attempting the work of selecting the most suitable continuous brake.

Continuous brakes may be divided into two classes—non-automatic and automatic. All the advantages in the way of economical working which we have previously enumerated may be reaped from the use of a reliable *non-automatic* brake, but there are emergencies which such a brake does not provide for. Should the means, whether in the shape of an air-pump or an ejector, &c., provided for creating the motive power, fail, or should the pipe connections provided for the conveyance of this power throughout the train fail in any one place, then a *non-automatic* brake becomes useless, and those in charge of a train may suddenly discover that it has got beyond their control. The accidental severance of a train through the failure from any cause of the couplings is a contingency that must not be overlooked. Should such a thing occur to a train with a non-automatic brake when ascending one of our continuous and steep inclines the result might be very disastrous, and a following passenger train might be involved in it. Several instances have occurred within our recollection in which a train has thus parted, with more or less serious results; and it may occur again, in which case a *non-automatic* brake would be found useless. Under the circumstances, and in view of the special conditions under which our lines have to be worked, and which place them on a different footing to that of the more easily graded English lines, we are unanimously of opinion that a brake which makes no provision against such emergencies cannot be considered safe. In fact safety might rather be imperilled than subserved by its introduction; and we cannot therefore recommend the adoption of any continuous brake which is *non-automatic*.

We turn, therefore, at once to the *automatic* class of brakes, and may remark in the first place that the special object of the introduction of the automatic principle was to provide against these very emergencies, and if this has been successfully accomplished by the automatic principle, then to the other advantages already enumerated as derivable from the use of a continuous brake we may add with confidence that *greater safety is secured*.

The difference in principle between the non-automatic and the automatic brakes may be said to be this: In the case of the former the normal position of the brake-blocks is off and clear of the wheels, and the driver has the means of putting them on when he requires to do so; but should these means fail the brake-blocks are still of course off and remain so. In the case of the automatic brake it is the reverse of this; the driver may be said to have the means of taking and keeping the brake-blocks off the

the wheels when and for as long as he requires, but if these means fail the blocks will fly on and remain on till otherwise released. So that the failure of the means in one case involves danger, and may mean disaster, while in the other case it need only mean inconvenience, and may mean positive immunity from accident. For example: In each of the several instances before alluded to as within our own experience of trains parting with more or less serious results, these consequences would have been avoided had an automatic brake been in use. It must also be stated that an additional and, at times, a very great advantage in respect both of public convenience and safety, is presented by the automatic principle in the fact that the guard as well as the driver has it in his power to apply the brakes and bring the train to a stand. If, then, we are to reap fully the advantages to be gained from the use of a continuous brake, it is essential, *we consider, that it should be automatic.*

We consider that we have the following five continuous brakes properly under our notice at the present time:—The Westinghouse Non-Automatic, the Vacuum Co.'s Non-Automatic, the Laurence Vacuum Non-Automatic, the Westinghouse Automatic, and the Vacuum Co.'s Automatic.

We have already fully stated the grounds upon which we reject the first three (non-automatic), and will now deal as briefly as possible with the individual merits of the two automatic brakes.

THE WESTINGHOUSE BRAKE.

Our own Department has had several years' experience in the case of the "Westinghouse," with which the greater portion of our passenger stock is now fitted. On a too hasty consideration this fact might be deemed sufficient to settle the question of which brake ought to be chosen, but the matter is one of great and far reaching importance, and should not be decided on such grounds only. Before dealing further with the individual merits of these brakes it may be as well to give a brief description of the principal features of each of them.

The "Westinghouse" is worked by compressed air. An air-pumping machine, consisting of a small engine and pump, is attached to each engine by means of which air is pumped into a main cylinder or reservoir, also attached to the engine, and thence into auxiliary cylinders or reservoirs, one of which is fixed underneath each vehicle. Each vehicle is also provided with a second cylinder in which a piston works. This piston, by means of a strong spiral spring which surrounds the piston-rod, is kept at one end of its cylinder. The end of the piston-rod is attached to the gear working the brake-blocks, which are off or on as the piston is forced and kept to one end of its cylinder by the spring or driven back to the other end by the introduction of compressed air from the auxiliary air reservoir. The following rough sketch will serve to illustrate the principle of the thing:

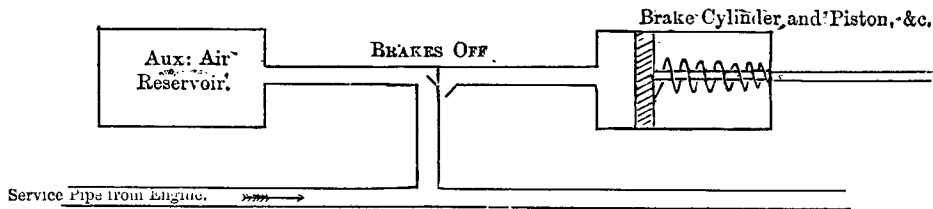


Diagram No. 1.

When the brakes are off air is pumped or finds its way, it will be seen, to the auxiliary reservoir; but the communication between this reservoir and the brake cylinder is closed. At the same time, the air being free to escape from the latter, the spring operates and the brakes are kept off. With brakes on, on the contrary, it will be represented thus—

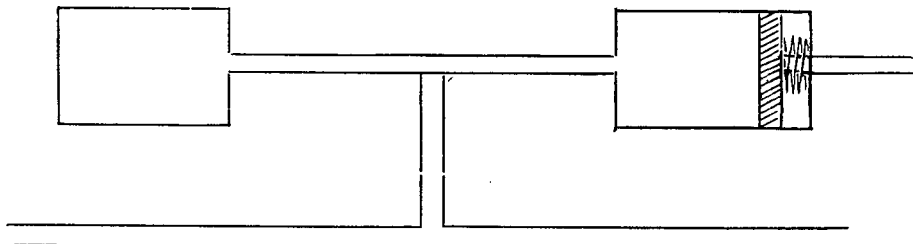


Diagram No. 2.

The communication between the brake cylinder and the open air is closed, as also is that between the service-pipe and auxiliary air reservoir, the only open communication being now between the two cylinders. The compressed air, therefore, drives the piston towards the other end of its cylinder, and the brakes are put on.

To provide for these communications, viz., between the two cylinders; between the auxiliary cylinder and the service-pipe; and between the brake cylinder and the open air; and their opening and closing, as the case may require, we have what is called the "triple-valve," the working of which will be understood from the following rough sketch. [See diagrams 3 and 4. See Appendix A.]

It consists, in fact, of a miniature cylinder in which a piston works with a slide-valve attached to its rod. When air is being forced from the engine through the service-pipe the small piston is pushed up and a communication between it and the auxiliary reservoir established. By means of the slide-valve which the piston-rod carries with it the communication between the two cylinders is at the same time closed, and an escape provided or opened from the brake cylinder to the open air, and the brakes are off. The effect is illustrated in diagram No. 3.

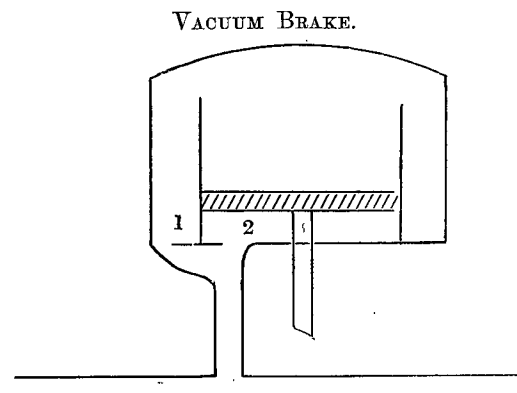
On the contrary, when the driver, or an accidental fracture of the pipe, releases air from the service-pipe, the compressed air in the reservoir immediately forces the small piston downwards, closing the communication with the service-pipe, opening that between the reservoir and the brake cylinder, and at the same time, by means of the slide valve, closing the escape from the latter to the open air, and the brakes are on. [See diagram No. 4.] There is another part of this ingenious piece of mechanism, viz.,

a smaller valve introduced into the slide-valve already mentioned, but to which we need refer no further than to say that it is for the purpose of graduating the application of the air pressure and consequently of the brake blocks.

In passing, however, it may be observed that, as will be seen, the driver does not operate through the service-pipe positively and directly upon the piston of the brake cylinder, but *via* the triple-valve and auxiliary reservoir. The important part which the triple-valve plays in this system will therefore be easily understood.

THE VACUUM BRAKE.

The Vacuum Company's Automatic Brake is worked by external atmospheric pressure only, brought into play by the creation and preservation of a vacuum. Underneath each vehicle a cylinder and vacuum chamber (in one) is fixed, the former being open at the top into the latter. In the cylinder a piston works, the rod of which, by means of gearing connected to it, works the brake shoes. Upon the engine an air-ejector is placed, connected with and running from which throughout the train is a continuous piping, with which again each combined cylinder and vacuum chamber is connected. The principle of the system will be understood from the following rough diagram, No. 5:



When the ejector is working the air is drawn out by means of the service-pipe and through openings 1 and 2 both from the vacuum chamber and from below the piston, and the brakes are off. When the ejector is shut off the air rushes in, closing immediately, by means of a valve, No. 1 entrance, and entering through No. 2 (which is always open) destroys the vacuum below the piston which is at once drawn as well as driven upwards, and the brakes are on. The same effect would of course follow the accidental fracture of the service-pipe. To release the brake blocks the air, by means of the ejector, has again to be drawn out when the piston falls from gravitation. The vacuum in the chamber above and around the cylinder in which the piston works is, it will be observed, *always preserved*. The means by which the opening No. 1 is worked will be understood by figures I and II, diagram 6 [*Appendix B*], and will be seen to

consist simply of a small rolling ball which is drawn off or pressed against the opening as the air is drawn off from or passes into the service-pipe. It will also be perceived that the driver operates, comparatively speaking, directly upon the piston of the brake-cylinder, and without the intervention of such elaborate mechanism as the triple-valve of the Westinghouse system.

GENERAL.

In deciding which of these brakes is the more suitable there are three principal questions to be considered: general efficiency, cost of maintenance, and first cost.

Under the head of general efficiency we may remark that both of these brakes are powerful and effective, and we consider, practically, equally prompt in action.

Under the Vacuum Co.'s system the action upon the brake is more positive and direct, *any number of rapid applications may be made without loss of power*; its action can be regulated with the greatest nicety, and its working parts are much simpler as well as fewer in number. In all these respects, and as bearing upon the question of general efficiency and reliability, it may be said that the Vacuum Co.'s brake has the advantage.

The next consideration is the cost of maintenance. This phase of the question turns principally upon which of the two systems, by its greater simplicity and by fewness of its working parts, involves the least examination and care, and is most easily maintained and kept in order. And here it may be pointed out that the goods stock, from the circumstances of the case, cannot be so closely and frequently examined as passenger stock. Without going further into detail than necessary, we may refer to the pumping-engine and the air-ejector required by the Westinghouse and the Vacuum Companies, respectively, to create the motive power. The former has a large number of working parts, requires continuous attention from the driver, as well as careful lubrication, while the latter may be said to have hardly any working parts, requires, after being once turned on, little or no attention from the driver, and wants no lubrication. Seeing that the success of the whole thing depends upon the proper working of these parts, this difference in favour of the Vacuum Co.'s brake is a very important consideration. With the Vacuum Co.'s brake, again, we have no such elaborate mechanism as the Westinghouse triple-valve intervening between the service-pipe and the brake cylinder. The effective application, or release of the Westinghouse brake, is dependent upon the proper working of this intermediate and somewhat complicated contrivance, and to this fact may be traced, we think, the cause of the difference in the respective systems, as regards the power of graduating their action. As bearing upon the question of cost of maintenance in an important degree we must also observe that with the Westinghouse *everything is under high pressure, which has a tendency to create leaks, and especially fractures in the pipe connections*, whereas in the case of the vacuum everything is under compression, from external atmospheric pressure only however, and hence the tendency is in an opposite direction. We may also remark that in our opinion the liability to the introduction of gritty particles into the apparatus is greater, as the consequences are more serious with the Westinghouse than with the vacuum brake. We need say no more perhaps under this heading in support of the opinion we have arrived at, viz., that as regards fewness and simplicity of working parts and the necessity for examination and repair, the Vacuum Co.'s brake has a very decided advantage over the Westinghouse.

We come now to the question of first cost, and this we may deal with briefly. The following statement of figures will sufficiently explain itself:—

STATEMENT of cost of fitting Engine and Train of fourteen trucks (Goods Stock) with the undermentioned Brakes.

Description of Brake.	Fittings for fourteen trucks supplied by Brake Co.	Fittings for engine as supplied by Brake Co.	Departmental estimate of fixing fittings supplied by contractors to engine.	Brake Co.'s offer to fix fittings supplied by them to fourteen trucks.	Departmental estimate of manufacture and fixing standard undergear, levers, shoes, rods, &c.	Total.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Vacuum Automatic	155 16 0	22 0 0	6 0 0	28 0 0	140 0 0	351 16 0
Westinghouse do	182 0 0	35 4 0	8 0 0	10 10 0	140 0 0	375 14 0

We must remark, however, that we consider the Westinghouse Co.'s offer to fix the fittings for £10 10s. under the mark. We are satisfied that the work could not be done for the amount, but as the agent has tendered this figure we have allowed it to stand. Under any circumstances the advantage is still on the side of the Vacuum Co.'s brake.

We are, therefore, unanimously of opinion that the Vacuum Co.'s automatic brake is the best that can be selected for application to our goods rolling stock.

There still remains a question of vital importance to the Department to be considered: Can we afford to incur the expense of introducing this brake, or, in other words, will it pay?

Our goods rolling stock consisted, at the end of last year, of 8,371 vehicles, and the number of our goods engines amounted to 198. According to the estimate previously quoted the cost of fitting each vehicle with the automatic brake and necessary gearing would amount to at least £23, and the cost per engine would be £28. Multiplying these figures by the number of waggons and engines respectively we have:—

For fitting waggons	...	...	...	...	...	...	192,533	0	0
Do engines	...	...	...	...	...	...	9,194	0	0
Total ...							£201,727	0	0
Less value of old material at price of old iron...							4,185	0	0
Being a total of ...							£197,542	0	0

as the first cost for equipping our present goods stock.

In estimating the worth of the advantages previously enumerated to be gained it is very difficult to translate it into pounds, shillings, and pence, but after a very careful consideration we think the following figures may be relied upon as under rather than over the mark:—

Train-running saved	...	...	...	...	...	5,350	0	0
Fuel saved through increased speed and shortening of time of journey	...	...	...	...	...	3,200	0	0
Wages, through saving in time	...	...	...	...	...	1,800	0	0
Engines, repairs by minimised braking	...	...	...	...	...	1,300	0	0
Expenditure saved through avoidance of annually recurring mishaps...	...	...	...	...	...	500	0	0
							£12,150	0	0

This amount would give a small return on the outlay after making allowance for the cost of maintenance, and it must not be overlooked that greater safety in regard to passenger trains would result from the safer working of our goods trains, to say nothing of the convenience to the public which would be effected by expediting the speed of the latter. No difficulty of any moment will be caused by the necessity of running a few mixed trains. It will merely be necessary to fit up the carriages used either with the brake itself, or simply to provide them with pipe connections.

We may draw attention to the fact that about three-fourths of the estimated saving of £12,150 would be effected on the Western Line, to work which we should require about 65 engines and 4,000 waggons. The cost of fitting these with the brake would be as follows:—

4,000 waggons, at £23 per waggon	...	...	...	...	...	92,000
65 engines, at £28 per engine	...	...	...	...	...	1,820
Total ...						93,820
Less value of discarded material at price of old iron						2,050
Making a total of ...						£91,770

We should save about £9,000 per annum, which would leave us an excellent return on the outlay, after making a liberal allowance for cost of maintenance, which may be estimated (say) at $2\frac{1}{2}\%$.

There have been three other descriptions of automatic brakes under our notice, and they have received, so far as the degree to which they were placed before us permitted, the most careful consideration. They are Woods' hydraulic brake, Barker's hydraulic brake, and Hanscom's straight-line air-brake. We do not consider it necessary to enter into a description of the relative merits of each of these brakes, as we are satisfied that they cannot compare advantageously as regards simplicity, reliability, general effectiveness, and economy in working with the Vacuum Company's automatic brake, which, on the grounds just named, we have no hesitation in recommending as the best that can be chosen.

D. VERNON, Chairman.
W. SCOTT, Loco. Engineer.
W. V. READ, Traffic Manager.

31 May, 1887.

[Appendices A and B—Diagrams 3, 4, and 6.]

Sydney: Charles F. Oester, Government Printer.—1888.

PRINCIPLE OF THE WESTINGHOUSE AUTOMATIC BRAKE

Diagram N° 3

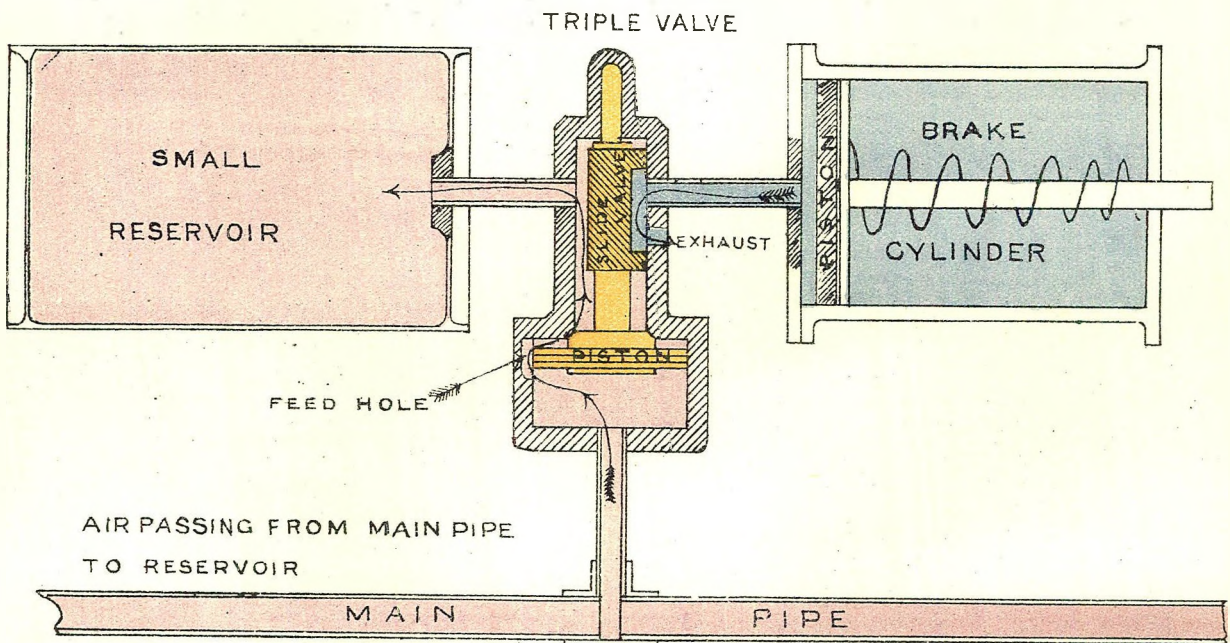
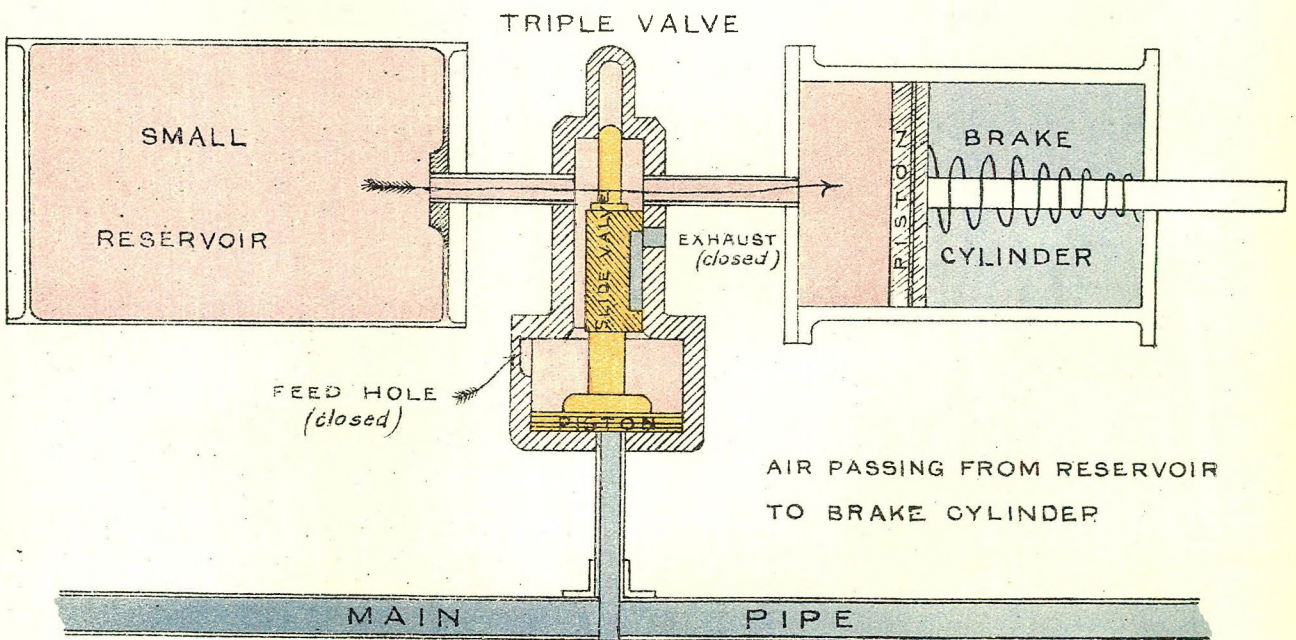


Diagram N° 4



N.B. AS THE ABOVE DIAGRAMS ARE NOT DRAWN TO SCALE,
THE DIMENSIONS OF SOME PARTS APPEAR GREATLY EXAGGERATED

(Sig. 1065)

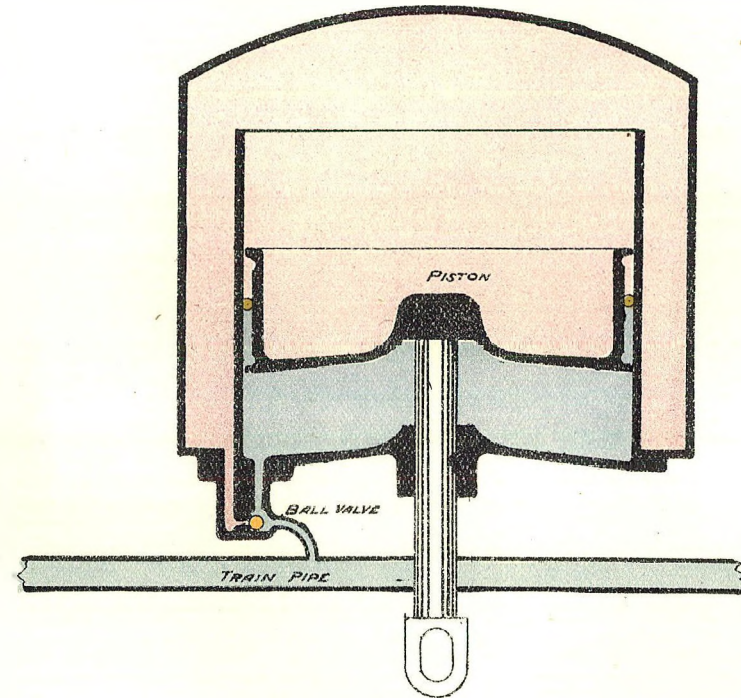
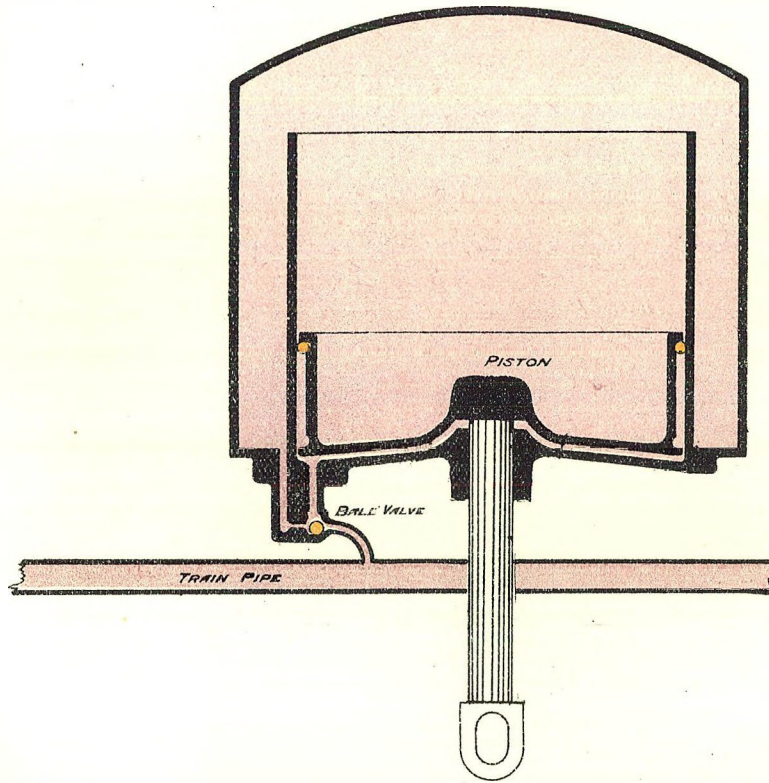


FIG. I. AUTOMATIC VACUUM BRAKE FIG. II.

FIG. I. REPRESENTS POSITION OF PISTON & BALL VALVE WHEN A VACUUM HAS BEEN CREATED IN THE MAIN PIPE AND CYLINDER.

(THE RED COLOR SIGNIFIES VACUUM)

(Sig 1065)

FIG. II. REPRESENTS POSITION OF PISTON & BALL VALVE WHEN AIR IS ADMITTED TO TRAIN PIPE. THE BALL IS FORCED ON TO ITS SEAT, THEREBY PRESERVING THE VACUUM ON TOP SIDE OF CYLINDER & THE PISTON IS RAISED BY ATMOSPHERIC PRESSURE.

(THE BLUE COLOR SIGNIFIES ATMOSPHERIC PRESSURE)

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(RETURN SHOWING VARIOUS SCHEMES FOR PROPOSED CITY EXTENSION.)

Ordered by the Legislative Assembly to be printed, 13 June, 1888.

[Laid upon the Table of the House, in accordance with promise made by the Honorable the Secretary for Public Works, in answer to Question No. 10 in Votes and Proceedings No. 101, of the 13th June, 1888.]

RETURN showing Routes suggested for City Railway,—

1. Have any fresh routes for a railway from Redfern into the city been submitted to the Government?
 2. If so, what are those routes?
 3. What were the routes previously under consideration?
-

[842 copies—Approximate cost of printing (labour and material), £7 4s. 3d.]

VARIOUS SCHEMES proposed for bringing the Railway into the City of Sydney.

By whom suggested.	Description of route.	Suggested advantages of route.	Remarks.
The Department	<p style="text-align: center;">A.</p> <p>From Redfern Terminus over Devonshire-street, through Carter's Barracks, over Old Burial-ground Road, over Belmore Park, over Elizabeth-street at junction of Hay and John Streets, over Campbell-street, Exeter-place, and Market-lane, crossing Goulburn-street, entering tunnel on the south side of Liverpool-street and emerging about 130 yards south of William-street, crossing the last-named street, and having a passenger station at King-street (running from Liverpool-street to King-street parallel with Elizabeth-street, and distant from it about 45 yards), thence to Circular Quay, on the west side of Phillip-street, by tunnel emerging at Bridge-street, for goods or passengers, if required.</p>	<p>The advantages of this line are,—It would be central for all the business places in the city and Woolloomooloo, and easy of access from any part. Would give the most direct access to the harbour for goods or passengers, as a station could be formed at Bridge-street, which would be central for all the public offices and other most important places of business, as well as being close to the North Shore Ferry. It could be constructed and the property obtained at a less cost than under any other scheme, and would have no underground stations.</p>	<p>This line, as far as St. James' Road, where it stopped, and took up some portion of Hyde Park as a Railway terminus, was proposed to Parliament in 1876. No division was taken, but the sense of Parliament appeared to be against the line on account of the resumption of the Park. The appropriation of any portion of Hyde Park for the station is not involved, as the station would be on site of present Land Titles Office and Supreme Court. A strip of the Park, 100 feet wide from William-street to St. James' Road, would be required.</p>
The Department	<p style="text-align: center;">B.</p> <p>Same as A to Elizabeth-street, where it diverges, crossing all the streets named in A between Elizabeth and Liverpool Streets; thence by tunnel through Hyde Park, east of Immigration Dépôt, under Outer Domain, east of Bourke's Statue, mid-distant between the Government Stables and Macquarie-street; thence direct on the west of Government House to the terminus for goods at Fort Macquarie. A branch from the above joins at Liverpool-street by tunnel to William-street; thence to the proposed passenger station at King-street (see A).</p>	<p>This scheme possesses the same advantages as A as far as the passenger station at King-street is concerned, but the branch for goods to Fort Macquarie would not be so advantageous, as the terminus would be too far away from all the existing stores and places of business; and there would be nothing gained in the cost to compensate for this.</p>	

By whom suggested.	Description of route.	Suggested advantages of route.	Remarks.
The Department	<p style="text-align: center;">C.</p> <p>From Redfern Terminus over Devonshire-street, through Carter's Barracks (over Old Burial-ground Road), crossing Hay, Campbell, and Goulburn Streets, entering tunnel south of Liverpool-street, thence direct to the terminus at Hunter-street, between Pitt and Castlereagh Streets, about 40 yards from the latter, having a passenger station on the surface between King and Hunter Streets.</p>	Would give direct communication to a central part of the city, but at much greater cost than the line A.	
The Department	<p style="text-align: center;">D.</p> <p>Same as A and B to Old Burial-ground Road, thence crossing Hay-street, through St. Francis' R. C. Church, and running about mid-distant between Elizabeth and Castlereagh Streets to a passenger terminus extending from King-street to Hunter-street. A branch from the above commences between Market and King Streets, running thence through the centre of Elizabeth-street, across Hunter and Bligh Streets, between the Colonial Secretary's Office and Lands Department, crossing the public Reserve at Macquarie-place, crossing Reiby-lane, through property known as Rolph's timber-yard, crossing Pitt-street, through the centre of the block of buildings known as the Government Commissariat Stores, crossing Argyle-street between, and equidistant from, George-street and the Circular Wharf, through the Sailors' Home, and terminating at the Mariners' Church.</p>	Would give direct communication with city and Circular Quay, at very great cost, a portion of which, however, would be recouped by resale of frontages.	
Mr. Sutherland	<p style="text-align: center;">E.</p> <p>This line will follow the one marked A as far as the House of the Good Shepherd, then diverge in a curved line over Belmore Markets and block of buildings between Castlereagh and Pitt Streets, and thence by a curved line to Castlereagh-street. The line will run under Castlereagh-street to Hunter-street, and curving in and out of Bligh-street to Elizabeth-street, will follow that street to the Circular Quay in a line with the Custom House. It will then diverge in two directions east and west, the first by the line of Quay, to Fort Macquarie, and the second by the line of Quay also as far as the A.S.N. Co.'s property, then through that property by New George-street at the rear of the Company's stores to and round Dawes' Battery. From this line there is ultimately to be a branch line under George-street to near the intersection of Cunningham's property with Dawes' Point Reserve, and thence by the water frontage to Darling Harbour. Platforms and Stations are to be erected at the following places <i>en route</i>—Platform at Bathurst-street, School-house in Castlereagh-street near King-street, Hunter-street, Dawes' Point, and Fort Macquarie. Passenger station at Custom House, Circular Quay, and goods and passenger station at the Commissariat Stores, Circular Quay.</p>	The suburban line, instead of forming its junction with the main line near William-street and having its terminus at the Circular Quay, would be continued under the Park, and join the main line at the proposed station near the School-house in Castlereagh-street.	

By whom suggested.	Description of route.	Suggested advantages of route.	Remarks.
<p>Mr. Wakely.....</p>	<p style="text-align: center;">F.</p> <p>From Redfern Station on to the Pymont line, then curving north on to the east end of the iron wharf at the head of Darling Harbour, then traversing a proposed line to the front of Russell's Wharf, thence curving to the Baltic Wharf on to the Corporation's block of ground at Market and Sussex Streets, which position would be well available for goods and passengers. Thence, commencing a tunnel at the north-east corner of said block, under Sussex, Kent, King, and York Streets, to south-west corner of Wynyard-square, here a city passenger station, with two spiral staircases; also tunnel from George-street, and one from Sussex-street, as side entrances to underground station; and also a tunnel from the Post Office for delivery of mails. The said railway line continuing on by tunnel to Dawes' Point, passing under Church-hill, Cumberland-street, Argyle-cutting, between Cumberland and Prince Streets, thence curving at the end of Cumberland-street, under George-street, out on the south-west corner of Dawes' Point, as a goods and passenger station, commanding the whole of Sydney Cove from Fort Phillip, where another goods station could be erected, from whence a tramway could traverse the whole of the northern wharfs to Miller's Point, at which point another goods station should be erected, and also a tramway could be connected at the back of the present wharfs to starting point, <i>i.e.</i>, Market and Sussex Streets goods, &c., station. There could also be a branch line to curve from Essex-street and Cumberland-street to south-west corner of Globe-street, across George-street to the Commissary Stores, &c., Queen's Wharf.</p>	<p>.....</p>	<p>No proper survey has been made of this route; and Mr. Wakely's estimate of the cost of the line (£40,000) to Wynyard-square is transparently inadequate.</p>
<p>Mr. John Young</p>	<p style="text-align: center;">G.</p> <p>From Darling Harbour Branch, at the rear of the wharfs and buildings alongside Darling Harbour, through a tunnel under the base of both Miller's and Dawes' Points, and with a fifteen-chain curve to Circular Quay; thence through Inner Domain to Woolloomooloo Bay, up the lower part of William-street, by the rear of the Museum, under Oxford-street, and along the valley beyond to the Redfern Station. Also, a Branch in the direction of Paddington, Waverley, Randwick, &c.</p>	<p>Government to resume the whole of the water frontages from the head of Darling Harbour to the Circular Quay. It would clear away all the foul abominations that exist on the margin of Darling Harbour, providing in their place commodious warehouses. Cargoes of large ships could be unloaded into the railway trucks, and thus prevent the heavy traffic of goods through the city. It gives the advantage of communication to the centre of the city, as stations could be run up to King, Market, or Barrack Streets. The resale of the land for business premises would repay the cost of compensation.</p>	<p>This proposal has not got beyond the region of "general idea" for a line. No surveys have been made, nor the practicability of the route in any way ascertained.</p>

By whom suggested.	Description of route.	Suggested advantages of route.	Remarks.
896—B Mr. John Lucas	<p style="text-align: center;">H.</p> From Darling Harbour Branch across head of Darling Harbour, crossing Sussex, Kent, Clarence, and York Streets, and terminating in underground station at the Markets in George-street.	Terminates at a central part of the city; and can be constructed without great cost.	This proposal has not got beyond the region of "general idea" for a line. No surveys have been made, nor the practicability of the route in any way ascertained.
By a Petition to the Legislative Assembly, signed by 127 persons.	<p style="text-align: center;">I.</p> Starting from the present Railway station at Redfern, crossing Devonshire-street and the Old Burial-ground, skirting Belmore Park, crossing the Markets, till reaching a point between Pitt and George Streets, on a viaduct, thence by an incline cutting or tunnel under Liverpool, Bathurst, and Park Streets, right by the Post Office (to go through the same when finished), crossing Hunter and Bridge Streets, passing between the old Commissariat Store and Guard-house by a short incline sweeping round the Circular Quay to Milson's Ferry, or by turn-tables so as to take goods from one or half-a-dozen ships as the case may require	This route, the promoters say, would supersede the necessity of a large central station, as each street could accommodate its own business. Every traveller could get out where it best suited his convenience, in the heart of the city, or right through to the Circular Quay. Besides its enormous importance to the mercantile and shipping interests, it would create an immense business and distribute it fairly among the citizens. Being 15 or 20 feet above the ground, compensation could not be heavy, as the proprietor would be an immense gainer by having the line so close to his business, using the arch, and getting a good wall to his premises, and being entirely out of the way of ordinary traffic, with a substantial bridge and station at each street, and splendid iron span crossing the courtyard of the Post Office; mounted on polished pillars, it would supplement its usefulness by giving a look of noble grandeur to our city, and improve the property over which it passed. By bringing the line down to the Circular Quay a vast amount of accommodation would be given to the large and increasing population on the northern shores of the harbour.	Do. do.

By whom suggested.	Description of route.	Suggested advantages of route.	Remarks.
<p>Proposal submitted to Parliament by Stuart Government.</p>	<p style="text-align: center;">J.</p> <p>This Railway is 2 miles 12 chains in length, and is designed for a double line of rails throughout. The line commences at the Quay wall, at a point on the eastern side of Sydney Cove; passes near the centre of Fort Macquarie, and enters the Government House grounds at the eastern end of the Tarpeian Way. It passes 33 feet to the east of the Guard-house at the entrance to Government House, and then sweeping round through the upper Gardens, and under the site lately occupied by the Garden Palace, it crosses a corner of the outer Domain; thence under the Infirmary grounds and the Mint till Hyde Park is reached, at a point near the Albert Statue. After following a curve for a few chains the centre line traverses the Park in a direction parallel to Elizabeth-street, passing under Park-street and Liverpool-street. The line is then continued in a direction to reach Belmore Park, Goulburn-street, Wexford-street, Exeter-place, John-street, and Campbell-place, and Elizabeth-street being crossed on the way. The line enters Belmore Park at its north-east corner, and after traversing the Park and crossing Belmore-street it passes through the Police Barracks and Benevolent Asylum grounds, cutting off a corner of the cemetery, crossing Devonshire-street, and enters the present Railway Station at Redfern.</p>	<p>It is considered that, by following the route indicated, the line could be constructed at a comparatively small expense, as the cost of land resumption would not be great, but if the line passed the entire length of Phillip-street, as originally proposed, the whole of the land will have to be resumed, which would cost an immense sum. The route suggested is thought to be one of the most favourable, cost and convenience considered, that it is thought can be proposed. The total expense will be a little over half a million, while it is anticipated the traffic will at first be equal to £60,000 per annum.</p>	<p>Referred to Select Committee by the Legislative Council.</p>

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(CORRESPONDENCE IN REFERENCE TO ERECTION OF A SUBWAY TO CONNECT EASTGROVE WITH GOULBURN.)

Ordered by the Legislative Assembly to be printed, 16 May, 1888.

RETURN to an *Order* of the Honorable the Legislative Assembly of New South Wales, dated 17th April, 1888, That there be laid upon the Table of this House,—

“Copies of all correspondence, minutes, documents, and other papers having reference to the erection of a subway or footbridge across the railway, to connect Eastgrove with Goulburn.”

(*Mr. Teece.*)

SCHEDULE.

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No. 1.

Messrs. Topham and Blackshaw to The Secretary for Public Works.

Sir,

Goulburn, 11 August, 1868.

We, the owners of the property on the Towrang side of the Mulwarree Creek, and from which the main supply of water for the township is derived, most respectfully beg to state that we see with surprise that one of the principal accesses to our property is being taken by the railway for the goods terminus; and that we were informed by the Inspector of Works (Mr. Suttor), that it is most likely that the other crossing, the one nearly opposite the "Commercial Hotel," would also be closed, and that the only access to our property would be by the crossing near the Scots Kirk.

Now, we beg to show that if this is carried into effect it will be a very great injustice to us, and most seriously deteriorate the value of our property. If both those crossings are closed there will be no access to the pumps excepting by the crossing near the Scots Kirk, which will make a great and material difference in the income derived from the pumps, as it is not likely that the water-carriers, and those who

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carry

[842 copies—Approximate cost of printing (labour and material), £5 3s. 8d.]

carry their own water, will go from one end of the town to the other, as they will have to do to get supplied at our pumps if both the central crossings are closed, but get it elsewhere. We have always understood that there would be two crossings; and Mr. Twynam, the Government Surveyor, said there would be a road a chain wide to our property; but if both those crossings are to be closed (the one opposite the Court-house, and the one nearly opposite the "Commercial Hotel"), we may as well be without any access to the pumps at all, as by closing them will make our property almost valueless. We have been at very great cost, building, sinking wells, and erecting the pumps, besides purchasing the land, and they bring in a very good income, but if we are deprived of a central access to the pumps the income will be materially affected, and we respectfully beg that you will take this matter into your serious consideration; and if the crossing opposite the Court-house is required for the terminus, that there may be a crossing to our property at the present crossing, nearly opposite the "Commercial Hotel," or that you will please bring the matter before the Government for the purchase of the property. It would be a very hard and unjust act if we should have to suffer by being deprived of a good income by the depreciation of the value of our property by any injury caused to it by the railway.

Hoping you will have the kindness to give this matter due consideration,

We are, &c.,

GEORGE TOPHAM.
JOHN BLACKSHAW.

Engineer-in-Chief for Railways.—J.B., 12/8/68. (See report on 68-2104, dated 17/8/86.)
Messrs: Topham and Blackshaw informed in terms thereof, 27/8/68.

Gentlemen,

Department of Public Works, Sydney, 27 August, 1868.

In reference to your letter of the 11th instant, complaining that access to your property, from which supplies of water are obtained on the Towrang side of the Mulwarree Creek, Goulburn, will be closed by the proposed railway works, I am directed by the Honorable the Secretary for Public Works to inform you that the Engineer for Railways has reported that a level-crossing, in addition to the one at 120 miles, can be given at 120 miles 47 chains, nearly in the direction of Clinton-street; but no intermediate crossing can be permitted.

Messrs. George Topham and John Blackshaw, Goulburn.

I have, &c.,

JOHN RAE.

To the Honorable James Byrnes, Commissioner for Railways,—

Sir,

Goulburn, 13 August, 1868.

We have the honor to bring under your notice the following, which we feel satisfied will meet with your kind consideration.

The railway line now under construction, and which is situated immediately opposite the south corner of the Market-square, severs entirely the agistment paddocks of the late Wm. Bradley, Esq., from the town, and from the want of an approach renders them in a great measure valueless; further than this, it in a like manner cuts off Blackshaw's pumps, six in number, which are the principal source for supplying the town with water.

We would with great respect suggest that a crossing be left immediately opposite Blackshaw's, for the purpose of obviating these serious difficulties.

The railway fence will, in a day or two, cause the severance, and possibly you may instruct that a panel be left down for the purpose referred to until you give the matter more mature consideration.

We have, &c.,

FINLAY & CO.,

Agents for the Executors of the late Wm. Bradley, Esq.

Engineer-in-Chief for Railways.—J.B., 14/8/68. A level-crossing in addition to the one at 120 miles can be given at 120 miles 47 chains, nearly in the direction of Clinton-street; but no intermediate crossing can be permitted.—J.W., 17/8/68. Inform.—J.B., 18/8/68. Level-crossing to be made at 120 miles 4 chains instead of 120 miles as previously arranged.—J.W., 5/9/68.

To the Honorable James Byrnes, Commissioner for Railways,—

The Petition of the undersigned residents of Goulburn,—

RESPECTFULLY SHOWETH:—

1. That they are entirely dependent on the Mulwaree Ponds for their supply of water, and that the formation of the railway has cut off all their usual means of access to the said ponds.

2. That it is of the utmost importance to have easy and uninterrupted approaches by night and day to water, for the purpose of extinguishing fires, and that to limit these approaches to the level-crossings at 120 miles and 120 miles 47 chains, will leave the whole of Centre Ward, in this Municipality, without any supply of water to extinguish fires.

3. That the land now occupied by the station and approaches thereto was originally granted for and dedicated to public use, and that the Government in resuming this land are at least bound to protect the material interests of the citizens in so vital a matter as the water supply.

4. Your Petitioners therefore respectfully pray that in addition to the level-crossings sanctioned a bridge may be erected over the line at 120 miles, about the centre of section 60, and opposite the junction of Clifford and Sloane Streets, with proper approaches thereto, as such a road to the Mulwaree Ponds will, in their judgment, afford the best access to water for the use of this Municipality.

WILLIAM DAVIES, Mayor.

(Then follow other signatures.)

Engineer-in-Chief for Railways to report.—J.B., 2/10/68. It was explained to Mr. Alexander, and a gentleman accompanying him, that two level-crossings only could be given—one at 120 miles 4 chains, and the other at 120 miles 47 chains.—J.W., 24/10/68. Commissioner. Inform.—J.B., 27/10/68. Written, 28/10/68.

No. 2.
Petition.

To the Honorable the Minister for Works, Sydney,—

Goulburn, 29 August, 1874.

The Petition of mayor, aldermen, storekeepers, water-carriers, and other residents in the city of Goulburn,—

SHOWETH:—

That when the railway was completed to Goulburn the main supply of water derivable from the pumps known as Blackshaw's, was cut off, access being, however, afforded thereto by means of a level-crossing near the Manse in the North Ward of the city, and by a road round the south end of Goulburn terminus, in the South Ward.

That by the extension of the line to Yass this latter means of access has been stopped, and the only available road to the pumps is by the level-crossing.

That great inconvenience is thereby occasioned to your Petitioners, particularly in parts of the Centre and in the South Ward, as the necessity of going round by the level-crossing entails a double journey of over a mile.

That a promise was made that when the extension of the line was commenced suitable provision should be made to maintain both means of access.

Your Petitioners would therefore respectfully urge upon your consideration the necessity of at once making the necessary arrangements for constructing a bridge over the creek running by Conolly's mill parallel with the railway, thereby connecting the reserve with the road from Teece's tannery and the deanery across the railway line into Sloane-street.

And your Petitioners, as in duty bound, will ever pray.

Presented by Wm. Teece, junr.

FREDK. HORN, Mayor.
(Then follow other signatures.)

Mr. Whitton for report.—J.S., 19/9/74. I recommend the Commissioner to build the bridge referred to by the Petitioners as the cheapest and most satisfactory way of settling this matter. Mr. Cowlshaw agrees in this view.—J.W., 16/10/74. Approved.—J.R., 20/10/74. Mr. Teece, M.P.—Informed, 23/10/74. Mr. Firth instructed to carry out.—J.W., 31/10/74.

No. 3.

Memo. from Mr. Resident-Engineer Firth to The Engineer-in-Chief.

Yass, 21 July, 1875.

SOME time since you stated that the residents of Goulburn wanted a bridge across the creek near Mr. Teece's tannery. I then suggested that approach roads made into the creek (which has a good gravel bottom) might answer as well, and save the traffic from crossing the line at the level-crossing by going under the railway bridge. This can be done at all times excepting during floods. At your request I saw Mr. Teece, and he agreed with my suggestion, but said he had very little voice in the matter, and it would depend upon the Municipal Council, to whom he would refer the matter. Mr. Teece has since informed me that the Council are of opinion that the bridge should be erected.

I forward under separate cover a plan of the ground, with sections of the several lines of road that will be required if the bridge is built. If it is put above flood-level, and the approaches made to it, the cost will be very heavy and to a certain extent money wasted, as the only traffic, or nearly so at present, is carting water.

THOMAS R. FIRTH.

This matter may stand over for the present. I think this bridge perfectly unnecessary.—J.W., 5/8/75.

No. 4.

W. Teece, Esq., M.P., to The Engineer for Existing Lines.

Sir,

Sydney, 9 July, 1883.

Referring to our conversation concerning the necessity of providing means whereby the residents of Eastgrove may be enabled to cross the railway line to and from Goulburn, I have now the honor respectfully to request that the subway which it is proposed to construct at the passenger station may be made available for pedestrians. Should the levels be inadequate to admit of this work being utilised as indicated, I would suggest that a footbridge be erected from the new platform in course of construction across the lines about to be laid down. Either of these courses would be suitable to the requirements of the public. The public have hitherto been in the habit of crossing the line, and since Eastgrove has been sold the want of such a work as I advocate has become evident. Several allotments have been purchased by railway employes. In view of a recent order issued to prevent persons from having access over the line, and a Police Court case which has ensued upon such order, the matter upon which I write is of urgent importance, as the public are anxious to be relieved from the great inconvenience to which they are now subjected.

I have, &c.,
WM. TEECE.

No. 5.

Minute by The Secretary for Public Works.

A DEPUTATION waited upon me to-day, asking that a subway or overhead bridge might be given in the vicinity of the Goulburn Station (north side), to lead from the main part of Goulburn to the suburb of Eastgrove. Foot passengers had been allowed for many years to cross the railway near the station, but this privilege had recently been withdrawn and very many persons are inconvenienced, viz., persons from Eastgrove having to go north to near the gas-works or south to Landsdowne Terrace to reach the station and the business part of the city.

Informed

Informed the deputation that I thought their request was a reasonable one. I promised to have a report made in the matter, and unless there were strong objections on the part of the Department, I would authorise either a subway or overhead bridge for pedestrians.—F.A.W., 13/7/83.

Railways.—J.R., 14/7/83. If a subway is constructed, can sufficient fall be obtained for drainage?—G.C. (*per G.L.*), 17/7/83. Mr. Stephens. Yes; but please see report attached.—R.D.S., 23/7/83. Mr. Cowdery.

Office of Engineer for Existing Lines, Goulburn, 23 July, 1883.

Proposed Subway at Goulburn Station.

G. Cowdery, Esq., Engineer for Existing Lines, Sydney,—

PLEASE see accompanying tracing.

The subway for railway purposes (coloured red, and 65 feet in length) is absolutely required. The drainage of this, which of course would be but trivial if this only be carried out, can easily be arranged by means of a sump and a small pump.

As far as the communication by means of a subway with the Eastgrove property is concerned, this is a far more difficult matter. It would never do to allow the public free access both day and night to the railway premises; and the only way of dealing with this matter is to make a subway the whole length from Sloane-street (point A to point B), a distance of 578 feet, which of course would be most expensive and would independently of this be most objectionable. The lighting thereof would also be very troublesome. I would not venture to state what the cost would be without first making careful drawings. The drainage of this could, in ordinary weather, be rendered pretty complete; but in anything like a freshet in the Mulwarree, even a very small one, this subway would be impassable.

On the whole, I deem this subway for road purposes to be—I will not say impracticable—but totally inadvisable.

The natural, and, in fact, the only practicable approach to the Eastgrove Estate from this side of Goulburn is by Goldsmith-street level-crossing.

There is a good surveyed road leading therefrom to the road bridge crossing the Mulwarree. An accurate tracing of this surveyed road accompanies my report of July 3rd, 1883, on Mr. Barbour's application to lease 2 acres of railway land.

If deemed advisable, the Traffic Inspector's report on this matter might be called for.

R. D. STEPHENS.

Tracing herewith, from which it will be observed that a sufficient fall cannot be obtained for the construction of a subway. Nor can I recommend the erection of a footbridge, as it would be giving the public access to the yard at all times, both by day and night.—G.C. (*per G.L.*), 25/7/83. Commissioner.

But could not the footbridge and the approaches thereto be cut off by fencing from the yard, so that the people could not get into the yard, nor inconvenience to our traffic arrangements result?—CH.A.G., 31/7/83. Mr. Cowdery.

Please furnish reply at once to Commissioner's minute of 31/7/83.—G.C. (*per G.L.*), 1/8/83. Mr. Stephens.

An overhead footbridge could be constructed so as to avoid interference with station regulations. Length 464 feet of which there would be three 80 feet spans. Objections thereto are—great expense—(I cannot precisely state how much without going into complete calculations), and also interference with clear sight of signals. The latter objection is more important than would at first appear. Altogether I deem it totally inadvisable to accede to the request. The Goldsmith level-crossing is quite sufficient, besides a great number of the Eastgrove inhabitants are railway employes who would have no difficulty in crossing the line.—R.D.S., 5 August, 1883. Mr. Cowdery.

Mr. Stephens report herewith.—G.C. (*per G.L.*), 9/8/83. Commissioner.

I cannot recommend the construction of either a subway or a bridge, and to allow people to cross the line on the level in the midst of shunting operations would be endangering life. "Eastgrove" has been cut up and sold recently only, and the purchasers of the land must have known of the difficulty of approach from the other side of Goulburn. The Goldsmith level-crossing is said to be sufficient, but it must be admitted that it means a considerable detour, 700 yards. Eastgrove, however, is chiefly occupied by railway men, and they of course can be trusted to cross the line on the level.—CH.A.G., 13/8/83.

Inform in terms of Mr. Stephens' report.—F.A.W., 14/8/83. Mr. Teece, M.P.—Informed, 17/8/83.

Sir,

Railway Branch, Sydney, 17 August, 1883.

With reference to your letter of the 9th ultimo, addressed to the Engineer for Existing Lines, respecting the necessity of additional means being provided to enable the residents of Eastgrove to cross the railway line to and from Goulburn, I have the honor, by direction of Mr. Secretary Wright, to inform you that it is not deemed advisable under the reports received to make any alteration in existing arrangements. It would be a difficult matter to make a subway to afford communication with Eastgrove, and to erect a footbridge would be to give free access both by day and night to the railway premises. The only way of dealing with the matter would be to construct a subway from Sloane-street for a distance of 578 feet, but not only would this be a most expensive work, but the lighting would be most troublesome. The drainage, moreover, would be difficult, and in the event even of a small freshet in the Malwarree, it would become impassable.

I have, &c.,

CHAS. A. GOODCHAP,

Commissioner for Railways.

W. Teece, Esq., M.P.

No. 6.

Captain Blackshaw to The Secretary for Public Works.

Sir,

Volunteer Office, Goulburn, 7 July, 1883.

I have the honor to make application to you for a special permit to cross the railway line near the station, owing to the public not being allowed to cross the line except at the proper crossing, which is a considerable way round and a bad road. My residence is across the river opposite the station. As I frequently have to attend Volunteer duties at night, it would be a great convenience to cross at the station. Trusting you will grant me this privilege (on service).

I have, &c.,

H. BLACKSHAW,

Capt. Commanding 4th Corps V.I.

Mr. Cowdery.—G.B., 13/7/83. I see no objection.—G.C. (*per* G.L.), 17/7/83. Commissioner.
Traffic Manager.—Ch.A.G., 20/7/83.

Inspector Crawford for report. Is this the same place that we were prosecuting two men for trespassing over? If not, is there any objection to the Volunteers crossing?—W. V. READ (*per* D.K.), 21/7/83.

Captain Blackshaw has a saddler's shop, and his daughter keeps a small fruit shop in Auburn-street. Captain Blackshaw and his family live in Eastgrove on the opposite side of the line from Goulburn. This permission, although asked for to allow him to attend to his Volunteer duties, is, in reality, to allow him and his family to cross and recross to their meals, &c. To give Captain Blackshaw permission would be making a dangerous precedent. Where he wishes to cross there are six sidings, two loops, and main line to cross. The shunting engine is constantly at work shunting in the yard night and day, and if it was only for Captain Blackshaw's personal safety this privilege should not be given. The level-crossing at Goldsmith-street is about 700 yards from the station. I cannot see where there is any hardship in compelling all to use this crossing. Captain Blackshaw is asking for permission to cross the lines at the same spot as we are prosecuting people for doing so.—A. CRAWFORD, 24/7/83.

That being so the permission asked for should not be granted. We have already prosecuted two persons for persisting in crossing the line at the place where Captain Blackshaw wants to cross, but the case was dismissed. (The papers are in the Commissioner's office.) A number of new sidings have been laid down at the place in question, and during the last two or three months (in fact since the work commenced) no one who has been seen has been allowed to cross. A suburb is coming into existence on the opposite side of the line from the town so that if permission is given to any one all those persons who wish to pass and re-pass between there and the town will want to cross at this place, and as shunting will be almost continually going on there will be great risk of persons getting injured.—W. V. READ (*per* D.K.), 1/8/83.

I certainly think we shall have to provide some means of allowing a crossing. It is a reasonable requirement on the part of the public.—D.V.

What would be the cost of a footbridge? There are other papers, I think, dealing with the question of bridge or under-way. The Inspector says that the crossing is 700 yards only from station, but if a person's residence is immediately opposite to the station, to compel him to use the crossing would necessitate his taking a detour of 1,400 yards.—Ch.A.G., 13/8/83. Mr. Cowdery.

Mr. Thomson for estimated cost of footbridge to cross all the lines.—G.C. (*per* G.L.), 16/8/83. A footbridge to cross all the lines will be about 195 feet long, exclusive of four stairways. The estimated cost of bridge and stairways is about £3,900.—M.T., 23/8/83. Engineer for Existing Lines. There are other papers; the most recent one is from Mr. Teece, M.P., showing that a second crossing was promised. Submit with this.—Ch.A.G., 25/8/83. Herewith.

Sir,

Sydney, 22 August, 1883.

Referring to your letter of the 17th instant, declining to make a subway or erect a footbridge to enable the inhabitants of the city of Goulburn to have access to the Mulwarree and Eastgrove, I desire to direct your attention to the following promises made by the Engineer-in-Chief and Secretary for Works some years since. I may point out that the land resumed for railway purposes originally formed part of a reserve for public recreation. The balance of this reserve has frontage to the Mulwarree Ponds, and from this vicinity the city is and has been for many years mainly supplied with water. In 1868—the year when the resumption of land took place—the inhabitants petitioned the Government, and a deputation waited upon Mr. Whitton to urge that two crossings should be provided. Mr. Whitton, it is stated, informed the deputation that two crossings should be provided at 120 miles 4 chains and 120 miles 47 chains respectively, and the Petitioners, W. Davies, Mayor, and others, were written to on the 28th October, 1868 (68-699), and informed by J. Moody “that, as the Engineer-in-Chief reports, he has already explained to Mr. Alexander that only two crossings can be given at 120 miles 4 chains and 120 miles 47 chains.” Similar communications were also sent to many interested parties in Goulburn, and notwithstanding these repeated promises but one crossing has been provided, that at 120 miles 4 chains. The level-crossing intended to extend from Clinton-street, and which would have been accessible for the largest number of people, has not been supplied.

In connection with this business, I desire further to state that in 1874 I presented a Petition from the Municipal Council and residents of Goulburn praying that a bridge may be erected over the creek near Conolly's mill to enable the inhabitants to have access to Blackshaw's Water Reserve, and received a reply from Mr. Rae on 23rd October, 1874 (74-1328), stating:—“I have the honor to inform you that the request of the Petitioners is complied with, and instructions to build the bridge have been issued accordingly.”

The necessity of supplying a second crossing is now urgent, since a population is settling down at Eastgrove, where an application has been made for a public school. I enclose plan showing the alienated land in this locality, and shall be glad if you will give this matter your serious attention, with a view to provide means for crossing the line, which will be available from the more populous portion of the city, and thus avert the inconvenience to which people are subjected in being forced to cross near Goldsmith-street.

The Commissioner for Railways.

I have, &c.,

WM. TEECE.

Have

Have not the crossings, promised in 1869, been given?—CH.A.G., 29/8/83. Mr. Cowdery. Mr. Stephens to say if crossings exist at the mileage stated; the mileage given by Mr. Teece is from Granville.—G.C. (*per* G.L.), 31/8/83.

There is only one level-crossing, the one at Goldsmith-street, 120 miles 4 chains (old mileage); the other proposed crossing at Clinton-street, 120 miles 47 chains, was commenced, approaches made, but was subsequently abandoned. Though I have made numerous inquiries I have been unable to ascertain the reason why.—R.D.S., 28/10/83. Mr. Cowdery.

Only one crossing has been laid in.—G.C., 5/11/83. Commissioner. What will the cost of completing the second crossing be, and will it meet the public want?—D.V., 8/11/83. Mr. Cowdery.

Report from Mr. Stephens herewith shows that the level-crossing originally proposed opposite Clinton-street could not be constructed, as it would run through our present shops, beside crossing several lines of rails. I would strongly recommend that if any access is to be given to Eastgrove, that it be under the railway bridge, as shown on tracing attached.—G.C., 25/2/84. Commissioner.

REPORT.

Goulburn level-crossing originally proposed opposite Clinton-street, 120 miles 47 chains (old mileage). ON 18th December, 1883, I forwarded you a tracing referring to this, but it would seem that the accompanying report was not sent in by me. I now forward you a duplicate tracing which, I think, will sufficiently explain matters.

You will perceive that the level-crossing in question is simply impossible. If absolutely insisted on it could only be used by foot passengers by means of an overhead footbridge (estimated cost, £3,400), and then would be comparatively useless. To render it of any avail it ought to be a crossing fit for carts, and that you will at once perceive is totally impracticable.

As stated in one of my previous reports, it was evidently the original intention to put in a level-crossing as portion of the approaches were made up; but, although I have made all inquiries, I cannot ascertain why the idea was abandoned.

I have carefully gone into this question of giving easy access to the Eastgrove population, and I think that the alternative measure sketched out on same tracing (*viz.*, roadway under railway bridge) presents the fewest objections. This creek is always dry except in flood time, and that does not occur once in five years. I have been here for two and a-half years, and I have never seen any water in it; and supposing a flood did come down the present bridge over the Mulwarree would be under water as well, so that this would not affect the question.

In other respects I cannot see any valid objection to my proposition. The cost would be but trifling, and since the roadway passes underneath the railway it would in no wise affect the railway traffic. The level-crossing as originally proposed if constructed now would not meet the public want.

R. D. STEPHENS, 20/2/84.

Nothing can be done at present.—CH.A.G., 28/2/84.

Inform Mr. Teece.

Sir,

Railway Branch, Sydney, 10 April, 1884.

With reference to your further representations respecting the necessity for the construction of a subway or level-crossing to enable the inhabitants of Goulburn to have direct access to Mulwarree and Eastgrove, I have the honor to inform you that the matter has been further and fully considered, but no work of the kind can be undertaken by the Department at present.

I have, &c.,

CHAS. A. GOODCHAP,

(*Per* D.V.),

Commissioner for Railways.

Wm. Teece, Esq., M.P., Sydney.

No. 7.

Questions in Legislative Assembly, Wednesday, 2 July, 1884.

Mr. TEECE asked the Secretary for Public Works,—

1. Were two level-crossings promised to the inhabitants of Goulburn across the railway line in 1868—one at Goldsmith-street (120 miles 4 chains), and the other at Clinton-street (120 miles 47 chains); and have both these crossings been provided?
2. Was a Petition presented from the Municipal Council in 1874, praying for the erection of a bridge over the creek near Conolly's mill, to afford access to Blackshaw's Water Reserve?
3. Was a communication sent to the Mayor or other person in October, 1874, stating that the prayer of the Petition was complied with, and instructions had been given to build the bridge, and has such bridge been built?
4. Is it the intention of the Government to provide means whereby the inhabitants may cross the railway line at or near Clinton-street?

Mr. DIBBS answered,—

1. Yes; one crossing only has been provided.
2. Yes.
3. Mr. Teece was informed on the 23rd October, 1874, that a bridge would be erected; but it was subsequently found that the expense of the work would be much greater than the convenience to be afforded would justify, and the proposal to erect the bridge was subsequently abandoned.
4. The question of affording some additional means of crossing the line is under consideration.

No. 8.

W. Teece, Esq., M.P., to The Commissioner for Railways.

Sir,

Sydney, 11 July, 1885.

I desire to direct your attention to the delay which has taken place in providing the necessary accommodation to enable the inhabitants of the city of Goulburn to have access to and from Eastgrove. The previous papers will show the repeated promises which have been made in this matter, and more than twelve months since the Minister favourably replied to a deputation that urged the construction of a subway or footbridge. The length of the footbridge may be advanced as a reason against its adoption, but it must be remembered that many, and some more lengthy, than that which it would be necessary to erect at Goulburn have been built at (say) from Parramatta to Sydney. A causeway beneath the bridge opposite Conolly's mill would be but an indifferent substitute for either a subway or footbridge, and moreover, the roadway would traverse low flooded land and hence be always costly in maintainance. I hope that this matter may receive the early attention of the Department.

I have, &c.,
WM. TEECE.

There is no immediate necessity for this.—CH.A.G., 31/8/85. Mr. Teece informed.

Sir,

Railway Branch, Sydney, 8 September, 1885.

Referring to your letter of the 11th July last, complaining of delay which has taken place in providing the necessary accommodation to enable the inhabitants of the city of Goulburn to obtain increased facilities of access to and from Eastgrove, I have the honor to inform you that the matter has had consideration, but the work cannot be undertaken at present.

I have, &c.,
CHAS. A. GOODCHAP,
Commissioner for Railways,
(per G.B.)

Wm. Teece, Esq., M.P., Sydney.

No. 9.

Minute by the Chief Clerk.

THE Minister, when on his recent tour of inspection at Goulburn, had his attention drawn to the necessity for an overhead bridge to meet the wants of the people of Eastgrove, and would like to know how the matter stands on an early date.—D.C.M'L., 28/4/88.

Traffic Manager first.—A.R., 30/4/88. Please see the enclosed, and let me have your early report upon the matter.—W. V. READ, 2/5/88. Inspector Crawford.

The people of Eastgrove have agitated for some time for means of communication between the city and this suburb other than the road *via* Braidwood Road Crossing and the Goldsmith-street Crossing. In connection with using the new platform, a subway or overbridge connecting the two platforms was suggested. The Eastgrove people apply that this overbridge or subway be carried from Verner-street across the railway on to the reserve, and that they be allowed to use it. This would be a most expensive arrangement. To meet their wants provision is now being made for a road under the new bridge now in course of erection under the line near Clinton-street. This will be available for vehicular and foot traffic.—A. CRAWFORD, 5/5/88.

Commissioner.—W. V. READ (per W.H.C.), 10/5/88.

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(REPORTS IN CONNECTION WITH THE DUPLICATION OF THE LINE FROM GOULBURN TO COOMA JUNCTION.)

Ordered by the Legislative Assembly to be printed, 3 July, 1888.

RETURN to an *Order* of the Honorable the Legislative Assembly of New South Wales, dated 1st March, 1888, That there be laid upon the Table of this House,—

“Copies of all papers and reports in connection with the duplication of the
“line Goulburn to the Cooma Line Junction.”

(Mr. Walker, for Mr. O'Sullivan.)

SCHEDULE.

NO.	PAGE.
1. Minutes of District Engineer, recommending construction of line, with official and Ministerial minutes. 14 November, 1882	2
2. Letter from Topham, Angus, & Co. to the Commissioner for Railways, applying to lease portion of land at Goulburn, with reports, minutes, and Minister's, decision to have line constructed. 28 August, 1883	2
3. Letter from Mr. K. Mackenzie to Engineer for Existing Lines to survey line, with Minister's approval and official minutes, together with estimated cost of line. 2 January, 1884	3
4. Minutes respecting interlocking apparatus to be provided. 18 July, 1884	4
5. Letter from Under Secretary for Public Works, enclosing tenders for the superstructure of girder bridges on Goulburn and Joppa Line. 19 May, 1885	4
6. Letter from Commissioner for Railways to Messrs. Appleby Bros., accepting their tender for above work. 29 May, 1885	5
7. Letter from Mr. T. J. Appleby to Commissioner for Railways, asking that contract might stand in his name. 2 June, 1885	5
8. Letter from Mr. T. J. Appleby to Commissioner for Railways, stating that he will not be able to take up contract, with minutes, &c., and letter in reply. 6 June, 1885	5
9. Letter from Commissioner for Railways to Under Secretary for Finance and Trade, asking that deposit of £50 received with Mr. Appleby's tender be placed to the Suspension Account. 30 June, 1885	6
10. Letter from Messrs. Mason Bros. to Minister for Public Works, respecting their tender sent in, and reply thereto. 16 June, 1885	6
11. Letter from Under Secretary, Public Works, enclosing fresh tenders for superstructure of girder bridges. 7 July, 1885	6
12. Letter from Commissioner for Railways to Messrs. Tulloch & Co., accepting their tender for above work. 14 July, 1885	7
13. Minute of Engineer for Existing Lines, forwarding draft, advertisement inviting tenders for duplication of line. 1 December, 1885	7
14. Letter from Under Secretary for Public Works, enclosing tenders for duplication of line, official minutes, reports, &c., and Minister's decision. 19 January, 1886	7
15. Minute of Minister with Commissioner's reply. 25 March, 1886	8
16. Letter from Messrs. Tulloch & Co. to Commissioner for Railways, applying for an extension of time in connection with their contract, with Commissioner's reply. 22 March, 1886	8
17. Letter from Mr. Teece, M.P., to Minister for Works, <i>re</i> deputation. 1 April, 1886	9
18. Minute of Minister, &c., <i>re</i> deputation with minutes, reports, &c. 4 April, 1886	9
19. Extract from Minute of Minister, <i>re</i> duplication of line. 11 March, 1887	9
20. Letter from Messrs. M'Sweeney & Kirwan to Minister for Public Works, pointing out that they were the lowest tenderers for the work, with minutes, &c. 30 March, 1887	10
21. Minute of Minister for Public Works <i>re</i> deputation, with Ministerial minutes and Cabinet's approval for work to be carried out. 6 April, 1887	10
22. Letters from Mr. Matheson, M.P., to Minister for Public Works, <i>re</i> tender sent in by Messrs. Kerwin & M'Sweeney, minutes, &c. 25 June and 12 July, 1887	10
23. Letter from Mr. J. Clarke, drawing attention to excessive cash security required for bond, minutes and with reply. 16 August, 1887	11
24. Letter from Under Secretary for Public Works, forwarding tenders for duplication of line. 23 August, 1887	11
25. Letter from Commissioner for Railways to Messrs. Kerr & Taylor, accepting tender for above work. 30 August, 1887	12
26. Questions asked by Mr. O'Sullivan, M.P., in the House, with answers to same, with minutes, reports, &c. February, 1888	12
27. Letter, G. W. Townsend to Commissioner for Railways, <i>re</i> preparation of estimate, Goulburn to Joppa Junction. 1 March, 1888	13

RAILWAYS.

No. 1.

Minute by Mr. District-Engineer Stephens.

Proposition to double the Lines between the Cooma Junction and Goulburn.

THIS, I am fully assured, is essentially necessary, and ought, I consider, to be ready for opening at the same time as the opening of the first section of the Cooma Railway.

Attached sketch will explain matters. The junction, as at present arranged, is very awkwardly situated, being at the foot of a 1 in 40 gradients, on a bank, and close to the Run of Water Creek Bridge. I would suggest that there be no station, or even points, but that the Cooma Line should run direct into Goulburn; but attached sketch will more fully explain what I beg to bring under your notice.

R. D. STEPHENS.

Engineer Existing Lines, 14/11/82.

I have to report, for the Commissioner's information, that in my opinion it would be of great service to the Department in working the Cooma branch, a saving of time, much safer, and eventually more economical, if this line were doubled from this junction to Goulburn, at the distance of about $3\frac{1}{4}$ miles—or, in other words, make Goulburn the junction—the expense would not be great, and I understand the engineering difficulties are nil. In the first place, if it is intended to keep the junction at mileage 137 $\frac{1}{4}$, the cost will be considerable; a platform, station buildings, siding, signals, and two cottages will be required, and there will be the wages of at least two men. It appears to me that the cost of all this would about cover the expense of doubling the portion of the line indicated, apart from the question of greater safety, which is a very important consideration. I shall be glad if the Commissioner will kindly take the matter into consideration, and if he approves of my recommendation, have it carried out as soon as possible, as there is now no time to lose.—W.V.R., 10/8/83.

I would strongly advise that the line be doubled from proposed junction into station at Goulburn. It will be in every way better, and in the long run less expensive.—C.A.G., 14/8/83. How does this affect the question of land resumption; that is, have we land belonging to the railway to enable us to carry out this work?—F.A.W., 24/8/83. Ask Mr. Cowdery to see me about this with plan. I think we have land.—C.A.G., 24/8/83. Mr. Leggatt for plan.—G.C., 26/8/83. I am informed that this plan was burnt. Will Mr. Stephens' sketch attached be sufficient? If not we will have to compile one.—A.L. Mr. Cowdery.

No. 2.

Topham, Angus, & Co. to The Commissioner for Railways.

Sir,

Joppa Camp, Goulburn, 28 August, 1883.

We have the honor to apply for a lease of that piece of land belonging to the Commissioner for Railways, situated on the northern side of the Great Southern Railway, and commencing about 250 feet south of the Braidwood road railway crossing, having a frontage to the railway of about $3\frac{1}{4}$ chains, with an average depth of 100 feet, and containing about half an acre. Our reasons for applying for a lease of this land are that we find it to be the most conveniently situated for the purpose of storing railway plant and timber in connection with our railway contracts and saw-mill, it being in every way suitable for laying in a siding from the railway, and for which we are willing to pay any reasonable rent, say £20 per annum. We have the honor to enclose a tracing showing the land in question.

Should you favourably entertain this application we may mention that the Traffic Department may expect a considerable amount of business, as we have a large quantity of stuff of various description which requires immediate removal.

Trusting to your early and favourable attention.

We have, &c.,
TOPHAM, ANGUS, & Co.

Mr. Stephens for early report.—G.C., 31/8/83. Report attached to Mr. Cowdery.—R.D.S.
12/9/

Messrs. Topham and Angus' application to have some of Commissioner's land near Goulburn.

Railway Department, Sydney, 12 September, 1883.

I wish I could recommend this, as not only would it be of considerable advantage to the contractors, but would also indubitably swell the traffic returns.

The objections are: 1st. The introduction of a new set of facing points which would be rather difficult of control—though certainly they could be kept locked, and none but the Station Master be allowed to open them, and 2nd. Probably also the Traffic Department might require these points to be protected by signals. There is one way out of the difficulty, and that is to run the siding alongside existing train line and join it to the sidings at the station. This would do away with all objections, and would not be so costly as would at first sight appear, as it would form the first step or position towards doubling the line between Goulburn and Cooma Junction as explained to you in my letter dated November 14th, 1882, your M.P., 82-7,094.

This will most undoubtedly have to be done shortly; in fact, it would have been most desirable if this could have been done before the opening of the first section of the Cooma Railway. With the exception of the question of the facing points, I do not see any objections to Messrs. Topham, Angus, and Co.'s application being granted.

R. D. STEPHENS.

Forward

Forward tracing showing scheme you propose, and also estimated cost in each case.—G.C., 21/9/83. Mr. Stephens.

Complete sketch of scheme proposed forwarded to you, November 14th, 1882, *i. e.*, as far as the doubling of the line is concerned. I attach copy of tracing and copy of letter, I now attach tracing of line as actually surveyed. What I endeavoured to show was that, if you would allow this to form part of the original scheme proposed, no extra expense of any consequence need be entailed. Estimated cost, to join on to existing line, £165. Estimated cost to form part of the future scheme which must be carried out sooner or later, £1,100. This includes widening the bridge and widening the level crossing, but it must be remembered that this £1,100 is part and parcel of the doubling of the line.—R.D.S., 18/10/83. Mr. Cowdery.

Will the Commissioner kindly reply to my minute of the 10 August last relative to the desirability of doubling the line between Cooma Junction and Goulburn.—W.V.R., 16/11/83. Mr. Cowdery.—D.C.McL., 20/11/83. The Commissioner has sufficient land for doubling the line from Goulburn to Cooma Junction.—G.C., 29/11/83. Commissioner. See my recommendations of 14/8/83, and the Minister's minute of 24/8/83.—C.A.G., 1/12/83. Minister. I find we have the land and therefore approve of work being done.—F.A.W., 11/12/83. Mr. Cowdery—Noted.—D.C.McL., 2/1/84. G.C., 2/1/84.

No. 3.

Mr. K. Mackenzie to The Engineer for Existing Lines.

Sir,

Croydon, 2 January, 1884.

For making a survey and doing other work in connection therewith, required in respect of duplicating $3\frac{1}{2}$ miles of the Great Southern Railway from Goulburn, I beg to offer to do the same on the following terms, *viz.*—To supply a four chain plan showing proposed double line of rails with lines of cross sections thereon. Take all necessary cross sections, plot same, calculate quantities and make disposal of earthwork sheet (labour, &c., being supplied), for the sum of £110. Deduction or addition to this amount to be made if the quantity of cross sections exceed or are less in number than 200, such addition or deduction to be calculated at 5s. each.

The amount mentioned I estimate on the following basis:—

	£	s.	d.
Setting out and surveying	25	0	0
200 Cross sections (including plotting and calculations)	40	0	0
Plotting and making finished plan	25	0	0
Expenses	20	0	0
	£110	0	0

I have, &c.,
K. MACKENZIE.

I recommend that Mr. Mackenzie's services be accepted as I consider the work well worth the money, the Department finding labourers and paper.—G.C., 2/1/84. I think this will be an economical way of getting the work done.—C.A.G., 7/1/84. Approved.—F.A.W., 8/1/84. Noted and Mr. Mackenzie informed.—G.C., 9/1/84. Commissioner.

Surveying for proposed double line of rails, Goulburn to Joppa Junction.

Railway Department, 6 February, 1884.

Will you please inform me to what Schedule the above is chargeable.
Engineer Existing Lines.

R. D. S.

Will Commissioner please say if the work of doubling the line from Goulburn to the junction of Cooma line is to be charged to Schedule G.—G.C., 7/2/84. Commissioner.

It does not matter much whether it be charged to Schedule G or the vote for the Cooma line; properly speaking, it should have been included on the estimate of that line, as it is rendered necessary by its construction. If, however, the balance of the vote will not admit of it being so charged, it can be debited against Schedule G.—C.A.G., 4/3/84. Mr. Cowdery.

Will Accountant please say what balance there is on the vote, Goulburn to Cooma, available for this work.—G.C., 10/3/84. Accountant.

The balance on the book is £1,181,000, out of which the amounts required by the Engineer-in-Chief will have to be met; of those amounts I have no information.—F.W., 11/3/84. Engineer Existing Lines.

As it cannot be ascertained whether there will be any balance on the vote, Goulburn to Cooma, on the completion of the work, will Commissioner please say if an estimate had not better be submitted so that a loan vote may be taken.—G.C., 27/3/84. Commissioner.

Prepare estimate, and then it can be seen whether it is necessary to take an extra vote.—C.A.G., 29/3/84. Mr. Cowdery.

The estimate cost of this work will be about £13,300.—G.C., 26/4/84. Commissioner.

What is the balance on the votes for Schedule G? Accountant,—Deducting what has been authorized and not yet paid. This information, if not with Accountant, can be obtained from Engineer Existing Lines.—C.A.G., 29/4/84. Accountant.

Existing Lines please state amounts required to complete work authorized and not yet paid.—F.W., 30/4/84. Existing Lines.

	£	s.	d.
Balance due on existing contract... ..	61,013	3	2
Works being carried out by Department	34,118	11	5
Works authorized, but not yet contracted for	137,530	0	0
Fixing and interlocking apparatus	21,060	0	0

£253,721 14 7

Accountant.

G.C., 14/5/84.

Double

Double Line of Rails.—Goulburn to Joppa Junction.

Estimated cost of above, £13,300.

Balance on vote for alteration and additions, £86,233 16s. 9d., against which it appears there are liabilities, as per Mr. Cowdery's statement, viz. :—

Balance due on contract	£61,013	0	0
Works being carried out by Department	34,118	0	0
Works authorized not contracted for	137,530	0	0
Fixing interlocking apparatus	21,060	0	0
	<u>£253,721</u>	<u>0</u>	<u>0</u>

Secretary.

F.W., 25/5/84.

Will the Commissioner please say.—F.F., 30/5/84. Acting Secretary.

I recommend that this expenditure be charged to the vote for the extension to Cooma, for the traffic on which line the double line has been rendered necessary. Should the vote be unequal to the charge upon it, it can be supplemented. I do not see how the expense can be charged to the capital vote under Schedule G, as it is not an addition to meet increasing traffic. Besides, the vote under Schedule G is well nigh exhausted. It will have to be supplemented to meet the expenditure already authorized. An estimate is being prepared for this purpose.—C.A.G., 3/6/84.

Approved.—G.R.D., 10/6/84. Mr. Cowdery, 12/6/84. Noted.—G.C., 12/6/84. Commissioner.

No. 4.

Minutes respecting Interlocking Apparatus.

Interlocking, Goulburn.

Railway Department, 18 July, 1884.

It has been approved to double the line from Joppa Junction (Cooma line) into Goulburn Yard. As this will affect the interlocking at southern end of yard, will you please say :—

1st. Has any provision been made in alteration of roads, Goulburn, to suit working of new line?

2nd. Will the present Joppa Junction remain, and all main line and branch trains run on up and down lines into Goulburn, or will it be worked as two single lines, and Joppa Junction points taken out?

J. PARRY,

18/7/84.

1st. No. Make provision. 2nd. Arrange for up and down lines.—G.C., 26/7/84. Mr. Parry.

If the double line between Goulburn and Joppa Junction is worked as two single lines, one for the main and the other branch, the junction points and signals at Joppa could be dispensed with, and thereby effect a considerable saving of men's wages, &c., to attend to it. I would recommend it be worked as two single lines into Goulburn, as the present junction is in a very awkward position.—J.P., 1/9/84. Engineer Existing Lines.

Approved.—G.C., 1/9/84. Mr. Parry.

Tracing herewith showing alterations necessary for working the single lines into Goulburn station, and for working double line through station yard, and I recommend these be carried out at once so that the interlocking may be complete.—J.P., 11/9/84. Engineer Existing Lines.

Approved.—G.C., 19/9/84. Mr. Parry.

Plan herewith for District Engineer to carry out work.—J.P., 29/9/84. Engineer Existing Lines. Mr. Stephens with plan.—G.C., 6/10/84.

This will involve considerable expense and useless expense, until such time as these are actually required. Please direct me whether I am to do so at once or to wait for such instructions as may befit the times.—R.D.S., 7/10/84. Mr. Cowdery.

The carrying out of the work at present would seem to involve no useless expenditure. nor should it be more considerable than if left to be done hereafter. As, however, little could be actually done until the bridge is widened, which work comes within the contract for duplicating the line to Joppa. The work may stand until the bridge is widened, which should be done directly the contract is let.—G.C., 10/10/84. Mr. Stephens.

This shall be attended to. Leaving things as they are will materially facilitate the turning of the engines. I suppose this will be charged to Schedule G. Please inform me.—R.D.S., 19/10/84. Mr. Cowdery.

This refers to interlocking at Goulburn in connection with doubling line from Goulburn to Joppa Junction. Will Commissioner please say how the work is to be charged.—G.C., 24/10/84. Commissioner.

Schedule G.—C.A.G., 28/10/84. Mr. Cowdery. Mr. Stephens to note and charge.—G.C., 29/10/84. Noted.—R.D.S., 31/10/84. Mr. Cowdery.

No. 5.

The Under Secretary for Public Works to The Commissioner for Railways.

Sir,

Department of Public Works, Sydney, 19 May, 1885.

The tenders, six in number, for the work specified in the margin are referred to you for report, and you will have the goodness, as early as possible, to return them to me direct for submission to the Minister.

I have, &c.,

JOHN RAE.

Mr. Cowdery.—G.B., B.C., 19/5/85.

Draft advertisements inviting tenders herewith.—G.C., 23/4/85. Commissioner. Insert.—C.A.G., 29/4/85.

To make present junction a station an annual outlay would be incurred of not less than £300 a year, perhaps more, and the erection of residences, &c., would be required. Altogether the duplication must necessarily be more economical.—C.A.G., 29/4/85. Superstructure.

Estimated cost, £1,395 10s. Tender, £1,714 8s. 1d. Superstructure of girder bridges for duplication of railway crossing Goulburn to Joppa Junction.

Superstructure of Bridges for Duplication of line Goulburn to Joppa Junction.
Analysis of Tender.

	£	s.	d.
Appleby Brothers	1,714	8	1
Thomas Wearne (to be manufactured in the Colony)... ..	1,748	0	0
J. T. Carson.	1,881	17	6
McSweeney & Kirwan.	1,904	0	0
Robert Tulloch & Co.	2,104	5	0
D. & W. Robertson (to be made in the colonies).	2,234	0	0

The tender of Appleby Brothers is the lowest and I recommend it be accepted.—G.C., 23/5/85.
Commissioner.

Mr. T. Wearne to C. A. Goodchap, Esq., Commissioner for Railways.

Sir,

Sydney, 22 May, 1885.

I have the honor to inform you that I have made a mistake in estimating the price of the ironwork for bridges Goulburn to Joppa Junction. The amount should be £176 more. I should feel extremely obliged if you will kindly allow me to amend the tender or to withdraw it, as it will be quite impossible for me to complete the work at the price named. Trusting to have your favourable consideration.

I am, &c.,
T. WEARNE.

See Mr. Wearne's letter since received, representing that he had made a mistake in his offer, and wishing his tender increased by the sum of £176=£1,924. Even now Mr. Wearne is not 11% above Appleby Brothers tender, and probably the Minister, looking to his desire to give encouragement to the local manufacturer, would have, had the tender been so received in the first instance, directed its acceptance, but he will not probably consent to the acceptance of an amended tender, and therefore I recommend that the tender of Appleby Brothers be accepted.—C.A.G., 27/5/85.

Approved.—F.A.W., 28/5/85. Mr. Cowdery for specification.—D.C.McL., 29/5/85. Noted, and specification herewith.—G.C., 2/6/85. Commissioner.

No. 6.

The Commissioner for Railways to The Messrs. Appleby Brothers.

Gentlemen,

Department of Railways, 29 May, 1885.

I have the honor to accept your tender, dated 19th instant, for the construction and supply of the whole of the cast and wrought ironwork required for the superstructure of three double-line girder bridges for the duplication of line, Goulburn to Joppa Junction, in accordance with plan and specification, and to the entire satisfaction of the Engineer for Existing Railways.

Please forward deposit receipt for cash security mentioned in the specification in order that the bond may be prepared by the Crown Solicitor.

Please furnish me with the names in full of the members of your firm in order that the bond may be prepared.

I have, &c.,
C. A. GOODCHAP.

No. 7.

Mr. F. J. Appleby to The Commissioner for Railways.

Sir,

Albury, 2 June, 1885.

I have the honor to acknowledge receipt this day of your valued favour No. 85-3,527c, instructing me to proceed with certain bridgework for the duplication of line, Goulburn to Joppa Junction. I am the accredited agent in this Colony for the firm of Appleby Brothers, London, but I venture to submit that it would simplify matters if the contract stood in my own name, and hope this proposition will meet with your approval. I return to Sydney to-morrow and will then at once attend to the matter of security as required by the specification.

I have, &c.,
F. J. APPLEBY.

No. 8.

Mr. F. J. Appleby to The Commissioner for Railways.

Sir,

Sydney, 6 June, 1885.

With further reference to your valued favour No. 85-3,527c, it is with regret that I now have to inform you that it will not be possible for me to take up the contract for bridgework for the following reasons:—

1st. That the specification may be interpreted to cover work which I omitted to allow for in estimating.

2nd. That although the ironwork would be manufactured in England, the first payment on account would only be made sometime after its arrival here. In tendering I presupposed that the same terms would prevail as in the case of similar work which my firm has had the honor to carry out for other departments of the Public Works in this Colony.

In conclusion, I desire to tender my sincere apologies for any inconvenience I may hereby cause to the Department.

I have, &c.,
F. J. APPLEBY.

Was there any deposit with tender? Mr. Cowdery to say if the bridge work is urgently required, if so perhaps Mr. Carson's tender £1,831 17s. 6d., being £117 in excess of Appleby's might be accepted; if not it would be well to invite fresh tenders.—C.A.G., 8/6/85.

The specification provided for a deposit of £50. As Mr. Carson's tender is less than my estimate I recommend it be accepted.—G.C., 9/6/85. Was the £50 deposited with tender? Is the work so urgent as not to admit of the delay required in inviting fresh tenders?—C.A.G., 10/6/85. Take this specially down to Mr. Cowdery and get his answer to-day.—C.A.G. The work is not of such an urgent character but that it could be delayed and fresh tenders invited, but I do not think we are likely to get a lower tender.—G.C., 11/6/85. Commissioner. I recommend that fresh tenders be invited, that money deposited be forfeited.—C.A.G., 12/6/85. Approved.—F.A.W., 16/6/85.

Sir,

Department of Railways, Sydney, June 17, 1885.

I have the honor to acknowledge the receipt of your letter of the 6th instant, intimating your intention to give up your contract for bridge work in connection with the duplication of the line Goulburn to Joppa Junction.

Your failure in this matter has put the Department to some inconvenience, and the deposit lodged with your tender will, under the conditions of contract, be forfeited.

I have, &c.,

CHAS. A. GOODCHAP,
Commissioner for Railways.

Mr. F. J. Appleby, 37, Castlereagh-street, Sydney.

Mr. Cowdery.—H.McL., 18/6/85. Noted on draft inviting fresh tenders herewith.—G.C., 20/6/85. Commissioner. Accountants, 24/6/85.

Money deposited is not with me. From memo. at foot of Mr. Appleby's tender it is with the Treasury, and the amount, £50. That Department might be requested to place the sum to Suspense Account. This is another case in which I think the amount should be used in reduction of the cost of the work should an increased tender have to be accepted.—F.W., 25/6/85. Secretary.

No. 9.

The Commissioner for Railways to The Under Secretary, Finance and Trade.

Sir,

Department of Railways, 30 June, 1885.

I have the honor to inform you that tenders were invited for the supply, &c., of ironwork in connection with the bridge required for the duplication of the line Goulburn to Joppa Junction. Mr. Appleby's tender was accepted, but he subsequently wrote in declining to carry out the contract. The deposit (£50) lodged in connection with his tender has therefore, under the conditions of the contract, been forfeited, and I shall be glad if you will place the amount to "Suspense Account."

I have, &c.,

C. A. GOODCHAP,
Commissioner for Railways.

No. 10.

Mason Bros. to The Secretary for Public Works.

Sir,

14, Spring-street, Sydney, 16 June, 1885.

On the 19th May we tendered for construction and supply of ironwork required for bridge in *re* duplication of line Goulburn to Joppa, but the tender of Mr. Thomas Wearne was accepted. Subsequently, he having thrown up the contract, the tender of an English firm, Appleby Brothers, was accepted and Gazetted.

We have learned that they have refused to carry out the contract too, and as the next lowest, we beg to apply for our tender to be accepted.

We have, &c.,

DAVID WILSON, Director.
(For Mason Brothers).

Inform that fresh tenders have been invited.—F.A.W., 17/6/85.

Sir,

Department of Railways, Sydney, 19 June, 1885.

Referring to your letter of the 16th instant, asking that your tender for the construction and supply of bridgework in connection with the duplication of railway line, Goulburn to Joppa, might be accepted. I have the honor to inform you that it has been decided to invite fresh tenders for the work.

I have, &c.,

C. A. GOODCHAP,
Commissioner for Railways.

David Wilson, Esq., care of Messrs. Mason Brothers, 14, Spring-street, Sydney.

No. 11.

The Under Secretary for Public Works to The Commissioner for Railways.

Sir,

Department of Public Works, Sydney, 7 July, 1885.

The tenders, three in number, for the work specified in the margin, are referred to you for report, and you will have the goodness, as early as possible, to return them to me direct for submission to the Minister.

I have, &c.,

JOHN RAE.

Mr. Cowdery.—G.B., B.C., 7/7/85.

Duplication

Estimated cost,
£1,895 10s.
Tender,
£1,864 7s. 6d.
Superstructure
of three double-
line girder
bridges, Goul-
burn to Joppa
Junction
Railway.

Duplication of line Goulburn to Joppa Junction, Supply of iron bridges. Analysis of tender:—					
Robert Tulloch & Co.	...	...	...	...	£1,864 7s. 6d.
Mason Bros., Limited	...	...	...	...	£1,875 17s. 6d.
D. & W. Robertson	...	...	...	...	£2,097 15s. 0d.

The tender of Robert Tulloch & Co. is the lowest, and I recommend it be accepted. G.C., 9/7/85.
Commissioner.

For Minister's approval.—C.A.G., 11/7/85. Approved.—F.A.W., 13/7/85.

No. 12.

The Commissioner for Railways to Tulloch & Co.

Gentlemen,

Department of Railways, Sydney, 14 July, 1885.

I have the honor to accept your tender, dated the 7th instant, for the construction and supply of ironwork, for the superstructure of three double line girder bridges, for the duplication of line from Goulburn to Joppa Junction, in strict accordance with plans and specification, and to the entire satisfaction of the Engineer for Existing Lines, for the sum of £1,864 7s. 6d.

Kindly supply names in full of the members of your firm, and also forward deposit receipt for security, in order that bond may be prepared by the Crown Solicitor.

I have, &c.,

C. A. GOODCHAP,

Commissioner for Railways.

No. 13.

Minute by The Engineer for Existing Lines.

Duplication of line Goulburn to Joppa Junction.

I FORWARD herewith draft advertisement inviting tenders for duplication of the Great Southern Railway Line from Goulburn to Joppa Junction, for insertion in the *Government Gazette*, &c.

A tender has already been accepted for the supply of ironwork superstructures of the bridges.

To Commissioner.

G.C., 1/12/85.

For Minister's approval.—C.A.G., 3/12/85. Approved.—W.J.L., 7/12/85.

No. 14.

The Under Secretary for Public Works to The Commissioner for Railways.

Sir,

Department of Public Works, Sydney, 19 January, 1886.

The tenders, eleven in number, for the work specified in the margin, are referred to you for report, and you will have the goodness, as early as possible, to return them to me direct, for submission to the Minister.

I have, &c.,

J. R.

Mr. Cowdery, 19/1/86.

Duplication of line, Goulburn to Joppa Junction.—Analysis of tender:—

	£	s.	d.
M'Sweeney & Kirwan	12,714	16	0
John George Gatty	13,109	14	4
Angus & Co.	13,883	19	0
John Ahearn	13,889	9	6
Donohoe & Bell	13,993	18	8
M'Ardill & Thompson	14,803	6	0
Nightingale & Foord	14,956	1	4
Murray & Lewis	15,165	14	9
Paisley & Morgan	15,349	5	0
Blunt & Co.	16,111	2	0
A. Johnston & Co.	17,959	0	0

The tender of M'Sweeney & Kirwan is the lowest, and I recommend it be accepted. There are a few inaccuracies in the Schedule which Messrs. M'Sweeney & Kirwan will require to correct if their tender be accepted.—G.C., 21/1/86. Commissioner.

I wish to have the papers, and at once, please, upon which the duplication of the line was approved. The above prices do not, I presume, include rails, &c., which will swell the expense by over £2,000. There will have to be great advantages shown to justify this outlay.—C.A.G., 25/1/86. Mr. Cowdery.

At the time this work was approved of it was estimated that it would cost about £9,000 to £10,000. It was subsequently stated that it would cost £13,500, and that was allowed to pass, because in addition to the saving that would be effected in working expenses—equal to the interest upon a capital outlay of £8,000—there would be the advantage of safer working, rendered more expedient by the almost dangerous site of existing junction forming the basin of two assents; but even the second estimate has been exceeded, and the question now arises whether it is desirable to proceed at any rate for the present. Let me know the whole cost incurred to date, and what will be required to complete, if this tender is accepted. Also, what it will cost to make the junction on the Goulburn side of the bridge, including removal of signals, &c.—C.A.G., 28/1/86. Mr. Cowdery.

Full report, with detail statement attached.—G.C., 8/2/86. Commissioner.

Duplication

Duplication of the Line from Goulburn to Joppa Junction:—In reply to the Commissioner's minute of 28/1/86. By carrying out this duplication two great advantages are secured; firstly the junction of the two lines is removed from Joppa to Goulburn by which the necessity for a staff and signalling station will be dispensed with, which will represent an annual saving in working equal to the interest on a sum of £8,000 at 4 per cent., in addition to the greater facility for working the traffic by having it under the control of the Station-master at Goulburn. The second advantage is the avoidance of a junction on an incline of 1 in 40, which at any time might be the site of a serious accident. The estimate of £13,286 11s. 9d. was prepared by Mr. Townsend,* and in looking through the estimate, I see no provision was made for the following items: the bridge at Goulburn, which will have to be reconstructed for a double line, the substitution of a subway for the over bridge at Mrs. De Lauret's land, this work being necessary on account of the sidelong nature of the ground preventing the widening of the existing over bridge; there was also no provision for the removal and re-erection of pumper's house, and platform and shed at Joppa Junction. Moreover some of the large items were quoted too low. The cost incurred up to date is Robert Tulloch's contract for the ironwork for bridges—£1,864 7s. 6d.

The cost of completion will be as follows:—

Ironwork for bridges (as per contract 1)...	... ..	£1,864	7	6
Carriage of do. ... ..	... ..	150	0	0
Rails and fastenings, 3½ miles ... ..	... ..	3,500	0	0
Earthwork, brickwork, &c., as per contract 2 (lowest tender) ... ..	... ..	11,205	0	0
Alterations to roads at Goulburn points, crossings, &c. ... ..	... ..	400	0	0
		£17,119 7 6		

If the junction is removed to the level land on the Goulburn side of Run of Water Creek Bridge the cost of the alteration, including removing signals, would be approximately £8,500, but a staff and signalling station would still be required and the subway at Mrs. De Lauret's land would have to be constructed as the material to make the embankment at Joppa would have to come from the cutting where the over bridge is at present, and the removal of this material would destroy the access to the over bridge. The ironwork for the bridge is approaching completion.—W. SHELLSHEAR, 4/2/86.

For Minister's decision. No doubt the present junction is far from being a safe one, although if care is taken no accident should occur. Under ordinary circumstances the outlay to carry the Cooma line direct into Goulburn would not be justified at the expense which it seems will be necessary, and, even under the exceptional circumstances of the case, the question arises whether this large expense should be incurred.—C.A.G., 8/2/86.

This work can very well stand over for a time, and I must express my astonishment that this work (the approval of which was based on an estimate of £8,000 or £9,000) will now cost nearly £20,000.—J.G., 17/2/86. Write to each tenderer simply declining their tender.—D.C.McL., 19/2/86. Mr. Cowdery *re* Minister's minute, 20/2/86. Noted. The estimate £13,300 was made by Mr. Townsend.*—G.C., 23/2/86. Commissioner. Traffic Manager to see.—D.C.McL., 25/2/86. Seen.—W.V.R., 27/2/86. Commissioner.

*This is deemed to be inaccurate (See letter No. 27.)

No. 15.

Minute by The Secretary for Public Works.

WHAT is being done in connection with the duplication of railway, Joppa Junction to Goulburn? W.J.L., 25/3/86. Commissioner. The expense was found to be too heavy—far in excess of convenience afforded—and the work stopped for the present; might be done when traffic increases and justifies outlay.—C.A.G., 25/3/86. Seen.—W.J.L., 25/3/86.

No. 16.

R. Tulloch & Co. to The Commissioner for Railways.

Sir,

Sydney, 22 March, 1886.

With reference to our contract, iron bridges on duplication of line, Goulburn to Joppa Junction, we beg to apply for an extension of time to 22 May next, on the following grounds, viz.:—

Immediately we received notification of the acceptance of our tender we ordered the iron from our agents in England, instructing them to forward it at once by fast mail steamer, as we wanted the material urgently, irrespective of cost of freight, &c. Instead of sending it as directed they kept it back for a slow cargo steamer, and we did not get it until the first week in January last, making it utterly impossible to have the work done in proper time. We regret the delay exceedingly, and trust that you may see fit to grant us the extension of time now asked for.

We are, &c.,

R. TULLOCH & CO.

(Per J.A.)

Engineer Existing Lines, 22/3/86. As it has been decided that the work of duplicating the line is to be postponed, I think this application may be granted.—G.C., 25/3/86. Commissioner. Approved.—C.A.G., 26/3/86. Inform Messrs. Tulloch & Co.

Gentlemen,

Railway Department, 29 March, 1886.

In reply to your letter of 22 instant, applying for an extension of time until 22 May for the completion of your contract for iron bridges, duplication of line Goulburn to Joppa Junction, I have the honor to inform you that I have approved of a compliance with your request.

I have, &c.,

C. A. GOODCHAP,

Commissioner for Railways.

Messrs. R. Tulloch & Co.,
Phoenix Iron Works, Sydney.

No. 17.

W. Teece, Esq., M.P., to The Secretary for Public Works.

Dear Sir,

Sydney, 1 April, 1886.

A deputation desire to interview you to-morrow to urge the acceptance of a tender for the duplication of the Cooma line of railway from Joppa to Goulburn. The deputation will consist of the members for Cooma, Queanbeyan, Braidwood, Goulburn, and Argyle, and I shall be glad if you can name the time when you will be prepared to receive us.

Truly yours,
W. TEECE.

Let me have the papers in this case for to-morrow,—W.J.L., 1/4/86. Herewith.

No. 18.

Minute by The Secretary for Public Works.

THE deputation accompanied by Messrs. Teece, Tait, O'Sullivan, Dawson, Stephen, and Ryrie waited upon me to-day with reference to the duplication of the line Goulburn to Joppa. It was urged that as tenders had been called and opened for the work something should be done in justice to the tenderers. Further that some bridges were being built which were of no value except for the duplication, and also that the doubling of the line would do away with the necessity of a staff station and reduce current expenses. The traffic it was represented warranted the work, and as it was a service that would be paid from capital, the working expenses would not be affected. I informed them that the work had been postponed as it was found the cost was too great in view of the convenience that would at present be afforded thereby. No doubt the cost would come out of "capital," but I had to consider the "loan" vote as well as working expenses, as we had to pay the annual interest on loans besides having to redeem the capital borrowed. If the traffic were found to be on the increase, I would reconsider the matter and if the business to be done justified it, I would then approve of the work being gone on with.—W.J.L., 4/4/86.

In three months when traffic might be ascertained.—H.McL., 7/4/86. Traffic Manager.—D.C.McL., 9/6/86. Will Mr. Seale please let me have a statement of the traffic from the opening of the line up to date.—W.V.R. Acting Traffic Auditor. Return attached.—T.H.M.C., 5/7/86. Herewith a statement showing the traffic up to the end of April, which I presume will be sufficient for the purpose required.—M.S., 5/7/86. Traffic Manager. Commissioner.—W.V.R., 5/7/86.

Return of traffic on the Cooma railway from date of opening (3 January, 1884) to 30 April, 1886.

		1884.				£	s.	d.
Coaching-tickets issued, 10,978...	...	...	...	...	...	11,391	13	5
Goods, 12,010 tons.	...	...	...	...	...	19,682	3	5
		1885.						
Coaching-tickets issued, 13,050...	...	...	...	...	...	17,371	4	0
Goods, 24,839 tons	...	...	...	...	...	42,807	14	1
		1886.						
Coaching-tickets issued, 5,313.	...	...	...	...	...	6,319	16	6
Goods, 9,399 tons.	...	...	...	...	...	14,866	18	8
						M. SEALE, 5/7/86.		

Traffic on Cooma Railway.—Return herewith the receipts for the four months ending the 30th April, 1886, only show a slight increase over the average receipts for the corresponding period of the previous years.—W.V.R., 7/7/86. Commissioner.

Seen; put by for the present.

If the question is revived I shall want to know the particulars of this traffic—probably contractor's material and plant form a good deal of it, and that is traffic which will be lost when the line to Cooma is completed. The earnings per mile of line should also be given. There was more mileage opened in 1885 than in 1884.—C.A.G., 12/7/86.

No. 19.

Extract from Minute of Minister.

11 March, 1887.

THAT the duplication at the Goulburn-Joppa Line might be at once proceeded with. Minister replied that the matter must stand over for the present.

For Manager to see.—A.R., B.C., 18/3/87. Seen.—W. V. READ (*per* W. C.), 24/3/87.

10

No. 20.

Messrs. M'Sweeney and Kirwan to The Secretary for Public Works.

Sir,

53, Hunter-street, Sydney, 30 March, 1887.

We have the honor to inform you we were the lowest tenderers for the duplication of line from Goulburn to Joppa Junction, the acceptance has been delayed owing to want of funds. We should be glad to know if there is any likelihood of your accepting our tender.

We have, &c.,
M'SWEENEY & KIRWAN.

Minister would like report.—H. M'L., 30/3/87. The Minister decided on the 11th ultimo that this application must stand over for the present.—A.R., 1/4/87.

If the Joppa line was extended into Goulburn could the men now at the Junction be dispensed with, and what would their wages amount to?—W.V.R., 18/4/87. Inspector Crawford.

Joppa Junction.—If the Cooma Line was extended into Goulburn the staff at Joppa could be dispensed with.

	£	s.	d.
Officer-in-charge, per annum	130	0	0
Allowance in place of house	26	0	0
Night Officer, per annum	136	17	6
Stores for twelve months	13	5	1

This could all be saved.—A. CRAWFORD, 21/4/87.

£306 2 7

No. 21.

Minute by The Secretary for Public Works.

Duplication of Line Goulburn to Joppa.

Mr. TEECE, M.P., introduced a deputation to me to-day with reference to the duplication of the line Goulburn to Joppa Junction. It was urged that this work should be proceeded with at an early date. As part of the material had already been obtained—no extra land would be required. It would be an economical work, as the existing staff at the Junction could be done away with. It would be carried out of loan votes, and it would be greatly required when the line was open to Cooma. It was stated further, that the tenders showed the work could be done for less than the amount estimated.

I informed them that the last statement was hardly accurate, as from what I could learn the work was authorized under the belief that the cost would not exceed £8,000 or £9,000, but on taking out the quantities, &c., in detail, after authority was given, it is found the cost will be nearer £20,000; and this was a heavy expense for adding to 3 miles of line. No doubt it would be paid out of the capital, but I thought we should be as careful of our capital outlay as our working expenditure, and it had been a disregard of this that had led to extravagance in the past, in submitting new lines of railway. I was not sanguine either that the increased traffic would be so great. They overlooked the fact that with the completion of the line the carriage of railway materials would cease, and the new traffic would not counterbalance the loss. There might be a saving in working expenses effected by a reduction of the staff at the Junction, and I promised to make inquiries on this point, and also to call for a report to ascertain whether any fresh circumstances were likely to arise to warrant the immediate commencement of this work.

6/4/87.

JOHN SUTHERLAND.

Traffic Manager.—A.R., 15/4/87. The saving to this Department for wages and stores would amount to a little over £300 per annum.—W.V.R. I feel satisfied that the further the Cooma line is extended the less the net return will be. The interest upon outlay for this line into Goulburn will be £800 a year; the saving in junction expenses will be only some £300.—C.A.G., 30/4/87.

Duplication of line from Goulburn to Joppa Junction.—The papers are enclosed relative to the duplication of the Southern Railway from Goulburn to Joppa Junction. The cost of the whole work is estimated at about £20,000 and in the interest of public safety I recommend that it be at once carried out. The work was originally approved by a previous Government and portion of the material required has been obtained. There will be a saving in working expenses of £300 per annum by carrying out this work.—J. SUTHERLAND, 23/6/87.

Cabinet approved.—H.P., 27/6/87. Let fresh tenders be invited at once.—J.S., 25/6/87.
Engineer for Existing Lines.—A.R., 1/7/87. Specification is now in the hands of the printer.—G.C., 15/7/87. Secretary.

No. 22.

G. M'L. Matheson, Esq., M.P., to The Secretary for Public Works.

Sir,

Sydney, 25 June, 1887.

I was astonished to learn from the Commissioner for Railways, that it was proposed to call fresh tenders for the duplication of Joppa-Goulburn line.

I understood from you that Kirwan & M'Sweeney's tender was to be accepted, and I think that under the circumstances, it is only fair that it should be.

Tenders have not been advertised, and I trust you will at once recall instructions to have it done.

I am, &c.,

G. M'L. MATHESON.

Minister informed Mr. Matheson verbally that Cabinet's decision was to call for fresh tenders.—H.M'L., 27/6/87.

Dear

Dear Sir,

Sydney, 12 July, 1887.

I have to thank you for your letter of yesterday regarding my recommendation that M'Sweeney & Kirwan should have the contract for the duplication of the line to Joppa. I willingly admit that most satisfactory reasons exist for refusing to carry on the four works for which they were the lowest tenderers, and I will also admit that they were not actually the lowest for the fifth I mentioned in my letter; but I would point out to you that they were under the expense of getting out their tenders, and as I cannot prove to you that they were the lowest tenderers in the fifth contract without a great deal of explanation, I withdraw that one and submit another, viz., Brewarrina-Bole Contract. This makes my statement correct, so that I trust you will see your way clear to carry out your implied promise that if you found my statement correct as to the expense this firm had been put to they would receive the Joppa-Goulburn Contract.

Yours, &c.,

G. M'L. MATHESON.

P.S.—In the case of the Wagga Wagga Foot Bay, M'Sweeney & Kirwan treated your Department with great consideration.

Acknowledged by Minister, who stated matter would have consideration.—H.M'L., 13/7/87. Engineer Existing Lines.—A.R., 15/7/87. Previous papers herewith.—G.C., 15/7/87. Secretary. How does matter stand.—A.R., 16/7/87. Engineer for Existing Lines. Proof copy of specification has been received and returned to printer to supply the number required.—G.C., 18/7/87. Secretary. Mr. Matheson's letter can be considered when the advertisement inviting tenders is received. When will this be ready?—D.C.M'L., 19/7/87. Mr. Cowdery. Draft advertisement inviting fresh tenders herewith with copy of specification.—G.C., 21/7/87. Secretary. Please report upon Mr. Matheson's proposition.—A.R., 22/7/87. Engineer for Existing Lines. I do not think we are likely to get a lower tender than that of M'Sweeney & Kirwan, as their tender is very low.—G.C., 25/7/87. Commissioner. For Minister's consideration.—C.A.G., 26/7/87. M'Sweeney & Kirwan's tender was £12,715. The Engineer estimates, £13,844. Average of all the tenders received, £14,750.—C.A.G. Fresh tenders to be called.—J.S., 27/7/87. Insert.—A.R., 27/7/87. Engineer for Existing Lines.—J.P., 29/7/87. Noted.—G.C., 30/7/87. Secretary.

No. 23.

Mr. J. Clarke to The Under Secretary for Public Works.

Sir,

"Carrington Hotel," Sydney, 16 August, 1887.

I have the honor to draw your attention to the very excessive bond in cash required by the existing railways for duplication Goulburn to Joppa, viz., £200 with tender and the final of £1,500.

Seeing that this job will not reach £20,000 it does appear somewhat strange that the deposit should be so high. The deposits on railways amounting to over £100,000 have only been £5,000 in Mr. Whitton's Department (Gundagai and Railways.)

I do trust you will see your way to mitigate this large deposit so as to enable men of fair average means to tender for same. This also means a less cost to your Department. Tenders close 23rd August (next Tuesday.)

I notice sureties are now taken for station buildings where cash was originally required in Existing Lines Department.

Yours, &c.,

J. CLARKE.

Reduce cash security from £1,500 to £500.—J.S., 16/8/87. Has security been lodged yet?—A.R., 17/8/87. Accountant. No; a tender has not been accepted.—A.H. Secretary. Engineer for Existing Lines.—A.R., 17/8/87. The security has been altered from £1,500 to £500 as directed.—G.C., 17/8/87. Secretary. Inform, 18/8/87.

Sir,

Department of Railways, Sydney, 20 August, 1887.

I have the honor to acknowledge your letter of the 16th instant, addressed to the Secretary for Public Works, in which you complain of the excessive amount of security required in connection with the contract for duplicating the line from Goulburn to Joppa. In reply, I am directed by Mr. Secretary Sutherland, to inform you that the matter has been considered, and he has approved of the cash security being reduced from £1,500 to £500 for this work.

I have, &c.,

CHAS. A. GOODCHAP,
Commissioner for Railways.
(Per A. R.)

J. Clarke, Esq., Pitt-street, Sydney.

Should not publicity be given to this for information of all tenders?—A.R., 20/8/87. Engineer for Existing Lines. Too late for this, as tenders close to-morrow. I have verbally informed some of the tenderers.—G.C., 22/8/87. Secretary.

No. 24.

The Under Secretary for Public Works to The Commissioner for Railways.

Sir,

Department of Public Works, Sydney, 23 August, 1887.

The tenders, fourteen in number, for the work specified in the margin, are referred to you for report, and you will have the goodness as early as possible to return them to me direct for submission to the Minister.

I have, &c.,

JOHN RAE.

Duplication of
Great Southern
Line from Goul-
burn to Joppa
Junction.

Engineer for Existing Lines.—A. R., B.C., 24/8/87.

Duplication

Duplication of line, Goulburn to Joppa Junction.—Analysis of Tenders :—

	£	s.	d.
Kerr & Taylor	11,205	4	0
Walter Kirlle	11,433	15	10
J. G. Gatty & Co.	11,445	16	8
Johnson & Billings	11,668	0	0
W. Arthur Evans	11,991	5	6
Justin McSweeney	12,214	18	0
Angus & Co.	12,380	10	0
James Dickie & Co.	12,392	0	6
John Ahearn	12,403	7	6
Ball & Donohoe	12,516	0	0
Taylor & McClure	12,634	2	0
John Owen	12,702	15	0
John McAlister	13,712	1	11
Gunnaw, Bennett, & Canty	14,495	0	0

The tender of Kerr & Taylor is the lowest, and I recommend it be accepted.—G.C., 26/8/87. Commissioner.

Estimated cost, £13,844; lowest tender (of old date), £12,715; lowest present tender, £11,205. Recommended.—C.A.G., 26/8/87. Approved.—J.S., 27/8/87.

No. 25.

The Commissioner for Railways to Messrs. Kerr and Taylor.

Gentlemen,

Railway Department, Sydney, 30 August, 1887.

I have the honor to accept your tender, dated 23rd instant, for the construction, in accordance with plan and specification, of a duplicate line of railway from Goulburn to Joppa Junction, to the entire satisfaction and approval of the Engineer for Existing Lines.

I shall be glad if you will at once forward deposit receipt for cash security mentioned in the general conditions of contract, and wait upon the Crown Solicitor for the purpose of executing the necessary bond.

I have, &c.,

CHAS. A. GOODCHAP,

Commissioner for Railways.

(Per A.R.)

Railway Department, Sydney, 1 September, 1887.

DUPPLICATION of Line, Goulburn to Joppa Junction.—Please inform me how the cost of the above work is to be charged. R.D.S., 1/9/87.

Engineer for Existing Lines.

Will Commissioner please say how this work is to be charged.—G.C., 2/9/87. Commissioner. "Capital."—C.A.G., 8/9/87. Engineer Existing Lines. Noted. Vote "Goulburn to Cooma." Mr. Stephens to note.—G.C., 8/9/87.

No. 26.

Questions and Answers.

LEGISLATIVE ASSEMBLY.

Mr. O'SULLIVAN to ask the Secretary for Public Works :—

- (1.) What was the original estimate for duplicating the line Goulburn to the Cooma Line Junction?
- (2.) What officer under the Engineer for Existing Lines prepared the estimate?
- (3.) What has been the cost of the work up to date and what will it cost to complete?

Answers :—

- (1.) £13,287.
- (2.) Mr. Richard Watkins prepared the estimate for all works on this service, with the exception of the estimate of the bridges, which was prepared by Mr. Townsend; but the design of bridge he estimated for was not adhered to.
- (3.) Cost to date, £10,200; to complete, £6,409.

The answers furnished are £13,286, and the actual cost, say £18,000. In Mr. Townsend's estimates was the cost of a bridge, which was not carried out. Another bridge was substituted. What was the estimate of Mr. Townsend's bridge, and what the cost of the substituted bridge?—C.A.G., 28/2/88. Mr. Cowdery.—D.C.McL., 28/2/88. Urgent. The estimated cost of the bridge designed by Mr. Townsend was £1,080 for the superstructure. The cost of the substituted one for superstructure was £1,366.—M.T., 29/2/88. Commissioner. I should like to see Mr. Townsend's detailed estimate and a statement of the quantities. I see that the contract is for £11,205, to which add cost of bridge superstructure, £1,366; per way ———? How is the balance, to make £18,000, made up?—C.A.G., 29/2/88. Very urgent.

See Mr. Shellshear's report of 4th February, 1886, herewith. The estimate was prepared by Mr. Townsend*, and on looking through the estimate I see no provision was made for the following: the bridge at Goulburn which will have to be reconstructed for a double line, the substitution of a subway for over bridge at Mrs. De Lauret's land, pumper's house to be removed and re-erected, platform and shed at Joppa Junction; however some of the large items were quoted too low. Let me see the estimate in detail, the prices which are being paid under contract for the work estimated, and what is being paid for the work for which the estimate was made.—C.A.G., 29/2/88. Engineer for Existing Lines.—A.R., 1/3/88. Please see detailed statement attached.—M.T., 5/3/88. Secretary.

* This is not correct. (See letter No. 27.)

GREAT

GREAT SOUTHERN RAILWAY.
Duplication of Line—Goulburn to Joppa Junction

Mr. G. W. Townsend's estimate.

Actual prices paid under contract.

No.	Item.	Quantity.	Rate.	Amount.	Quantity.	Rate.	Amount.
1	Forming	30 chains	30s.	£ 45 0 0	99 chains	10s.	£ 49 10 0
2	Excavations in cuttings, &c.	14,948 cubic yards	2s.	1,494 16 0	15,128 cubic yards	2s. 3d.	1,701 18 0
3	" " foundations	No provision made.			1,400 " " "	5s.	350 0 0
4	Pitching	" " "			356 square yards	2s.	35 12 0
5	Cement concrete in foundations	" " "			100 cubic "	40s.	200 0 0
6	Brickwork in cement	11 cubic yards	75s.	41 5 0	1,650 " " "	52s. 6d.	4,331 5 0
7	" " lime mortar	731 " " "	47s.	1,717 17 0	No provision made.		
8	Masonry	No provision made.			70 cubic yards	135s.	472 10 0
9	9-inch earthenware drain pipes	13 lineal feet	3s. 3d.	2 2 3	No provision made.		
10	12-inch " " "	45 " " "	5s.	11 5 0	150 lineal feet	2s. 6d.	18 15 0
11	18-inch " " "	47 " " "	10s.	23 10 0	90 " " "	6s.	27 0 0
12	Hardwood in temporary bridge	No provision made.			447 cubic "	4s.	89 8 0
13	Sleepers " " "	" " "			18 " " "	4s.	3 12 0
14	Laying rails " " "	" " "			17 lineal yards	2s.	1 14 0
15	Pulling down, &c., present bridges	" " "			Lump sum.		30 0 0
16	Ironwork in bridges	54 tons	£20	1,080 0 0	Includes supply and erection.		2,433 2 6
17	Hardwood in bridges	572 cubic feet	6s.	171 12 0	1,260 cubic feet	3s. 4d.	210 0 0
18	Hardwood piles	200 lineal feet	5s.	50 0 0	No provision made.		
19	Kerbing under bridge at 134 miles 21 chains.	No provision made.			124 lineal feet	3s.	18 12 0
20	Oregon and ironworks in gates	600 lb. iron	9d.	22 10 0	100 cubic "	10s.	50 0 0
21	Removing and re-erecting gates	10	50s.	25 0 0	11 " "	80s.	44 0 0
22	Fencing	20 rods	10s.	10 0 0	36 rods	8s.	14 8 0
23	Removing and rebuilding pumper's house	No provision made.			Lump sum.		50 0 0
24	" " " waiting shed	" " "			" " "		3 10 0
25	Removing platform at Joppa	" " "			" " "		1 10 0
26	Ballasting	5,874 lineal yards	6s.	1,762 4 0	5,940 lineal yards	4s. 3d.	1,262 5 0
27	Ballast for bridge at 134 miles 21 chains	No provision made.			50 cubic "	4s.	10 0 0
28	Sleepers	5,874	6s. 6d.	1,909 1 0	6,800	4s.	1,360 0 0
29	Laying permanent way	5,874 lineal yards	2s. 9d.	807 13 6	5,940 lineal yards	1s. 9d.	519 15 0
30	Rails and fastenings*	5,874 " " "	14s.	4,112 16 0	3½ miles	.....	3,500 0 0
31	Alterations to roads and crossings at Goulburn.†	No provision made.			Lump sum.		400 0 0
32	Freight on bridges.....	" " "			" " "		150 0 0
				13,286 11 9			17,338 6 6

* Supplied by Commissioner.

† Day work.

No. 27.

Mr. G. W. Townsend to The Commissioner for Railways.

Sir,

Railway Survey Office, Sydney, 1 March, 1888.

I subjoin copy of letter from Mr. R. Watkins, *re* estimate for Existing Lines.

I have, &c.,

G. W. TOWNSEND.

My dear Mr. Townsend,

City, 1 March, 1888.

In reply to your letter of even date, *re* estimates for duplication of line between Joppa Junction and Goulburn, and Parramatta and Penrith, I have to say that, with the exception of the bridges, I prepared the estimates for the above contracts on quantities and necessary information supplied to me in the office, and that they were ample for the various works then proposed to be done. Mr. Cowdery knew I had done the work, and that, after due examination of the estimates in his own office, he signed them.

I am, &c.,

RICHARD WATKINS, A.M.I.C.C.

G. W. Townsend, Esq., C.E.

1887.

(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAY FROM NARRABRI TO WALGETT.

(REPORTS, PLANS, &c.)

Ordered by the Legislative Assembly to be printed, 23 November, 1887.

RETURN to an *Order* of the Honorable the Legislative Assembly of New South Wales, dated 4th October, 1887, That there be laid upon the Table of this House,—

“Copy of the final survey of the railway route, Narrabri to Walgett, with plans and reports, showing distance, characteristics of the country, probable cost, &c., with all and fullest information.”

(Mr. Dangar.)

SCHEDULE.

NO.	PAGE.
1. Table of grades and curves with estimated cost	2
2. Messrs. Carter and Harwood's report on line	2
3. Mr. Surveyor Harwood to the Engineer-in-Chief, forwarding report on line	2
4. Mr. Harwood's report.....	3
5. Mr. Surveyor Carter's report on line.....	3
6. Mr. Surveyor Carter's report on line... ..	4
Diagram, plan, and section.	

RAILWAY FROM NARRABRI TO WALGETT.

No. 1.

Table of Grades and Curves.

Railway, Narrabri to Walgett.—Length, 114 miles 5 chains.

Total estimated cost, £372,187 1s. 3d.; equal to, per mile, £3,264 15s. 11d.

<i>Table of Grades.</i>					<i>Table of Curves.</i>								
1 in	96	...	...	...	0	17	40 chains	...	...	0	30
"	100	...	...	...	0	10	60 "	...	...	1	40
"	120	...	...	...	0	10	100 "	...	...	0	25
"	130	...	...	...	0	15	150 "	...	...	0	40
"	220	...	...	...	0	49	400 "	...	...	5	0
"	260	...	...	...	0	15	Straight	...	...	106	30
"	330	...	...	...	0	40					
"	350	...	...	...	0	25					
"	360	...	...	...	1	28					
"	400	...	...	...	1	10					
"	440	...	...	...	0	25					
"	480	...	...	...	0	26					
"	528	...	...	...	2	61					
"	660	...	...	...	11	27					
"	754	...	...	...	2	35					
"	770	...	...	...	0	70					
"	880	...	...	...	5	65					
"	1,056	...	...	...	3	0					
"	1,320	...	...	...	10	73					
"	1,760	...	...	...	23	58½					
"	2,000	...	...	...	1	40					
"	2,640	...	...	...	12	40					
"	3,250	...	...	...	2	0					
"	3,520	...	...	...	1	26					
"	5,280	...	...	...	4	0					
Level	...	...	...	...	26	39½					
Totals					114	5	Totals					114	5

J.W., p. W.H.Q., 8/11/87.

No. 2.

Messrs. Surveyors Carter and Harwood to The Engineer-in-Chief.

Narrabri, 14 November, 1884.

Sir,

By same mail the field plan of the Narrabri to Walgett Railway has been returned, with a section of the blue line plotted thereon to a scale of 10 chains to an inch.

The flood-level shown on this section has been ascertained only after considerable trouble, and may be relied upon as being correct, much valuable information in connection therewith having been given by the owner of the property through which this line passes, and who has resided in the vicinity for the past thirty-five years.

It will be seen that several swamps and creeks have been crossed by this line, which were not shown on the trial plan.

The best possible section between the Namoi River and Narrabri Creek will be obtained by adopting the *dotted* pencil line shown on plan which line follows the highest ground (free from flood or surface water) between those streams, the drawback to the line being the necessity of crossing Narrabri Creek slightly on the skew.

JOHN CARTER.
H. T. HARWOOD.

No. 3.

Mr. Surveyor Harwood to The Engineer-in-Chief.

Railway Survey Camp, near Narrabri, 28 November, 1884.

Sir,

I have the honor to inform you that the plan, section, field and level books, &c., of the trial survey, Narrabri to Walgett, have, by the same mail, been forwarded to your office.

Enclosed is a list of the bridges, timber, openings, &c., that are likely to be required; also some information about the means of supplying timber and ballast for a railway between the above places.

I am, &c.,

HAMILTON T. HARWOOD.

Appendix.

No. 4.

No. 4.

Report by Mr. Surveyor Harwood.

Trial Survey, Narrabri to Walgett.

TIMBER.

Ironbark.—There would be no difficulty in obtaining any quantity of this timber, suitable either for fencing, sleepers, or bridges. For the latter it would have to be drawn a few miles, as the trees near the line are mostly pipey, and of no great length in the barrel. In Robertson's Forest Timber Reserve No. 1,104, there is an unlimited amount of this kind of timber.

Belar.—Very plentiful along the line. Suitable for fencing rails.

Pine.—Can be obtained at many places close to the line. There are fine forests near the Round Swamp and near Pilliga.

BALLAST.

Stone.—Procurable only in the neighbourhood of Narrabri where there are knolls of porphyritic basalt. The distance from these to the Railway Station would be about 6 miles.

Shingle.—In the bed of the Namoi River, near Mollie Station, there are some long but superficial shingle beds.

Burnt clay.—There would be no difficulty in getting clay from the banks of several of the creeks, and the scrub between the fence widths could be used for burning it.

H. T. HARWOOD.

TRIAL Survey, Narrabri to Walgett—List of Bridges, timber openings, &c., required on above line.

	ms.	chs.	lks.		ms.	chs.	lks.
Drain pipe	251	79	0	10 ft. timber opening, overflow			
Brigalow Creek Bridge	256	0	0	from Tallura Creek	297	20	0
10 ft. timber opening	256	53	0	Creek Bridge	298	50	0
Newable, Strip Creek, 20 ft.				Flood opening... ..	299	8	0
timber opening	262	26	0	8 ft. timber opening	302	48	0
Inlet of Round Swamp opening	264	56	0	Creek, 20 ft. opening... ..	303	9	75
Creek Bridge	267	75	0	Flood opening... ..	303	31	0
3 ft. culvert	276	16	60	Dubbo Creek Bridge	304	75	0
3 ft. do	276	50	40	3 ft. culvert	305	52	20
2 ft. do	277	6	0	2 ft. do	305	57	35
2 ft. do	277	24	60	3 ft. do	306	3	0
Womerah Creek, 3 ft. culvert	277	38	0	Creek, 20 ft. timber opening... ..	306	70	50
2 ft. culvert	279	59	30	"Keep it" Creek, 10 ft. opening	309	52	0
10 ft. timber openings	281	61	80	Robertson's Gully, 4 ft. culvert	311	11	0
Brigalow Creek Bridge	283	4	0	2 ft. culvert	311	35	50
Barker's Gully Bridge	285	38	0	2 ft. do	312	72	0
Werah Creek Bridge	286	20	0	3 ft. do	314	16	0
Sandy Creek Bridge	287	40	0	3 ft. do	314	66	0
Bullerwa Creek Bridge	292	68	0	Bungle Gully Creek, dam across			
Tallura Creek Bridge... ..	297	0	0	this creek... ..	315	41	0

H. T. HARWOOD.

No. 5.

Mr. Surveyor Carter to The Engineer-in-Chief.

Sir,

Narrabri, 28 November, 1884.

Having now completed the plan and section of my portion of the trial survey from Narrabri Appendix. to Walgett, namely, from the town of Walgett back to a junction with Mount Harwood, 35 miles from my point of commencement, I have the honor to report as follows:—

The district traversed by this portion of the line consists entirely of plains, for the most part destitute of timber, what little exists being of a stunted growth, and quite useless for any practicable purpose.

No streams are crossed, but water can be obtained at Walgett from the River Namoi, on which the town is built.

At "Come-by-Chance," a small settlement 30 miles from Walgett, a supply of water could also be obtained, at a little cost, from a lagoon half a mile to the west of the line.

No ballast is procurable in any part of this district, nor, do I think, from any place nearer than Narrabri.

The surface of these plains, in a rainy season, is, I am informed by very old residents, covered for many miles by flood-water from the Namoi River, and by surface water, to a depth of 2 or 3 feet (but without any perceptible current), to provide against which would entail considerable expenses.

A considerable portion of this district is leasehold land, and is, therefore, resumable without cost.

I am, &c.,

JOHN CARTER.

No. 6.

Mr. Surveyor Carter to The Engineer-in-Chief.

Sir,

Narrabri, 28 March, 1885.

Referring to the receipt of memo. 85/67, respecting the absence of a report upon my portion of the trial survey from Narrabri to Walgett, I have the honor to inform you that the usual report was forwarded by post from Narrabri on the completion of the plan and section of the above survey, in or about the last week of November, 1884.

In the event of this report being still missing, I herewith enclose another, which, though perhaps not exactly correct in the matter of dates, is quite so in other respects.

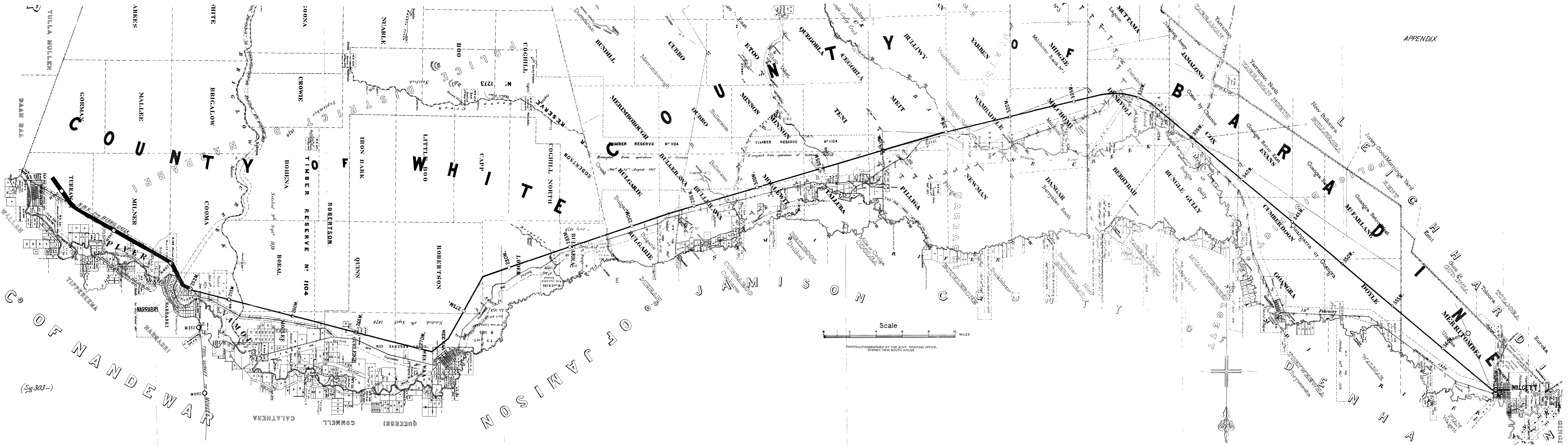
I am, &c.,

JOHN CARTER.

[Two plans.]

[2s. 3d.]

Sydney: Charles Potter, Government Printer.—1887.



APPENDIX

Scale
0 2 4 6 8 10 MILES

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

(Sg. 303-)

PRINTED

1887.

(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

COBAR RAILWAY.

(CORRESPONDENCE, &c., RESPECTING.)

Ordered by the Legislative Assembly to be printed, 21 September, 1887.

RETURN to an *Order* of the Honorable the Legislative Assembly of New South Wales, dated 14th June, 1887, That there be laid upon the Table of this House,—

“Copies of all Correspondence and Reports on the proposed Cobar Railway.”

(*Mr. Wilson*).

Minute by The Secretary for Public Works to The Engineer-in-Chief.

Department of Public Works, Sydney, 15 June, 1885.

I SHOULD like the permanent plans of line Nyngan to Cobar pushed on as fast as possible, so that plans and book of reference may be laid before Parliament during next session. F.A.W.

Mr. Deane.—W.H.Q., 18/6/85. The above will be ready to lay before Parliament.—H.D., 22/6/85.
Engineer-in-Chief. Under Secretary, B.C., 24 June, 1885.—J.W. (*p.* W.H.Q.) Submitted.—J.R.,
25/6/85. Seen.—F.A.W., 25/6/85. Railways, B.C., 26 June, 1885.

Minute by The Engineer-in-Chief to The Secretary for Public Works.

Engineer-in-Chief's Office, Sydney, 7 September, 1885.

HEREWITH I have the honor to forward, for the approval of Parliament, the Parliamentary plan, section, and book of reference of the proposed line from Nyngan to Cobar.

JOHN WHITTON.

Railways, B.C., 8/9/85.—J.R. Prepare notice for laying on table.—CH.A.G., 11/9/85. The documents were laid upon the table of the House on 16/9/85.—W.M., 29/9/85.

Minute by The Under Secretary for Public Works.

Department of Public Works, Sydney, 10 September, 1885.

Railway, Nyngan to Cobar.

MR. BARTON, M.P., will wait on the Minister with a deputation to-morrow on the above subject.

Will Mr. Whitton kindly give the necessary information to enable the Minister to reply. J.R.
B.C., 10/9/85.

The plan, section, and book of reference have been forwarded for the consideration of Parliament. J.W. (*p.* W.H.Q.), 10/9/85. Under Secretary, B.C.

Minute by The Secretary for Public Works.

THE deputation, accompanied by Messrs. R. Barton and Machattie, M's.P., waited upon me to urge that tenders might at once be called for the construction of the railway, Nyngan to Cobar. It was said that the present was an exceptionally good time to let the work, as the contractors for the Bourke extension had just finished, and could utilise their plant for the Cobar line, undertaking it at a cheap rate in consequence. I informed them that the plans for this line would probably be laid upon the table of the House on Wednesday next. It was impossible to call for tenders for the work at once, as three or four months must necessarily elapse before the working drawings could be got ready, but I promised that no unavoidable delay would occur in carrying out this matter to its completion.

F.A.W., 11/9/85.

Please

Please see that plans, &c., are laid upon the table on date promised.—D.C.M'L., 14/9/85. Plans, &c., have been submitted to Minister with notice for laying on table.—H.M'L., 16/9/85. Engineer-in-Chief.—G.B., 16/9/85.

Railway from Nyngan to Cobar:—Mr. Wright laid upon the table (as exhibits only) a plan, section, and book of reference of a proposed railway from Nyngan to Cobar. There has not yet been an opportunity of bringing these plans under the attention of the House, nor is there now. Resubmit in fourteen days. 10/12/85. Are we now to prepare a notice for Parliament approving of the above plan, &c. ?—D.C.M'L., 15/2/86. End of month.—CH. A.G., 16/2/86. Resubmitted. Have not the plans been laid upon table ?—CH. A.G., 10/3/86.

Yes; they were laid upon the table by Mr. Wright, when Minister for Works in the Stuart Government, but before he had an opportunity of moving their adoption the Government resigned, and nothing further has been done. At the same time the plans for the railway—Orange to Forbes *via* Cudal (new line) and Narrabri to Moree—were laid on the table, but approval was not obtained.—H.M'L., 13/3/86.

Commissioner.—G.B. This is a policy for the determination of the Minister.—CH. A.G., 15/3/86. To be considered with railway policy.—W.J.L., 16/3/86.

Minute by The Commissioner for Railways.

Probable traffic on railway line—Cobar to Nyngan.

I wish the Traffic Manager to furnish me with an estimate of the probable traffic on this line. No doubt the railway extension will aid in the development of the resources of the districts through which it will pass, and will command the trade of good areas beyond. CH.A.G., 2/10/85.

Please inquire fully into this and report. Ascertain the number of people living in the district who will make use of the line, the products of the surrounding country, and what roads are now used to send raw material to markets, and to obtain supplies, and what proportion of the traffic will probably be sent by the new railway line.—W. V. READ, 5/10/85. Inspector Hornidge.

Minute by The Traffic Manager to The Commissioner for Railways.

If, as many people allege, the mining industry of the district will never again be what it has been, I am inclined to think it would be a mistake to construct a line from Nyngan to Cobar, because, apart from the mines, it will pass through nothing but pastoral country, and the whole of that trade will find its way to Sydney by the present main line.

Of course, if mining revives in the district and becomes a large and permanent industry, there would, no doubt, be good justification for constructing the line, and, once at Cobar, perhaps the best plan would be to continue it to Wilcannia, seeing that the distance will be very much less from Cobar than from Forbes.

On the other hand, if the line is not constructed to Cobar I am decidedly of opinion that the route from Forbes to Wilcannia is the best one, because it would be the most central between the main Western line and the Murrumbidgee, and I am strongly inclined that it would attract a considerable trade that is now done with Melbourne *via* Balranald.

W.V.R., 9/11/85.

Commissioner.

Mr. Read has dealt with a question of railway policy. I may or may not share his opinion on the subject, but the Government presented the scheme to Parliament after, I presume, due consideration, and the Parliament, in its wisdom, voted the money for the construction of the line. No doubt when the plans come before Parliament the question of policy can be again reviewed, and perhaps a different conclusion to that already adopted may be arrived at; but the information asked for by my minute of 2/10/85 is not affected by this consideration, and I will feel obliged if the Traffic Manager will furnish me with it.—CH.A.G., 13/11/85.

Mr. Hornidge had better take a run as far as Cobar and ascertain as nearly as possible what traffic would probably be carried over the line, from there to Nyngan, if constructed. Show separately the probable extent of the traffic the new line will attract, either in the shape of new traffic or traffic drawn from the existing main line, and the new traffic by itself.—D.K., 16/11/85.

Report by Mr. Inspector Hornidge to The Traffic Manager.

I DISCOVERED that very little information was to be obtained at Cobar that could not be as readily at Nyngan. At the former place I should have been obliged to seek it from interested parties, whereas I was able to collect statistics from our own records and also gather information from other sources.

Report herewith. One fact I may mention, I have not gone into the question of what the Wilcannia traffic consists, because I understand that full information on that point has already been obtained. That, however, is all the new traffic that can be looked for.

M. A. HORNIDGE, 3/12/85.

[Enclosure.]

[Enclosure.]

REPORT by Mr. Inspector Hornidge of probable traffic on proposed Railway, Nyngan to Cobar.

THE amount of down traffic that might be expected, were the line now ready for opening, amounts to, in round figures, 10,000 tons per annum. Two-thirds of this would consist of general merchandise, and the balance of breadstuffs and forage.

Although the above gives a tolerably good idea of the traffic from Nyngan, not more than two-thirds of the whole could be relied on as traffic to Cobar. One-third at least would go to Hermitage Plains, about 26 miles from Nyngan, where the road from Nymagee branches off.

Reduced to truck loads, and omitting Sundays and holidays, it gives us an average of four trucks a day to Cobar, and two to Hermitage Plains.

The outwards or up traffic for twelve months may be expected to amount to 4,250 tons of copper, 15,000 bales of wool, and 500 tons of general goods. The bulk of this would come from Cobar. This gives an average of five trucks per day.

The passenger traffic would probably amount to 300 per month, or an average for the whole route of twelve a day. The present parcels traffic hardly amounts to six packages a day. Horses and carriages average fourteen of each per month.

In the above I am not taking the total traffic of Nyngan Station, but that portion of it that can (allowing a liberal margin for error) be credited to the Cobar Road.

It is next to impossible to arrive at any computation of the probable live stock traffic. About 1,500,000 sheep are depastured in the country that would be tapped by the proposed railway; but it is difficult to say how many of these would be trucked, the traffic varying greatly with the seasons; thus, three months ending November, 1884, gives a little over 9,000 sheep, whereas the corresponding period for this year shows 21,000 as trucked at Nyngan for Homebush. The bulk of these came from the North however.

So far as I can learn, no considerable increase of traffic on that already existing is possible, excepting timber for building purposes.

The country is purely pastoral (except the mineral deposits at Cobar and Nymagee), and varies from fair to bad, middling and poor preponderating.

The proposed line will not compete with any portion of the existing line. The only quarter from which increase of traffic is to be looked for is Wilcannia. The distance from thence to Cobar is about 150 miles; good travelling country, with grass and water in most seasons; very much better than the Hay route which is now being used extensively for the conveyance of Wilcannia wool.

In fairly good seasons we should have to compete with the river; so that, unless substantial concessions were made, we could hardly hope for any great accession of traffic from the Wilcannia District.

The most conflicting statements are made as to the future of the copper industry at Cobar and Nymagee. I am not, therefore, in a position to express an opinion as to whether a decrease or total suspension of the traffic, as some assert, is to be feared, or as to whether nothing is required but the advent of the railway, as others hold, to revive it to even far beyond its former output. At the present time the industry is decidedly dull.

M. A. HORNIDGE.

3/12/85.

On the last page of his report Mr. Hornidge says, "The proposed line will not compete with any portion of the existing line." Am I to understand from this that the tonnage mentioned on the first page would be all *new* traffic. If so, how does it get into the district at the present time? Then as regards the up traffic, he estimates the copper at 4,250 tons, and general goods at 500 tons per annum. I have been under the impression that for some time past there has been no output of copper at all. Is it not so? and are the figures quoted the result of the output when the mines were in full work? What do the 500 tons of general goods principally consist of?—D.K., 4/12/85. Mr. Hornidge.

The traffic that now comes to Nyngan will still come through Nyngan by rail instead of by road; I mean that the proposed line will not divert traffic from Nevertire, Byrock, or Trangie. It will not be new traffic, excepting so far that it will be new railway traffic when there is a railway to put it on from Cobar to Nyngan, but it will not be new from Nyngan to Sydney. I have taken as the copper traffic the total amount received for twelve months ended 30th November instant. I am not in a position to say positively that the Cobar mine is used up; it is still working, though very short-handed, going over, it is said, old stuff that formerly was passed as not worth the smelting; how far all this is true I cannot say, but it cannot be difficult for the proper authorities to send an expert to report on the present condition and future prospects of the mine; if that is in the bad state that many assert it is, the railway is out of the question. The 500 tons of goods referred to consist chiefly of skins, hides, and tallow, with personal effects and sundries of every description.—M. A. HORNIDGE, 8/12/85. T. Manager.

Mr. Hornidge's reports bear out my impression that the construction of a line to Cobar will not create any new traffic. All it will carry will be the traffic that goes by way of Nyngan at the present time, and that traffic it is rather difficult to estimate, because in past times the copper mines have yielded us a large traffic, but rightly or wrongly, there is a strong belief amongst many people that these mines are pretty well worked out, or that at all events they will never again be anything like what they have been. For further particulars be good enough to refer to Mr. Hornidge's report of the 3rd inst.—W.V.R., 11/12/85. Commissioner. End of year.—CH.A.G. Resubmitted, for Minister's consideration.—CH.A.G., 10/3/86. Resubmit with railway policy.—W.J.L., 16/3/86.

Petition.

Cobar.

To the Honorable the Minister for Works, Sydney,—

Sir,

The humble petition of the residents of the Cobar district, respectfully sheweth,—

That a Railway from Sydney to Cobar is urgently required for the further development of this quickly-growing and important district, and in support hereof we beg to bring under your notice the following statistics:—

The Great Cobar Copper-mining Company, (Limited) at present in actual work has produced during the last ten years upwards of 19,050 tons of refined copper, equal to 1,905 tons per annum, the value

value of which was £1,444,500 sterling. The wages paid for raising same during this time was an amount of £960,000. The supplies required to carry on this work cost £110,000.

That the carriage by teams paid by this Company reached to the amount of £150,000, and the additional expenses by railway was £55,000, making a total of £205,000 for carriage expenses only.

For the use of the smelting works belonging to this Company, firewood was required to the extent of 70,000 tons per annum, equal to a cost of £24,700 annually, and during this time the mine has employed fully 600 hands regularly.

Timber now becoming somewhat scarce, and the consumption increasing, coal to reduce the copper ores will have to be used in a short time, and the coal traffic may be assumed at 28,000 tons annually.

In addition to firewood, most of the building timber has to be procured from Sydney, and the amount of carriage paid makes a considerable sum.

There are in addition to the Cobar copper-mine many other promising ores, of which the working is delayed by the difficult access to market.

With respect to the advantage that would accrue to the pastoral lessees, your petitioners humbly state that upwards of 10,000 bales of wool have yearly been sent from this district, and through this town, and if railway communication was obtained, the number of bales of wool would be materially increased, which would otherwise be forwarded *via* Wilcannia and Louth to South Australia.

This represents a tonnage of 2,000 per annum, and at the present rate of carriage, about £16,000.

The indirect advantages to the pastoral lessees would be almost as great as the saving obtained by a certainty of prices of carriage, and give them an opportunity of improving their leaseholds, and by this means employing more labour.

The town and district of Cobar has a population exceeding 3,000, nearly all of whom have fixed their places of abode here, and have expended considerable sums in permanent improvements (buildings and otherwise, all of which inhabitants are ratepayers), the district having been incorporated two years.

The Government outlay in the said town has been considerable in this town of Cobar, in the way of public buildings and water supply, the value of which improvements entirely depend upon the mining and squatting industries, and the said industries depend upon a cheap and certain means of obtaining supplies, and forwards products, and this is only to be arrived at by railway communication.

The route from Nyngan to Cobar has been already surveyed, and books of reference and plans approved of.

The cost need not be necessarily great, and the advantages to a large district certain.

The railway once completed to Cobar would place this town within 120 miles of Wilcannia on the Darling River, and in consequence would bring the whole of the middle Darling and Barrier range traffic through Cobar and Nyngan to Sydney.

And your Petitioners, as in duty bound, will ever pray.

[Signed by H. LEWIS, Mayor, and 572 others.]

Minute by The Secretary for Public Works.

Department of Public Works, Sydney, 18 May, 1886.

MESSRS. Barton and Sawers, M's.P., waited upon me to-day with reference to the above proposed railway, and presented the petition enclosed in favour of the construction of the line.

It was mentioned that Cobar was primarily known for its copper-mines, which during the last ten years have produced 19,050 tons of copper, equal to 1,905 tons per annum, and valued at one and a half million pounds. That nearly one million has been paid in wages, and over £100,000 for supplies, while about £250,000 has been paid for carriage. These mines would furnish a heavy annual traffic, as there is ore in sight that will last for centuries, and even at the present low rates the mine is worked at a handsome profit, a sum of £5,000 being available last year; in fact it was mentioned the Cobar and Nymagee were the only paying copper-mines in Australia, and they produced ore and copper at a lower price per ton than any mine in the world.

The firewood in the neighbourhood of the mine was nearly worked out, and the haulage of fuel would form a large item of traffic for the proposed railway.

Further, the district was a pastoral one, and there would be a large traffic from this interest, 10,000 bales of wool being annually sent away in addition to hides, &c., and the receipt of station supplies, while there would also be considerable live stock.

The town also had a population of 3,000, and the carriage of general goods would form a considerable item of traffic.

I stated I recognised the importance of the interests they represented, and the value of the railway to Cobar. I had already laid the plans, &c., for the proposed line on the table of the Assembly, and would, as soon as opportunity permitted, move their adoption, along with the plans for other lines which had been submitted.

W.J.L., 18/5/86.

R. B. Wilkinson, Esq., M.P., to The Secretary for Public Works.

Sir,

Sydney, 7 August, 1886.

I have the honor to bring under your notice a resolution passed at a large public meeting held at Nymagee relative to the proposed line of railway from Nymagee to Cobar, and to request that immediate action be taken in the matter.

I have, &c.,

ROBT. B. WILKINSON.

RESOLUTION.

THAT this meeting, recognising the fact that the proposed line of railway from Nyngan to Cobar would be beneficial to the best interests of the district and the Colony generally, urge upon the Government the necessity for proceeding with the same as speedily as possible.

Please inform that plans, &c., are now on the table of the House.—W.J.L., 11/8/86.

The

The Commissioner for Railways to R. B. Wilkinson, Esq., M.P.

Sir,

Department of Public Works, Railway Branch, 14 August, 1886.

I have the honor to acknowledge the receipt of your letter of the 7th inst., bringing under attention a resolution passed at a public meeting held at Nymagee, urging the early construction of the proposed railway from Nyngan to Cobar. In reply, I am directed by Mr. Secretary Lyne to inform you that the plans and book of reference of this railway are now on the table of the House.

I have, &c.,

CHAS. A. GOODCHAP,
Commissioner for Railways.

Petition.

From residents of Cobar and district, presented by Mr. Barton and Mr. Sawers, M's.P.

To the Hon. the Minister for Public Works, Sydney,—

The petition of the undersigned residents of Cobar and district, in public meeting assembled, at Cobar, on the 3rd day of August, 1886, humbly sheweth,—

1. That the petitioners are extremely desirous of railway communication with the metropolis by the extension of the line from Nyngan, on the Great Western Railway, to Cobar.

2. Your petitioners learned with regret, from your reply to our Member, Mr. Barton, in answer to a question of his, submitted to you from his place in the Assembly, that it was impossible for him to specify at present when the Nyngan-Cobar Railway would come under consideration.

3. That your petitioners have been promised railway communication by every Government in office since 1879.

4. That the Government in office in 1881 declined to grant permission to a syndicate to construct this line, but agreed to construct one themselves at once.

5. That a large traffic will be immediately available on completion of the railway, it being now estimated at for Cobar and district, within a radius of 40 miles, at £25,060 per annum, and this estimate in no way including any traffic to come from Nymagee (at a point on the railway 40 miles from Cobar), or to be induced by the advent of a railway.

6. Your petitioners, relying on repeated promises from the Government to construct the Nyngan-Cobar Railway, and the fact of the Government expending upwards of £30,000 in public buildings and works at Cobar, have invested large sums of money in property improvements and otherwise, besides incorporating themselves.

7. That the necessary loan for the construction of the Nyngan-Cobar Railway was authorized in 1884, and the plans and books of reference have been on the table of the House since September, 1885.

8. That upon the advent of a railway here many copper lodes known to exist in the district would be developed, and thus create at Cobar a central smelting depot, thereby considerably augmenting the quantity of copper for export.

9. That your petitioners are of opinion that the inland lines have been neglected, and not looked upon with sufficient importance.

10. That very shortly all the contracts now in hand will be completed, and the immediate commencing of this line will in fact help to absorb a large amount of labour, even now too plentiful for the benefit of the Colony without additions.

11. That in the event of a railway not being immediately constructed it will be imperative for the Government to expend a large sum of money for the macadamising of the road between Nyngan and Cobar, it being now, and for the greater portion of the year, in an almost impassable condition. Teams are at present unable to travel, and the town is now reduced to a fortnight's supply of flour, with a like scarcity of other supplies.

12. That your petitioners, in view of all the circumstances, would respectfully ask you to move the adoption of the plans and books of reference of the Nyngan-Cobar Railway without delay, to permit of the construction of this line immediately, and thus to do justice to this large and very important district. And your petitioners, as in duty bound, will ever pray.

HOPKIN LEWIS,

Mayor,

Chairman of the Railway League, on behalf of the inhabitants, in public meeting assembled, at Cobar, on the 3rd day of August, 1886.

Memo. by The Chief Clerk.

Railway from Nyngan to Cobar.

MR. LACKEY presented a petition from certain residents of the Cobar district, praying that the House will speedily confirm the already adopted plans and book of reference of the Nyngan and Cobar Railway Obtain copy of the petition. D.C.M'L., 27/9/86.

Copy of petition herewith.—F.V., 11/10/86. The plans have been approved by both Houses.—
Ch.A.G., 11/10/86.

RAILWAY FROM NYNGAN TO COBAR.

PETITION FROM CERTAIN RESIDENTS OF THE COBAR DISTRICT.

[Presented by MR. LACKEY, 15 September, 1886.]

To the Honorable Members of the Legislative Council, in Parliament assembled.

The humble Petition of the residents of the Cobar district,—

RESPECTFULLY SHOWETH :—

That a railway from Sydney to Cobar is urgently required for the further development of this quickly growing and important district, and in support hereof we beg to bring under the notice of this Honorable House the following statistics :—

The Great Cobar Copper-mining Company (Limited), at present in actual work, has produced during the last ten years upwards of 19,050 tons of refined copper, equal to 1,905 tons per annum, the value of which was £1,444,500 sterling. The wages paid for raising same during this time amounted to £960,000. The supplies required to carry on this work cost £110,000.

That the carriage by teams paid by this Company reached to the amount of £150,000, and the additional expenses by railway was £55,000, making a total of £205,000 for carriage expenses only.

For the use of the smelting works belonging to this Company, firewood was required to the extent of 70,000 tons per annum, equal to a cost of £24,700 annually, and during this time the mine has employed fully 600 hands regularly.

Timber now becoming somewhat scarce and the consumption increasing, coal to reduce the copper ores will have to be used in a short time and the coal traffic may be assumed at 28,000 tons annually.

In addition to firewood most of the building timber has to be procured from Sydney, and the amount of carriage paid makes a considerable sum.

There are, in addition to the Cobar Copper-mine, many other promising ones of which the working is delayed by the difficult access to market.

With respect to the advantage that would accrue to the pastoral lessees your Petitioners humbly state that upwards of 10,000 bales of wool have yearly been sent from this district and through this town, and if railway communication was obtained the number of bales of wool would be materially increased, which would otherwise be forwarded *via* Wilcannia and Louth to South Australia.

This represents a tonnage of 2,000 per annum, and, at the present rate of carriage, about £16,000.

The indirect advantages to the pastoral lessees would be almost as great as the saving obtained by a certainty of prices of carriage, and give them an opportunity of improving their leaseholds, and thus employing more labor.

The town and district of Cobar has a population exceeding 3,000, nearly all of whom have fixed their places of abode here, and have expended considerable sums in permanent improvements (buildings and otherwise), all of which inhabitants are ratepayers, the district having been incorporated two years.

The Government outlay in the said town has been considerable in the way of public buildings and water supply, the value of which improvements entirely depend upon the mining and squatting industries, and the said industries depend upon a cheap and certain means of obtaining supplies and forwarding products, and this is only to be arrived at by railway communication.

A railway once completed to Cobar would place this town within 120 miles of Wilcannia, on the Darling River, and in consequence bring the whole of the Middle Darling and Barrier Range traffic through Cobar and Nyngan to Sydney.

The plans and books of reference for the Nyngan and Cobar Railway have just been approved of by the Legislative Assembly, and with a view of securing the adoption of the same in this Honorable House at an early date, your Petitioners humbly beg to bring under the notice of this Honorable House the facts embodied herein as an additional proof of the necessity for railway communication between Nyngan and Cobar.

Ballast for the construction of this line is easily obtainable, there being a large quantity immediately upon the railway line, about midway between Cobar and Nyngan; and some hundreds of thousands of tons at the Cobar end being slag from the copper ores, which is eminently suitable for ballast purposes.

The cost of resumption of land by the Government for the construction of this line would be little or nothing, there being no freehold after leaving the township of Nyngan, the whole of the distance being Crown Lands, thus making this line one of the cheapest in construction in the Colonies, throughout which there are no cuttings or gradients.

There is no surveyed stock road at present existing between Nyngan and Cobar, the same being withheld on account of the long promised railway.

That your Petitioners view with alarm the concerted action which is reported to be taken by some graziers in this district for the purpose of delaying or preventing the construction of this line; such objection, in the opinion of your Petitioners, arises out of selfish motives, and is not in the interest of the majority of the classes in this neighbourhood, and if such obstruction is entertained the only effect that can follow will be the retention by the squatters of their resumed areas, whereas by rail communication the present lessees must anticipate settlement by selectors and others who will be of more benefit to the State, but whose presence are not at all palatable to one or two large runholders whose leaseholds are situate immediately around Cobar. The objections offered by such interested parties are of the most frivolous nature when considering the large benefits that must accrue by the construction of the railway to this district, which will not only be a boon to a large number of inhabitants resident here and in the immediate vicinity, but also to the Colony at large.

Having brought under the notice of this Honorable House the aforesaid requirements, your Petitioners pray that you will take into your favorable consideration the requests embodied herein, and will give effect thereto by the speedy confirmation of the already adopted plans and books of reference of the Nyngan and Cobar Railway.

And your Petitioners, as in duty bound, will ever pray, &c.

[Here follow 514 signatures.]

Minute by The Engineer-in-Chief to The Secretary for Public Works.

Engineer-in-Chief's Office, Sydney, 25 October, 1886.

HEREWITH I have the honor to forward the plan and book of reference of the proposed railway from Nyngan to Cobar, for the approval of His Excellency the Governor and the Executive Council, and for proclamation in the *Government Gazette*, in terms of clause 13 of the Government Railways Act of 1858.

Description for Proclamation.

Commencing at a point marked A at 378 miles 22 chains, and terminating at a point marked B at 458 miles 59 chains, being a length of 80 miles 37 chains.

JOHN WHITTON.

Railways.—J.R., B.C., 26/10/86. Governor and Executive Council.—W.J.L., 28/10/86. Draft proclamation herewith.—D.C.M'L., 29/10/86.

Government Railways—Extension, Nyngan to Cobar.

THE Commissioner for Railways, appointed by Act of Council, 22 Victoria, No. 19, hereby gives notice that His Excellency the Governor, with the advice of the Executive Council, deems it expedient to make and complete a railway between Nyngan and Cobar, and to erect certain works and conveniences in connection therewith; that for that purpose certain parcels of land, lying and situate between Nyngan and Cobar respectively, which are particularly set out and coloured red in the map or plan and book of reference, to be seen at the Office of the Commissioner for Railways, Phillip-street, Sydney, and at the Police Offices, Dubbo and Cobar: Commencing at a point marked A at 378 miles 22 chains, and terminating at a point marked B at 458 miles 59 chains, being a length of 80 miles 37 chains, are required to be taken by the Commissioner for Railways, and that all parties interested in the said land, or affected by the said works, are hereby required to set forth in writing to the said Commissioner within one month from the publication of this notice in the *Government Gazette* any well grounded objection that may appear to them to exist to the making of the said railway, or to the erection of the said works.

Dated at Sydney this 18th day of November, in the year of our Lord 1886.

CHAS. A. GOODCHAP, Commissioner for Railways.

The Seal of the Commissioner for Railways was affixed hereto, at Sydney, } this 18th day of November, 1886, in the presence of,—

D. C. M'LACHLAN.

Minute for The Executive Council.

Department of Public Works, Sydney, 30 October, 1886.

I HAVE the honor to submit, for the approval of His Excellency the Governor and the Executive Council, in terms of the Act 22 Victoria, No. 19, the plan and book of reference of the proposed line of railway from Nyngan to Cobar, commencing at a point marked A at 378 miles 22 chains, and terminating at a point marked B at 458 miles 59 chains from Sydney, being a length of 80 miles 37 chains.

A draft proclamation is also submitted for the approval of the Governor and Council.

WILLIAM JOHN LYNE.

The Executive Council approve of the plan and book of reference of the line of railway from Nyngan to Cobar herewith. Submitted.—A. C. BUDGE, Clerk of the Council, 11/11/86. Confirmed, 13/11/86. Approved.—CARRINGTON, 11/11/86.

Government Railways—Extension, Nyngan to Cobar.

Notice of confirmation of Plan and Book of Reference.

WITH reference to the notice of the Commissioner for Railways, dated the 18th day of November last, relative to the taking of certain lands required for the purpose of making a railway between Nyngan and Cobar, being a distance of 80 miles 37 chains, and to make and complete certain works and conveniences in connection therewith, notice is hereby given that, no valid objection having been made to the taking of the lands referred to, the said plan and book of reference have been duly confirmed by His Excellency the Governor, with the advice of the Executive Council, in accordance with the Act of Council, 22 Victoria, No. 19.

CHAS. A. GOODCHAP, Commissioner for Railways.

The seal of the Commissioner for Railways was affixed hereto at Sydney, } this 20th day of December, 1886, in the presence of,—

D. C. M'LACHLAN.

Minute by The Secretary for Public Works to The Engineer-in-Chief.

Re Nyngan to Cobar Railway.

THE draft specification which I desired might be prepared, so that, as far as possible, effect might be given to the suggestions made by Sir John Fowler in favour of "cheap railways," does not seem to me to contain any very decided alterations on existing specifications to accomplish the object sought.

The line will be about 80½ miles in length, and it appears 62 miles will be of surface formation, leaving 18½ miles where there would have to be excavation, &c.

I cannot find that any alteration has been made in the number of sleepers to be used, or in the class or size of sleepers, and for a cheap line it seems to me that sleepers, both square and half-round, should be provided for. In clause 6 the difference between formation and rail-level is described as 1 foot, which would be a reduction upon other lines, but in clause 84 it is said to be 15 inches. This must be an oversight, and, I presume, the lighter formation is intended. Although

Although it may be thought well to insert clauses 132 to 144, to provide brickwork or masonry, as it may be required, to a small extent; but both, if possible, should be entirely excluded on this extension.

Clause 54 is very specific as to the necessity for squared timber. I think this should be modified. Clause 68 refers to gates; but the provision proposed, seems too expensive for a pastoral country; and probably locked slip-rails could be given as an alternative. Clause 74 contemplates a greater thickness of ballast than 3 inches; but I think it would be undesirable to have more than 3 inches.

The fencing is, I think, of too expensive a character, and for a sheep country it seems to me wire fences without a top rail will be quite sufficient, the posts being made of the best local timber obtainable, and they need not be so near as 8 feet 3 inches. Were it not that the law compels fencing, I would suggest that no fencing should be provided at present.

Clause 111 provides for posts for marking the mileage and gradients; but where there are so many grades as on this line, it is unnecessary to provide the marks, and the mileage might be shown on the posts.

I notice that it is proposed the work shall be done at so much per chain. For the 62 miles I think the work might be subdivided into sections, so as to bring in a number of small contractors, thereby distributing the work, and at the same time expediting it.

It might be arranged for the formation to be first done by separate contracts ready for plate-laying, the sleepers and rails to be laid subsequently. As the country is comparatively level, without any extensive water-course, there will be few culverts or bridges, and these might be of timber obtained locally.

I understand there is plenty of ballast about Cobar, and between that place and Nyngan, so that it will be unnecessary to go to Narramine for a supply, as had to be done in the case of the extension to Bourke.

There seems to be no provision in the specification for the contractor to have the use of rails—I presume this is an oversight.
Engineer-in-Chief, B.C.

W.J.L., 15/12/86.

Minute by The Engineer-in-Chief to The Secretary for Public Works.

Re Specification for construction of Railway Line—Nyngan to Cobar.

THE draft specification sent to the Minister on 17th November last was prepared hurriedly, and has since, to a great extent, been remodelled.

Sleepers. Sir John Fowler's suggestion was that the sleepers for light railways should be similar to those on the existing railways, and the Minister instructed me to prepare the specification on the lines of Sir John Fowler's report. I found, however, on preparing a careful estimate that sleepers of the dimensions and description named by Sir John Fowler could not be provided for the amount voted, and before the receipt of the Minister's memo. of yesterday's date I had prepared a revised specification, which is now at the Government Printer's, providing for "half-round" sleepers, instead of the rectangular sleepers as used on the main lines, and making the length 7 ft. 6 in. instead of 8 feet.

The sleepers have also been spaced differently, the number now being 1,760 per mile, instead of 2,020.

Formation level. The drawings and the working sections provide that the difference between the rail and formation levels shall be 12 in., and the error in the printer's proof of 15 in. was corrected in the revised specification.

Brickwork, &c. "Brickwork," "masonry" are inserted in the schedule for the purpose of obtaining prices, should they be required, but it is not intended to use either on this contract.

Timbers. Round timbers will be used in every instance for piles, and squared timbers only where large sills are required to act as sleepers for the special description of waterways on this contract.

Gates. Gates have been provided for the purpose of keeping sheep off the line, which could not be done by slip-panels unless placed very close together. These, however, can be adopted if considered desirable.

Ballast. The quantity of ballast provided for is $\frac{3}{4}$ of a cubic yard per lineal yard, which will give about $\frac{3}{8}$ in. of ballast under the sleeper.

Fencing. Two descriptions of fencing have been provided—one with two rails and three wires, and the other with seven wires without top rail; the cheaper fence will be ordered. The distance of the posts apart might be increased, but it would make an inferior fence, and I do not advise it.

Gradient and mile posts. In the revised specification, which (as before stated) is in the hands of the printer, the gradient and mile posts have all been struck out.

I strongly advise the Minister to let this contract in one length, as the works upon it are exceedingly light, and no responsible contractor would undertake the important portions of this contract, such as granite cuttings, waterways, laying of permanent way, and ballasting, if the easy portions of the work were divided into small contracts. Besides, if the small contractors had to provide plant and tools for each separate section, the work would not, in my opinion, be executed so cheaply or satisfactory or so quickly as if the whole were let in one contract.

I do not think small contracts could be carried out satisfactorily by the department, unless the Government placed itself in the position of a contractor, and provided plant and all managers and officers necessary to superintend and measure the works, the same power being given to the officers of the department as is given by contractors to their agents.

Temporary materials on loan. Rails for temporary purposes were intentionally omitted, as there will be no necessity for them, as the heads of the cuttings will not justify their use. As "temporary" materials are always shamefully used by contractors, I intend in all cases to refuse to lend them in future, unless absolutely necessary.

With reference to Sir John Fowler's estimate of the cost of light railways, viz., £2,500 per mile, it should be distinctly understood that this amount does not include "the railway charges on existing lines for the conveyance of materials."

According to the present rates-sheet, the cost of haulage from Sydney to Nyngan will be £4 18s. 1d. per ton, or somewhat more than the cost of the rails in England and their conveyance to the Colony, or about £500 per mile.

I have frequently protested against what I consider to be the exorbitant charge for the carriage of permanent way materials by railway, and I again repeat that the capital votes are made use of, in my opinion, to produce a fictitious revenue.

The

The cost of railway carriage charged against capital account for the conveyance of permanent way materials for the conveyance of permanent way materials for the undermentioned lines was as follows:—

Railway.	Railway carriage.		Cost of line per mile, exclusive of railway carriage and land.
	Amount charged.	Rate per mile.	
	£	£	£
Junee to Narrandera	32,752	538	4,944
Narrandera to Hay	53,781	503	4,532
Gunnedah to Narrabri	23,505	422	4,632
Dubbo to Nyngan... ..	59,992	605	4,647
Wagga to Albury	36,532	473	5,388
Narrandera to Jerilderie	34,522	531	8,556

16/12/86.

JOHN WHITTON.

No higher price is charged for the carriage of rails than is charged for the carriage of other descriptions of iron—in many cases not so much. Since I have been Commissioner the rate for the carriage of rails has been greatly reduced, especially for long distances.—CH.A.G., 22/12/86.

Minute by The Secretary for Public Works.

FROM this minute it would appear that almost all the points I raised are being provided for in the amended specification, with the exception principally of the clause dividing the line into shorter sections, and in this instance the Engineer-in-Chief gives strong reasons to show that subdividing the line in this way would cause it to be dearer proportionately than if it were let in one contract.

The specification should provide, however, for a limited time for completion, so that the contractor will be compelled to employ a large number of hands.

If the forms, &c., are ready, I should like the tenders to be invited in the next *Gazette*.

The question of the railway freight charges is one that can be dealt with hereafter.

W.J.L., 22/12/86.

Engineer-in-Chief, B.C., 22/12/86.

Notice inviting tenders for the Cobar line was forwarded on the 15th instant; plans, &c., to be on view on 15th January, and tenders to be received on 22nd February, 1887. With reference to the Commissioner's memo., "*Vide* my remark *re* exorbitant charge for conveyance of permanent way materials," I think he must have forgotten that 1d. per ton per mile was charged for conveyance of rails to or from Lithgow, and recently a special rate of 2s. per ton per mile has been authorised for the Eskbank Company.—J.W., 22/12/86. Under Secretary, B.C.

Seen.—Please inform Mr. Barton of date proposed for opening of tenders, &c.—W.J.L., 23/12/86. Tenders invited, and Mr. R. Barton informed.—D.C.M'L., 30/12/86.

The Commissioner for Railways to R. Barton, Esq., M.P.

Sir,

Department of Public Works, Railway Branch, 30 December, 1886.

Referring to the construction of the Nyngan to Cobar Railway, I have the honor to inform you that tenders for the work are now being invited, and will be received at this office until Tuesday, the 22nd February next.

I have, &c.,

CHAS. A. GOODCHAP,

Commissioner for Railways.

The Under Secretary for Public Works to The Engineer-in-Chief.

Sir,

Department of Public Works, Sydney, 22 February, 1887.

The tenders (seven in number) for the work specified in the margin are referred to you for report, and you will have the goodness, as early as possible, to return them to me direct for submission to the Minister.

I have, &c.,

JOHN RAE.

Construction of
Railway Line—
Nyngan to
Cobar.

SCHEDULE of tenders opened 22nd February, 1887, for the construction of a railway line from Nyngan to Cobar, including station buildings, &c.

No.	Tenderer.	Amount.	Remarks.
		£ s. d.	
1	Carey & Maund.....	182,838 10 0	Recommended for acceptance.
2	Fishburn & Co.....	144,048 1 0	
3	Hardy & Morton	121,799 8 4	
4	Angus & Co.	133,747 6 8	
5	Halliday, Owen, & Co.	150,154 5 4	
6	Fergus & Blair	159,457 5 0	
7	Salmond, Denne, & Co.	153,344 4 6	
	Engineer's estimate	126,579 0 0	

No. 3 tender, £121,799 8s. 4d., by Messrs. Hardy & Morton, being the lowest tender and otherwise eligible, I recommend its acceptance.—J.W., 23/2/87. The Under Secretary for Works, Railways, B.C., 23/2/87.—J.R.

Minute by The Commissioner for Railways to The Traffic Manager.

TENDERS have been received for line Nyngan to Cobar; before they are finally decided upon some fresh statistics of the traffic should be prepared.

I should like to know what tonnage of goods have gone to and been received from that part of the country which the railway line will affect during the last twelve months?

What prospect is there of additional traffic?

A mixed passenger and goods train three days a week will serve the traffic probably—the Permanent way expenses will be £10,000 per annum, and 500 miles a week, at 2s. 6d. for locomotive and traffic, equals £63 a week, or £3,200 a year, in all (say) £13,000 for working expenses. Our earnings would have to be at least 10s. a train mile to cover the working cost. The interest upon capital will probably be another £10,000 a year, so that the traffic returns will have to be about £23,000 a year to cover working expenses and interest.

The calculation of returns must be made on that portion of line between Nyngan and Cobar. We already have the traffic on the main line, or nearly all, unless the opening of the line will develop additional traffic.

Please have the return carefully prepared by a good officer upon whose figures reliance can be placed.

Let me have this back in one week from date.—
Traffic Manager, B.C.

CH.A.G., 25/2/87.

Minute by The Commissioner for Railways.

A STATEMENT is being prepared of the probable revenue to be derived from this extension. It will be ready in a day or two. Would it not be well to await this information before deciding upon the recommendation of the Engineer-in-Chief that Hardy & Morton's tender be accepted? CH.A.G., 25/2/87.

I estimate that the working expenses and interest upon money will amount to £23,000 a year, perhaps £30,000, if we run more than three days a week. I will ascertain what the probable revenue will be.—CH.A.G.

Minute of The Secretary for Public Works.

SUBMIT with the information.—J.S., 28/2/87.

Please see Assistant Traffic Manager's report herewith.—D.C.M'L., 5/3/87. The Commissioner.

Assistant Traffic Manager's Report.

BOTH Mr. Harper, the Goods Superintendent, and Mr. Hornidge, the District Inspector, have been making very careful inquiries into this matter, and from them I gather that there is not an acre of country under cultivation along the whole route of the proposed line, or indeed in the district.

The population of Nymagee is about 1,500 altogether, and it is said to be very steady; but that of Cobar, which two years ago was about 4,000, is now under 3,000, and I am informed that a further decrease is a certainty—that indeed many people would leave the district at once, and are only remaining in the hopes that the railway will be constructed, and so cause a circulation of money in the town.

From our books at Nyngan (the station to and from which Nymagee and Cobar traffic is sent) I find that during the year 1886, 1,565 tons of smelted copper were received from Cobar, and assuming the distance between Nyngan and Cobar to be 80 miles, it follows that the revenue to be derived from that distance (the difference between 377 and 457 miles) will be 8s. per ton = £626 per annum. Wool from Cobar during the same period, 663 tons at, (say) 10s. = £332.

To Cobar we carried during the same period—

1,280 tons of A class traffic which at	4/- per ton would yield...	...	...	£256
231 " B	8/- " " " " " "	...	...	92
92 " 1st	16/- " " " " " "	...	...	74
284 " 2nd	20/- " " " " " "	...	...	284
512 " 3rd	28/6 " " " " " "	...	...	730
18 " 4th	35/- " " " " " "	...	...	31

And assuming that we were to get 20,000 tons of firewood to carry an average distance of 20 miles, the revenue derivable therefrom at 2s. 1d. per ton would amount to £2,083; hence the total estimate of the Cobar traffic, exclusive of passengers and parcels, £4,508.

As regards the Nymagee traffic the revenue to be derived from it will depend entirely upon the point at which it is to be received and delivered.

I learn that a petition has been sent by the owners of the Nymagee Mine and their workmen to the Roads Department that a road should be made from a place called Budd's Gap (about 50 miles beyond Nyngan) to Nymagee, and it is variously estimated that such a road would be from 38 to 51 miles in length. I have been told, however, that the present road, which branches off about 12 miles beyond Nyngan, cost £7,000, and that the Roads Department will strenuously oppose the making of another. The distance from this place to Nymagee is 54 miles, and is liberally supplied with water.

If by chance the petitioners should be successful, and we got the traffic to carry the greater distance, we would, upon the traffic of 1886, derive the following revenue:—

Copper, 1,260 tons at	5/- per ton	...	...	...	= £315 per annum.
Wool, 653 "	7/- " " " " " "	...	...	...	= 229 "
A traffic, 941 "	2/6 " " " " " "	...	...	...	= 118 "
B " 50 "	5/- " " " " " "	...	...	...	= 12 "
1st class, 18 "	10/- " " " " " "	...	...	...	= 9 "
2nd " 212 "	12/3 " " " " " "	...	...	...	= 130 "
3rd " 313 "	17/6 " " " " " "	...	...	...	= 274 "
4th " 12 "	22/6 " " " " " "	...	...	...	= 13 "

Total = £1,100

But if the traffic were carried the shorter distance by railway then our revenue from it would be only £300.

I am given to understand that the live stock traffic will be very small indeed, and should say that it will not yield a revenue of more than £300 a year at the outside.

The passenger, parcel, and mail traffic I feel sure would not exceed £1,000 a year.

To recapitulate, I estimate the Cobar merchandise traffic as likely to yield £4,508 a year; the Nymagee merchandise traffic from £300 to £1,100 a year, according to distance; live stock traffic, £300 a year; passengers, parcels, and mails, £1,000 a year; or a total of from £6,108 to £6,908 per annum.

This includes, as well as can be gathered, all the traffic that is likely to be attracted to the new line, and the estimates are derived from the most reliable source I can think of.

I am perfectly certain that, unless the mines show any wonderful development, the line will never pay anything like the interest upon the capital.

Commissioner.

D.K., 4/3/87.

The Minister will see from Traffic Manager's report that after liberally estimating the traffic the gross revenue to be derived therefrom will not exceed £7,000 a year. The working expenses at the lowest computation (providing for only three trains a week—mixed passenger and goods) will be £13,000 a year, while the interest upon the capital outlay will be £10,000, in all £23,000 a year. The net loss upon this line will therefore be £16,000 a year.

I would submit that the construction of this line be postponed until it is decided whether the proposed line to Wilcannia is to be taken, *via* Cobar. I believe that in that case the line would pay, if not directly, at least indirectly, as we should obtain the greater part of the traffic which now reaches Wilcannia by way of the Rivers Murray and Darling. This traffic would not alone feed the line from Nyngan, *via* Cobar, to Wilcannia, but would contribute a new traffic to the line between Sydney and Nyngan.

CH.A.G., 5/3/87.

Minute by The Secretary for Public Works.

Re Nyngan to Cobar Railway.

MESSRS. Waddell and Wilson, M's.P., with Mr. Barton, waited upon me to day with reference to the above railway. They intimated that they understood there was a probability of the line not being proceeded with owing to unfavourable reports submitted by the officers of the department as to the probable traffic. They wished to point out, that, in their opinion, the probable traffic had not been fairly estimated, they believed it was based on the traffic at Nyngan, but this afforded no criterion, as the traffic from much of the back country that now went by other routes would be diverted to Cobar if the line were made. In addition a great increase would take place in the present sources of traffic in the way of firewood and coal to the Cobar mine, and produce to pastoralists, while new mines would be opened up. They believed the line would be directly or indirectly a remunerative one, and, in addition, it offered the shortest route to Wilcannia, and very many persons were in favour of its ultimate extension there.

I informed them that the Commissioner, as he was bound to do, had made a report as to this line, and his conclusions were unfavourable to its construction. We had a number of lines now that were a drag upon the revenue, and we had therefore to be careful not to construct any line which did not show a reasonable prospect of paying. At the same time I wished to be in possession of all information before submitting the line to the Government, and would be glad to have any figures they could supply. No doubt the line had passed Parliament, but I did not regard that as imperative that we should proceed at once with the construction of the line, and this question would have to be decided by the Government when full information was available.

I promised to wait a fortnight so as to give them time to collect particulars before submitting the line for the consideration of Cabinet.

J.S., 11/3/87.

The Traffic Manager for report as to alleged incompleteness of statistics of probable traffic, and what additional traffic to that given can reasonably be anticipated.—CH.A.G., B.C., 15/3/87.

I have no reason to believe that the information already furnished is in any way incorrect. I might perhaps have put down the wool rate between Nyngan and Cobar at 20s. instead of 10s. per ton, but even that would only give £332 more, but if the station for the Nymagee traffic were fixed at the point 12 miles west of Nyngan we would not get my estimate of 7s. per ton for wool, so that upon the whole my gross estimate cannot be far out. I shall not say that the line might not attract some more traffic, but I am very strongly inclined to believe that such traffic would be drawn from the main line, and that is not what we want. I do not know what more I can do in the matter, but rather think that those who are taking such an interest in having the line constructed should state what traffic they expect, and from what sources.—W. V. READ, 16/3/87. Commissioner.

There is a subsequent paper upon which Commissioner has asked whether the Traffic Manager has included in his estimate the amount likely to be derived from carriage of mails. Obtain please.—D.C.M'L., 16/3/87.

Minute by The Commissioner for Railways to The Traffic Manager.

Cobar Traffic.

ON looking over the estimate furnished by Traffic Manager I see that £1,000 is put down for coaching traffic. The amount allowed for carriage of mails seems to have been omitted. The Post Office pays us £12 a year per mile for branch lines, which alone would for the 81 miles realise £972. It will not be satisfactory to find that any large item has been omitted.

CH. A.G., 15/3/87.

Traffic Manager—Very urgent.

I did not forget the mails, as will be seen by my minute, but I regret that instead of putting down £2,000, as I intended, I only put down £1,000. My estimate of revenue should therefore be increased by £1,000. As far as I have been able to ascertain, no large line of traffic has been omitted. I am, however, making further inquiries, and will be able to report by the beginning of next week. I thought the distance from Nyngan to Cobar was only 80 miles. If it is 81 it will make a little difference, but not much.—W. V. READ, 17/3/87. Commissioner.

J. Cox, Esq., to The Secretary for Public Works.

Dear Sir,

Oxford-street, Sydney, 12 March, 1887.

Reading in to-day's paper of a deputation waiting on you for the immediate construction of a railway from Nyngan to Cobar, a thought struck me whether the Government were aware of the present and future prospects of the Cobar Copper-mine. I have been living in that part of the country for these last four years, being interested in that part when I first went to Nyngan and Cobar.

I made all sorts of inquiries concerning the Cobar mine of practical miners; they all, without one exception, told me personally that as soon as the grey ore was worked out the mine was done, having sunk through the grey ore on to the yellow ore, and the latter will not pay apart from the former. For the last twelve months, to my knowledge, they have been working out the old pillars from the upper portions of the mine, which at the present time are almost exhausted. So soon as the pillars are done the mine is done at any minute.

The deputation referred to the railway carrying firewood for the mine. The Company has had a tramway laid on to the bush for this purpose for years.

Again the deputation referred to the agricultural character of the route of railway. This present season is the best ever known in the back country. I have travelled hundreds of miles from Nyngan back, and could not see a blade of grass anywhere, sheep and cattle dying in all directions for the want of grass and water.

The deputation also stated about £20,000 worth of copper lying at the mine which could not be carried away in consequence of the bad roads. They have always been able to manage in the past to send away their copper when the railway was a great deal further away from their mine than it is at present, and their output a great deal larger than at present.

I think they have about five or six teams of their own, or which they let to their carriers, who do all the work. The £20,000 worth of copper would not take long to carry to Nyngan if the weather would clear up. There is a large number of carriers, both horse and bullock teams, camped about Nyngan and Cobar, to whom it would be a charity to give a job. The Company would soon get their copper shifted on to the railway. The deputation also referred to the bad state of the roads; it is not long since the new road was opened to Cobar—a fine open clear road, right through from Nyngan to Cobar.

Dear sir, it is not because the railway will make the slightest difference to me that I am writing those lines, but it is the opinion of every man that I have conversed with that it is a pity to see public money wasted in such a way. No doubt it would benefit a few shareholders in the mine and property-holders at Cobar if they could get the railway through.

Sir, I think we had one if not more interested in the above mine in our last Ministry. Trusting these few lines will help you to make further inquiries into the present and future prospects of the Cobar Copper-mine and railway scheme,

Yours, &c.,

J. COX,

Oxford-street Post-office, Sydney.

Railways, B.C., 15/3/87.—J.R.

The Traffic Manager to The Commissioner for Railways.

Estimate of traffic on proposed line to Cobar.

On the Commissioner's M.P. 87-4,210 I showed that the traffic which would have been carried on this line during last year would have yielded a revenue of from £4,025 to £4,825, according to the point at which the Nymagee traffic would be received and delivered, and that, allowing £2,083 for the conveyance of firewood (20,000 tons an average distance of 20 miles) to the Cobar Mines, the figures would be increased to £6,108 and £6,908, respectively.

When the Commissioner pointed out to me that I had only estimated £1,000 for the conveyance of passengers, parcels, and mails (see his M.P. 87-5,592), I admitted at once that a mistake had been made, and that I should have put down £2,000, which would bring the figures up to £7,108 and £7,908.

I have again been assured that the information upon which these figures were based is quite correct, as extracted from the books at Nyngan; but since my minutes of the 4th and 17th instant were written, I have ascertained that a certain amount of traffic has gone by way of Girilambone, Coolabah, and Byrock, and assuming that the whole of it for the year 1886 had been sent to and from Cobar (over the whole length of the proposed line), I find that in respect of live stock and merchandise we would not have earned more than £354 more than we did earn at the stations named, and the passenger and parcels traffic might perhaps yield £150 additional, but I should say certainly not more.

The estimate of the 1886 traffic would therefore be amended as follows:—

Nymagee traffic (goods, &c.)	£300 or £1,100
Cobar do do	3,079 3,079
Passengers, parcels, and mails	2,150 2,150

£5,529 £6,329

Estimated conveyance of 20,000 tons to Cobar Mine, an average distance of 20 miles

£2,083 £2,083

From £7,612 to £8,412

I have allowed nothing for an increase of traffic; on the other hand I have estimated that all traffic not for Nymagee will be carried the whole length of the line to Cobar, and of course a certain proportion of it will be for intermediate places which will not pay Cobar rates.

Then, again, it is the Cobar and not the Nymagee mines which are decreasing in importance, and will in all probability become of even less importance than they are now. The question is whether the construction of a railway to the place would give the mines a fresh impetus. I very much doubt it, because so far as the copper itself is concerned the proprietors of the mine would only save 37s. to 42s. per ton, that being the difference between team carriage and the rate per rail.

W. V. READ,

23/3/87.

Minute

Minute by The Secretary for Public Works.

Re Nyngan-Cobar Railway.

MR. WILSON, M.P., introduced a deputation to me to-day with reference to the above and presented the statistics enclosed in favor of the line.

They point out that their statement is based on the actual traffic at the present time, taken from official and reliable sources; they make no allowance for the increased traffic that would be certain to follow the opening of the railway.

Their statement shows the traffic to be equal to £21,629 per annum, and they contend that after paying working expenses this should leave a fair dividend to pay interest on capital.

The development of the district is retarded by the want of a reliable means of transit; in wet weather the roads are impassable, and they have now 800 tons of refined copper at the mine waiting transit. The Cobar Company produces on the average 2,000 tons of copper per annum, and even with the low price of copper and expense of haulage the mine paid £3,000 profit last half year. There is ore in sight that will keep the mine going for years, and if the railway were made they could afford to treat low-priced ores by sending them to the nearest coal-mines to be smelted, the trucks returning with coal to treat other ores. They believed a traffic in this item alone of 20,000 tons per annum would be carried.

Regarding the passenger traffic, goods, and wool, their statement was based upon the present return and on the present conditions, but the railway would widen the area of country which would transact business through Cobar, and it was also pointed out that this would be the nearest route to Wilcannia and Silverton. The district was rich in mineral resources, and the railway would cause other mines to be opened. The mining industry was now so hampered by the excessive cost of carriage, &c., that unless the railway were made the directors of the mines were seriously thinking of closing the mines, and this would affect 3,000 persons who were depending on them.

I informed them I was glad to have their statements, and I would take an early opportunity of laying the matter before the Cabinet for decision.

I should like to have all papers.

JOHN SUTHERLAND,
29/3/87.

Traffic Manager.

COBAR Statistics—Summary as per attached:—

	£	s.	d.
Wool, stock, wool	8,889	6	0
Goods—Nyngan to Cobar and stations distant	4,355	2	11
" "Gap Inn" and stations for Nymagee	1,200	4	5
" Cobar to Nyngan, including copper, &c.	1,741	14	9
" "Gap Inn," including Nymagee copper	863	9	0
" Hermitage and stations	56	3	4
Passengers and parcels traffic to and from Cobar	2,194	5	0
Mails contract for 1886, ending December	997	0	0
Passenger and parcels traffic, Nymagee	1,175	18	8
Wool omitted, "Gap Inn," as per report Stock Inspector	156	4	3
	<u>£21,629</u>	<u>8</u>	<u>4</u>

ESTIMATED quantity of wool to be trucked at Cobar, "Gap Inn," and Hermitage Plains, including stock to be trucked at Cobar, and firewood required by Great Cobar Copper-mining Company (Limited), at Cobar:—

	£	s.	d.
Wool estimated to be loaded at Cobar, 2,311 tons 10 cwt., at 6s. 9d. per ton	780	0	0
Stock to be trucked, Cobar—			
600 trucks sheep, at 22s.	660	0	0
166 trucks cattle, at 26s.	216	0	0
Wool, Budd's "Gap Inn," 380 tons 1 cwt. 1 qr. 15 lb., at 5s.	95	0	0
Wool, Hermitage Plains; 517 tons 1 cwt. 3 qr. 14 lb., at 3s. 3d.	84	0	0
Firewood required by Great Cobar Company, estimated by mining manager, 70,543 tons, at 2s.	7,054	6	0
Total	<u>£8,889</u>	<u>6</u>	<u>0</u>

Goods to be delivered at Cobar, including Cobar Copper Mine, Cobar town, and surrounding stations:—

	£	s.	d.
Goods estimated to be charged (average) second-class rates, 2,231 tons 4 cwt., at 34s. 11d.	3,894	19	3
Forage, estimated "A rates," 1,115 tons 12 cwt., at 8s. 3d.	460	3	8
Total	<u>£4,355</u>	<u>2</u>	<u>11</u>

Goods to be delivered at "Gap Inn," including Nymagee and surrounding stations:—

	£	s.	d.
Forage, &c., "A rate," 1,093 tons, at 5s. 5d.	296	0	5
Goods, &c., second-class rates, average 882 tons, at 22s.	904	4	0
Total	<u>£1,200</u>	<u>4</u>	<u>5</u>

Goods to be trucked at Cobar, including Cobar copper, hides, tallow, skins, &c.:—

	£	s.	d.
Annual output of copper, estimated by Mining Manager from records, 2,318 tons, at 14s. 2d.	1,641	18	4
Other goods, including hides, tallow, skins, &c., 142 tons 12 cwt., at 14s. 2d.	99	16	5
Total	<u>£1,741</u>	<u>14</u>	<u>9</u>

Goods to be trucked at "Gap Inn," including Nymagee copper, with hides, tallow, and skins:—

	£	s.	d.
Nymagee copper, average output annually, 1,778 tons, at 9s.	844	11	0
Goods, hides, &c., 42 tons, at 9s.	18	18	0
Total	<u>£863</u>	<u>9</u>	<u>0</u>

GOODS,

Goods, &c., to be unloaded at Hermitage, Wilga Downs, Budgery, Hermitage, Honnylugh, Pangee:—	£	s.	d.
Forage, &c., "A rate," 40 tons, at 3s. 3d	6	10	0
General goods, 2nd-class rate, 80 tons, at 12s. 5d.	49	13	4
Total	£56	3	4

Summary.

PARCELS and Passenger traffic for three years ending 1886—Nyngan-Cobar and Nyngan-Nymagee:—			
	£	s.	d.
Nyngan-Cobar passengers	2,222		
Cobar-Nyngan	2,182		
	4,404		
Average yearly passengers	1,468		
Distance, Cobar-Nyngan, 81 miles.			
1st-class passengers, 734, at 15s. 6d.	568	17	0
2nd-class passengers, 734, at 10s. 3d.	376	3	6
Parcels carried mail coach, 1,521 average, at 4s.	304	4	0
	1,249	4	6
Allowing this to be half the passenger traffic, which is under-rated, as shown by my letter, we add at least to the above	945	0	6
Contract mail service, 31/12/86	997	0	0
	£3,191	5	0

NYNGAN to Nymagee and Nymagee to Nyngan Passenger and Parcels Traffic:—

	£	s.	d.
Average three years—Passengers per year, 777, at			
Rates to Budd's "Gap Inn"—1st class, 388 at 9s	174	12	0
" " " " 2nd class, 389 at 6s.	111	14	0
Parcels average, 900 at 4s.	180	0	0
Two-thirds of mail contract, Nyngan to Nymagee, at £365 per annum.	243	6	8
Equal amount of traffic from other sources	466	6	0
	£1,175	18	8

WOOL omitted from Report of Wool, owing to Stock Inspector, Cobar, not having returns from other districts.

	£	s.	d.
Woothumbel, Eremeran, Qura, Wirchilleba, Manjeribone, The Overflow, Balgay, 463 tons at 6s. 9d.	156	4	3

COBAR—Post and Telegraph Returns for three years ending 31st December, 1886.

	£	s.	d.
Commissioner	317	0	0
Orders issued	30,874	0	0
Savings bank deposits	18,563	0	0
Orders paid	4,088	0	0
Saving's bank withdrawals	7,563	0	0
Remittances	38,832	0	0
Telegraph receipts	2,100	0	0
Sale postage stamps	3,000	0	0
Number of letters, 300,000.			
" " " " packets, 2,000 for three years.			
	£105,329	0	0

Report by The Traffic Manager to The Commissioner for Railways.

It is rather unfortunate that the deputation did not inform the Minister from what source or sources the statistics they furnished were obtained, so that I might have had a chance of checking them. I know, of course, that the Cobar Railway League were allowed access to our books at Nyngan and several other stations, but whether they had any other source of information I cannot say.

My statistics, as I stated in my previous minutes, were obtained solely from the station books at Nyngan, Girilambone, Coolabah, and Byrock, and they represented the traffic actually carried to and from those stations during 1886, which would have been carried upon the Cobar line if it had been constructed.

There is such an enormous difference between us that perhaps the best plan will be to send an officer to meet one or more of the gentlemen who compiled the information for the Cobar Railway League and let them decide which of the two is right as regards tonnage, although I must say that a very cursory glance at the value of the traffic shows where a very large portion of that difference lies, and substantiates the correctness of my figures.

That all the wool, copper, and other produce which leaves the district by rail will come to Sydney, and the whole, or very nearly the whole, of the general goods for the district will be sent from Sydney is, I think, undeniable; hence, in calculating the value of the traffic, I took, as the additional revenue to be derived from the new line, the difference between the 377 (Nyngan) and the 458 (Cobar) mile rates, and that I think there can be no doubt whatever was the proper method to adopt.

It is not, however, the course which the compilers of the statistics for the Cobar Railway League have adopted. They have calculated the trainage on the 82-mile rate, and in addition have, as far as I can make out, largely overstated the weight as well.

In the matter of the Cobar copper, for example, they state the traffic to be 2,318 tons, which, at 14s. 2d. per ton, would yield £1,641 18s. 4d.; and the firewood required for smelting the ore, presumably to produce that weight of copper, is put down at 70,543 tons, which, at 2s. per ton, would yield £7,054 6s. According to this estimate it takes between 34 and 35 tons of wood to produce 1 ton of refined copper.

Now,

Now, when I wrote my previous minutes I had nothing to guide me as regards the quantity of firewood that would be required, but I knew that during 1886 we carried 1,565 tons of copper from the Cobar mines, and I estimated that the wood traffic conveyed by railway would be 20,000 tons, and that it would be carried an average distance of 20 miles.

On inquiry at the Mines Department I am informed that the ore which has now to be treated requires to go through so many processes that it takes about 20 tons of firewood to produce 1 ton of copper. If therefore we multiply 1,565 by 20 on the assumption that every ton of wood would be conveyed by railway, we find that it would amount to 31,300 tons, which, on an average distance of 20 miles, would yield £3,260, as against £2,083 named by me. Of course, if they smelted 2,318 tons, as is stated in the statistics, it would take 46,360 tons of firewood, which would yield a revenue of £4,829 3s. 4d.

But the estimated revenue put forward by the Railway League is £7,054, on a quantity of 70,542 tons of wood. Now, according to what I have been informed, this wood is procured from the surrounding country by means of the Copper Company's portable tramway, which is laid down wherever the timber can be most conveniently obtained, and the timber is cut down for miles on each side of the tramway. This tramway cannot, I should think, be very difficult to remove or expensive to maintain, and it can be run in any and every direction, as circumstances require. Is it at all probable that the company will practically abandon this, or any other means they may have, of obtaining their firewood, and pay the Railway Department £7,054 a year for haulage alone—£24 a day? My own opinion is that the chances are very greatly against it, and I am not yet prepared to believe that the railway revenue from firewood would exceed my original estimate of £2,083, even if it reached that amount.

Then it is a question whether the country through which the railway is proposed to pass has not already been denuded of timber within a considerable distance of Cobar. That is not a question I am in a position to answer, but, admitting it to be all timbered, even 50,000 tons a year would soon clear the whole of it for miles on each side of the line, and what would the company do then, for a railway cannot be moved about like a tramway?

I merely mention these matters to show that, in my opinion, the Company is not likely to abandon its tramway in favour of the railway. I could sooner believe that they would discontinue the use of firewood altogether and use coal from the Dubbo or Eskbank mines instead.

I understand that 1 ton of coal is equal in its heating properties to 2½ tons of wood, so that assuming their own estimate of 70,000 tons of the latter to be correct, it follows that 28,000 tons of coal would produce the same results, and it appears to me that it would be more economical for the Company to use the latter than the former. This, it may be said, is a matter for the Company's own consideration; still I think it is one which we can hardly lose sight of in an important question of this kind, but rather look at all sides of the question.

Coal could be obtained at the Eskbank mines for 5s. per ton, probably a little less. Added to this there is the trainage of 19s. per ton (£5 13s. 9d. per truck) or 24s. altogether delivered at the Cobar Copper Mines, or a total cost on the 28,000 tons of £33,600. According to this latter amount their estimated 70,000 tons of firewood would only cost them 9s. 7d. per ton, including our trainage of 2s. or 2s. 1d. per ton. Unless I am misinformed it costs the Company a good deal more than that, and if that be so then it is very probable that they would use coal exclusively.

Now 28,000 tons of coal could, and doubtless would, be put in 4,667, say 4,700 trucks—would only earn £3,779 more to Cobar than they would to Nyngan, although the distance is 81 miles greater, therefore it would not be a very profitable traffic to the Department, being only equal to 0·4 per ton per mile or 0·5 per ton per mile on the through journey to Eskbank, and if the trucks were loaded back to the mines with ore the earnings would not be greater.

Of course I have not lost sight of the fact that it would mean a considerable increase to the main line, but only on a traffic which would leave but little profit.

Proceeding to the other sources of revenue, I notice, from the statistics handed to the Minister by the deputation, that the general goods traffic for Cobar is put down at 2,231 tons 4 cwt.; and the trainage is estimated at the second class rate for 82 miles, viz., 34s. 11d. per ton = £3,894 19s. 3d., whereas, according to our books we only carried 1,037 tons 9 cwt.; of Cobar distinct traffic of the 1st, 2nd, 3rd, and 4th classes to and from Nyngan, Girilambone, Coolabah, and Byrock, during 1886, and, calculating the weight under each class at the difference between the trainage, we actually got and what we would have got if the line had been open to Cobar, the increased revenue to the Department would only have been £1,187, or a difference of £2,708.

The wool and live stock traffic are also greatly over estimated unless we are going to secure a very great deal of traffic which, it is assumed we will not get unless the line is constructed.

Then, as regards the Nymagee traffic, I find that the copper is put down at 1,778 tons, although, during 1886, we only carried 1,260, and the general goods are put down at 882 tons, although our books only show 555, and I see the estimated revenue from the copper is £844 11s., and from the general goods £904 4s. Now I wish to draw attention to the fact that in this estimate it has been assumed that Budd's Gap will be the point at which Nymagee goods will be received and delivered, although, why that place (being 50 miles west of Nyngan) has been selected, I have no means of knowing.

The present Nymagee road, upon which something like £7,000 has I understand been spent, branches off the Cobar road about 12 miles west of Nyngan, and from there it is about 54 miles to Nymagee, while from Budd's Gap the most ardent promoters of the construction of the line admit it to be 38, and others, who declare themselves to be equally well informed, pronounce it to be 50 miles, and that too over a very bad road.

I should think therefore that the point 12 miles west of Nyngan would be the most economical for the Nymagee district as regards cost of conveyance.

Still, assuming that Budd's Gap were decided upon the additional trainage to be derived from 1,260 tons of copper and 555 tons of general goods would only be £741, as against £1,748 15s. named in the statistics; if the traffic were delivered 12 miles west of Nyngan the difference would be very much greater.

And so on with every description of merchandise traffic.

With respect to passengers, parcels, and mails I notice that the estimate of the Railway League is £4,367 3s. 8d., and that means £3,395 3s. 8d. for the conveyance of passengers and parcels, after deducting £972 for mails, equal to between £32 and £33 per day on three days per week. In my opinion it would be very difficult indeed to make anyone who knows the country believe that the revenue from that source would be much if any in excess of my estimate of about £1,200.

One coach runs between Nyngan and Cobar daily, and is as I am informed not particularly well patronised, while another, which runs between Coolabah and Cobar three times a week, is scarcely worth taking into consideration.

No doubt Cobar would be the nearest route to Wilcannia and Silverton, but a railway to the former town would be of no benefit whatever as far as securing the trade of these districts is concerned.

W.V.R., 2/4/87.

Minute by The Secretary for Public Works.

INFORM those who waited upon me that the large discrepancies between their statistics of traffic and those of the officers of the Department cannot well be reconciled without a conference between the compilers of the two. I have therefore directed the Assistant Traffic Manager to meet the compilers of the statistics furnished by the deputation, with a view to the differences being explained. They arose probably from a misconception of the trainage rates, which a little mutual explanation will set at rest.

6/4/87.

JOHN SUTHERLAND.

The Commissioner for Railways to A. Wilson, Esq., M.P.

Sir,

Department of Public Works, Railway Branch, 16 April, 1887.

With reference to the deputation introduced by you to the Secretary for Public Works on 29th ultimo, submitting statistics in favour of the construction of the Nyngan to Cobar Railway, I have the honor, by direction of Mr. Secretary Sutherland, to inform you that the large discrepancies between those statistics of traffic and those of the officers of the Department cannot well be reconciled without a conference between the compilers of the two, and he has therefore directed the Assistant Traffic Manager to meet the compilers of the statistics furnished by the deputation, with a view to the differences being explained. They arise probably from a misconception of the trainage rates, which a little mutual explanation will set at rest.

I have, &c.,

CHAS. A. GOODCHAP,
Commissioner for Railways.

A. Wilson, Esq., M.P., to The Secretary for Public Works.

Sir,

7, Bent-street, Sydney, 15 April, 1887.

I shall be glad to be informed if the Government have come to any decision *re* the Nyngan to Cobar railway.

I think it is altogether out of place that such a matter should be left over at the convenience of any Member so long.

If no answer is available I must take an early opportunity of bringing the present state of affairs before the House.

I am, &c.,

ALEX. WILSON.

Please inform Mr. Wilson of action taken. I should like complete information however this day week, as I wish to submit the matter for Cabinet.—J.S., 18/4/87.

The Commissioner for Railways to A. Wilson, Esq., M.P.

Dear Sir,

Department of Public Works, Railway Branch, 19 April, 1887.

Referring to your letter of the 15th instant, which appears to have crossed mine of the 16th ultimo, *re* the proposed Nyngan to Cobar Railway, I may state that Mr. Secretary Sutherland has directed that the Traffic Manager further report in the matter. After having conferred with the compilers of the statistics furnished, must be in within a week from this day in order that a decision may be at once arrived at.

I am, &c.,

CH. A. GOODCHAP.

Minute by The Secretary for Public Works.

MR. WADDELL, M.P., with Mr. Howard, waited upon me to-day with reference to the Nyngan-Cobar railway. They represented that the people were anxious for something to be done, and asked that the question might be decided quickly. They pointed out that in the event of the Government determining not to go on with the line the people were prepared to undertake the making of the line if the Government granted them land, or they would pay a certain percentage upon the cost if the Government made the line. They represented this would absorb the unemployed.

I informed them that the Government had not yet decided this matter, as I was waiting for the full and compared statistics to submit to the Cabinet, an officer of the Department now being in the district compiling information, &c. I could at present give them no answer pending the receipt of information, but promised to obtain it, and I shall be glad to have all particulars quickly.

27/4/87.

JOHN SUTHERLAND.

Traffic Manager.—A.R., B.C., 27/4/87.

The Assistant Traffic Manager's Report.

Estimated revenue from the proposed line to Cobar.

I MET by arrangement Mr. Grainger Barton and Mr. Morrison of Cobar, and also Mr. Leah (Wright, Heaton, and Co.'s representative) at Nyngan, on Monday last, and, with them, went carefully into this question with the result that, although the details differ slightly, the correctness of our estimate is fully demonstrated.

As pointed out in the Traffic Manager's minute of the 2nd instant, the estimate submitted to the Minister by the deputation which interviewed him on the 30th March, was arrived at by calculating a much greater tonnage than appears in our books as having been carried at the 82-mile rate, instead of upon the differences between the 377 and 459 mile rates, in the case of traffic conveyed between Sydney and Cobar, and corresponding differences between Cobar and other stations.

This error had, however, been discovered before I met the gentlemen named, consequently it was only necessary to go into the question of tonnage, and endeavour to ascertain as nearly as possible the additional revenue which would be derived therefrom in the event of the line being constructed; and I now beg to submit the result of our investigations.

As the representatives of the Cobar Railway League informed me that the great bulk of the special and miscellaneous class traffic for the Cobar district came from stations between Dubbo and Bathurst, and that consequently it would not be fair to the proposed line to credit it merely with the difference between the 377 and 459 mile rates, I consented to take Orange as the starting point, and estimated the revenue from that source at the differences between the Orange to Nyngan and Orange to Cobar rates.

In the case of 1st, 2nd, and 3rd class traffic I also, with the concurrence of the gentlemen in question, took Orange as the starting point of one-fourth and Sydney for the other three-fourths of the gross tonnage, while with respect to fourth class traffic I took Sydney as the starting point.

This will explain the rates which I shall quote.

It would, of course, have been perfectly possible to have got at the revenue with greater exactness, but it would have taken much time and labour, and the result which has been arrived at is sufficiently accurate for all purposes. If anything I consider it is to the advantage rather than to the disadvantage of the promoters of the line.

The following tonnage was extracted from our books, and is a faithful record of the traffic carried during 1886 :—

<i>Cobar—Inwards Traffic.</i>						£	s.	d.	
A Class,	1,229	tons to Nyngan,	at 4/4	...	...	=	266	5	8
" "	91	" to Coolabah,	at 1/9	...	...	=	7	19	3
B "	322	" to Nyngan,	at 8/9	...	...	=	140	17	6
Mis. "	43	" "	at 4/9	...	...	=	10	4	6
1st "	36	" from Orange,	at 17/5	...	...	=	31	17	0
" "	107	" " Sydney,	at 16/5	...	...	=	87	16	7
2nd "	80	" " Orange,	at 21/9	...	...	=	87	0	0
" "	234	" " Sydney,	at 20/6	...	...	=	239	17	0
3rd "	140	" " Orange,	at 30/5	...	...	=	212	18	4
" "	420	" " Sydney,	at 28/9	...	...	=	603	15	0
4th "	21	" " "	at 36/11	...	...	=	38	14	6
<i>Outwards Traffic.</i>									
Wool,	663	tons from Nyngan,	at 7/9	...	...	=	256	18	3
" "	375	" " Girilambone,	at 4/6	...	...	=	84	7	6
" "	105	" " Coolabah,	at 4/6	...	...	=	23	12	6
" "	246	" " Byrock,	at 1/-	...	...	=	12	6	0
Copper,	1,565	" " Nyngan,	at 8/9	...	...	=	684	13	9
" "	138	" " Coolabah,	at 3/6	...	...	=	29	3	0
Live stock	...	...	...	...	...	...	455	9	2
Estimate of passenger traffic	...	...	...	...	...	...	1,000	0	0
Mails	...	...	...	...	...	...	984	0	0
Parcels	...	...	...	...	...	...	50	0	0
						£5,307	15	6	
Add 10 per cent. for probable increase						...	530	15	6
						£5,838	11	0	

It is but right for me to state that the gentlemen assured me that the output of copper from the Cobar mine last year was 2,318 tons, but that in consequence of the bad roads, caused by the wet weather, a large quantity had to be kept at the mine until the roads improved. (I notice from the petition submitted to the Legislative Council in September last that the output of copper for ten years had been 19,050 tons, equal to 1,905 tons per annum.) I am not, of course, in a position to say what the output of copper really was, although I see from the Minister's minute of the 30th March that the deputation informed him that it amounts to about 2,000 tons per annum.

Admitting that 2,318 tons was the output, and that that quantity would have been forwarded if the roads had been good, the additional revenue which would have been derived from the balance (615 tons) would have been £269 1s. 3d., and from 1,263 tons of A Class traffic, which they asserted was sold at Nyngan and taken to the Cobar district, the revenue, calculated upon the rate from Orange, would have yielded £273 13s., making £542 14s. 3d., which, added to my estimate of £5,338 11s., shows a probable revenue of £6,381 5s. 3d.

Then again, on the assumption that the passenger traffic would be double that carried by the coaches in 1886, it was asserted that the revenue which might be expected therefrom would amount to £1,688; but from other sources I was informed that that estimate is too sanguine, and I prefer to adhere to my own of £1,000, with 10 per cent. added.

It

It was also said that our estimate of the wool and live stock traffic is considerably under the traffic which may be expected. That would very probably be the case if seasons like the present were to continue; but I feel confident that, taken as an average, my estimates are not very wide of the mark.

It will also be noticed that I have based my estimates on the assumption that all traffic other than that for Nymagee (which I shall refer to presently) will be carried the full length of the line, although, as a matter of fact, a certain quantity of it in the shape of station supplies, wool, and possibly live stock, would be picked up and put down at intermediate places.

I have also calculated all traffic at the tonnage rates under all classes, notwithstanding the probability, I might say the certainty, that a considerable quantity of A and Miscellaneous class traffic, as well as sugar, wire, and galvanized iron, were carried at truck rates, in which case the revenue derived therefrom would be less than I have shown.

And as regards the mails, although I have credited the line with £984, I think it necessary to state that the present mail services between Nyngan and Cobar and Nyngan and Nymagee only cost the country £825 altogether—Cobar £460, and Nymagee £365. If the railway is constructed it is probable that the cost of the Nymagee service will be reduced to something like £200; hence the Postal Department would be paying £1,184 or thereabouts for a service (undoubtedly a very much better service as far as Cobar is concerned) which now only costs £825.

But a more important consideration than either of these is, that while at Bourke (whither I had gone to make inquiries concerning the trade of the district) I ascertained from a reliable and disinterested source that a quantity of supplies have come up the river to Louth for Cobar, and that more were advised.

Mr. Barton and Mr. Morrison assured me that my information was only very partially correct—that, in fact, no goods had come up the river for Cobar, with the exception of a small consignment for Mr. Barton's own firm; but I have again been assured of the correctness of the information I got at Bourke, and think there can be little doubt that if the supplies did not actually go into the town of Cobar, they at least went into the district; so that when the river is navigable the railway would either have to carry at reduced rates, or lose a quantity of the very class of traffic from which the greatest revenue is derived.

With respect to the firewood traffic it was maintained that the Cobar mines consume 70,000 tons a year, and that the whole of that quantity would be conveyed by railway. In conversation with the gentlemen I made use of the arguments mentioned in the Traffic Manager's minute of the 2nd instant, and while they recognized the force of the reasoning, they asserted that the Copper Company's experience of their present tramway was such that it is extremely improbable they will construct another.

The revenue from this source is, in my opinion, very speculative. I cannot, of course, say that it will not be realized, but I am very doubtful of it. I cannot help thinking that, despite their first experience, the Copper Company could construct and maintain a tramway (even 20 miles long) very suitable in every way for their purpose for a good deal less than £7,054 a year, rolling stock included, and unlike the railway line, the tramway could be moved from one direction to another as circumstances require.

Admitting, however, that the company were to get all their wood by rail, the time must come when the whole country on either side of the line will be denuded of timber for such a distance that the cost of landing it at the mines will be greater than the cost of coal from Eskbank or Dubbo; and as pointed out by the Traffic Manager, the revenue to be credited to the line in respect of the coal traffic would be little more than half the estimate of £7,054.

Moreover, I am informed that, so far, the country is only cleared of timber for a distance of about 10 miles from the mines, so that, unless by special arrangement, instead of a revenue of 2s. per ton we would only get 1s. 6d. from the commencement up to a distance of 15 miles, and that would reduce the estimate of £7,054 by 25 per cent.

Nymagee Traffic.

Tons.	Destination, Budd's Gap.	Destination, Dawson's.
	£ s. d.	£ s. d.
A class, 916 from Orange, at 2/10 ...	= 129 15 4	At 10d. = 38 3 4
B " 62 " " " 5/9 ...	= 17 16 6	At 1/7 = 4 18 2
Mis. " 28 " " " 3/3 ...	= 4 11 0	At 9d. = 1 1 0
1st " 5 " " " 11/5 ...	= 2 17 1	At 3/3 = 0 16 3
" " 13 " Sydney, " 10/5 ...	= 6 15 5	At 2/5 = 1 11 5
2nd " 53 " Orange, " 14/3 ...	= 37 15 4	At 4/ = 10 12 0
" " 158 " Sydney, " 13/ ...	= 102 14 0	At 3/ = 23 14 0
3rd " 80 " Orange, " 20/ ...	= 80 0 0	At 5/8 = 22 13 4
" " 235 " Sydney, " 18/3 ...	= 214 8 9	At 4/3 = 49 18 9
4th " 12 " " " 23/5 ...	= 14 1 0	At 5/5 = 3 5 0
Wool, 653 to " " 6/9 ...	= 220 7 9	At 3/ = 97 19 0
Copper, 1,260 " " " 5/2 ...	= 425 10 10	At 1/2 = 73 10 0
Parcels	= 15 0 0	..... = 5 0 0
Passenger traffic	= 500 0 0	..... = 100 0 0
	£1,771 13 0	£433 2 3

The gentlemen who met me claimed that my estimate of the wool traffic is too low in this case also; and, as in the case of the Cobar traffic, I would readily admit their statement if good reasons could be depended upon.

Experience, however, teaches us that the estimate I have given will be tolerably correct.

They also contended that as 1,777 tons of copper is the output of the mine, the line should be credited with that quantity. Even that, however, would only increase the above estimate by £133 11s. 2d., or £30 3s. 2d., which would bring it up to £1,905 4s. 2d. in the event of the traffic being delivered at Budd's Gap, 52 miles, and £463 5s. 5d. in the event of its being delivered at Dawson's, 12 miles, west from Nyngan. I found it very difficult to obtain anything like disinterested information respecting the best road, but it is quite clear that the one from Dawson's, even if it is longer, is well watered, while the other is not.

For

For the purposes of this report it will perhaps suffice if I take the mean,—

£1,905	4	2
463	5	5
<hr/>		
£2,368	9	7
<hr/>		
£1,184	4	10
To which add for estimated increase, 10 per cent.,	118	8 6
<hr/>		
£1,302	13	4

It will thus be seen that, even taking the volume of traffic now admitted by the Cobar League, and allowing for the exceptions to which I have drawn attention, the probable additional revenue which might be expected from the line in the event of its being constructed would be—

From Cobar traffic (except firewood)	£6,326	12	8
Firewood (estimate of Railway League)	7,054	0	0
Nymagee traffic	1,302	13	4
<hr/>			
Total	£14,683	6	0

nearly half of which is to come from firewood.

The Traffic Manager's estimate, including £2,083 for the conveyance of firewood, but exclusive of the probable increase of 10 per cent., and two or three other items, amounting in the aggregate to about £1,200, was £7,600 to £8,400, according to the point at which delivery of the Nymagee traffic might be made.

As far as the Railway Department is concerned, I can come to no other conclusion than that there is no probability of the line paying now or for many years to come, unless some unforeseen development of the district takes place.

The only favourable consideration that suggests itself to me regarding its construction is that there is an enormous quantity of Crown Lands along the proposed route, upon which a certain amount of settlement would doubtless take place, and although the line would result in a loss to the Department it would probably benefit the general revenue to a considerable extent in the shape of increased rental from those lands.

That, however, is a question with which I am not in position to deal, nor am I called upon to do so.

DAVID KIRKCALDIE, 28/4/87.

Traffic Manager.

Since writing the above I have received the attached communications from the Manager of the Nymagee Copper Mine respecting the most suitable road from the line to that town. Evidently he and others are in favour of Budd's Gap, while the *Nyngan Times*, which has persistently spoken in favour of the construction of the line, condemns that road in the most unqualified manner; and, unless my memory misleads me, the Commissioner received a petition against it some time ago.—D.K.

The Manager, Nymagee Copper-mining Co., to The Assistant Traffic Manager.

Sir,

The Nymagee Copper-mining Co. (Limited), the Mine, 27 April, 1887.

By this morning's mail I have a letter from Mr. Grainger Barton asking me to send you any articles or letters that may have been written advocating the opening up of a new road to Budd's "Gap Inn," as the nearest road to the Nyngan-Cobar railway.

I enclose three cuttings from the local paper and a copy of resolution passed at a meeting of the Nymagee Progress Committee on the 8th November, 1886.

On completion of the line to Budd's the Nymagee traffic will undoubtedly go there, as it is the shortest and best road available.

There are three possible roads, viz., to Budd's, to Hall's, and to Nyngan, and the distances are, in the order named, 40, 50, and 65 miles.

Yours, &c.,

W. BLAKEMORE,

Manager.

[Enclosures.]

Nymagee, 27 April, 1887.

Extract from Minute-book, 8 November, 1886.

PROPOSED by A. C. Daws, seconded by Mr. Henessy, that a petition be presented by Messrs. Wilkinson and Barton, praying that a road be surveyed and opened from Nymagee to the nearest point on the Nyngan-Cobar line.

ALFRED COOK,

Secretary, Nymagee Progress Committee.

Extract from *Nymagee and Cobar Star*, Saturday, 22 January, 1887.

To the Editor.

SIR,—It is only a short time since that the road from Nymagee to the "Gap Inn" was always considered 50 miles in distance. The Government map shows the distance, in a bee line, as between 38 and 39 miles. Yet two or three disinterested parties have found a beautifully level road—no hills at all, and some few miles shorter. Now I, being individually interested, felt an inclination to see this new road, and therefore inspected their discovery, and, as I supposed, found, as I have often heard it described, the roughest and most damnable in the back country, passing over hills, up and down rotten gullies at the foot of hills, the road acting as a conductor for the rush of water, which has worn out gutters, and almost ravines—particularly tempting for any vehicle at night to camp in, bottom-side upwards—finishing off with a hill named "The Gap," which I should like to see some of our 6 and 8 ton copper teams tackling, with a distance in all, I imagine, of about 46 miles. I judge the distance by the ground my horses can cover in a given time, as they are no "wasters," and are not easily killed or knocked out of it with a little extra fast travelling. Hearing that a numerously-signed—without respect to persons—requisition had been signed for a survey of this particularly short and good road, I inquired who had signed it, and found one of the leading business men in Nymagee who had done so. On my asking him if he had ever travelled the road, and his reason for signing such a thing, he admitted that he had not, but that the discoverers had, and they had assured him that it was only between 35 and 37 miles, and "superbly level." Now I should like to know if these parties worked for the interest of the shareholders

shareholders of the Nymagee Copper Mine, and the benefit of the public, or for self alone. Facts will show. The distance from Hermitage Plains to Nymagee by survey is $42\frac{1}{2}$ and $44\frac{1}{2}$ miles, through an undeniable country, the latter survey being adopted and resumed by the Government for the use of the public. Will the extra cost of trainage from here to the "Gap Inn," a distance of $23\frac{1}{2}$ miles (with perhaps extra carriage, as it is impossible to bring anything like the load along the "Bowling Green" that can be carried along this road) be a matter of any moment to those who have to pay the shot; or will the fact that the mails can be delivered at Nymagee an hour and a half sooner from here be of any importance to the people of Nymagee. No doubt the people of Nymagee love the promoters much, but it is only human nature to love the pocket more, which fact, I believe, time will show. I give the promoters great credit for the pluck they have shown in trying to carry this forlorn hope, but I fear it is a forlorn log that will never roll. The interest I take in the public's well-doing—not in my own—must be my apology for trespassing so much on your space.

Yours truly,
H. F. HALL.

Hermitage Plains, 17 January, 1887.

EXTRACT from *Nymagee and Cobar Star*, Saturday, 29 January, 1887.

To the Editor.

SIR,—In your issue of the 22nd January appears a letter, presumably from Mr. Hall, of the "Pigeon Holes," a wayside hotel on the Cobar and Nyngan road, of which place, I believe, he is the owner. Bearing this fact in mind may help your readers to arrive at a very different opinion as to Mr. Hall's object than the one given in the concluding paragraph of his letter. He begins by saying that the road from Nymagee to Budd's was (till lately) always considered to be 50 miles. Such an idea never existed except in Mr. Hall's very fertile brain. This, with some other misstatements, and the bogus plea as the end of his letter call for some explanation. Had Mr. Hall allowed the utility, or otherwise, of opening the new road to rest on its merits, or had stated the case fairly, no one would have had reason to complain. This he has not done, hence this letter.

He says some "disinterested persons," discovered a "beautifully level road," no hills at all, and a few miles shorter than the bee line between the two places. Nobody ever said anything of the kind. What they did say was this: Half a mile after passing the Frenchman's a level road, and a sound one, could be open to Budd's, and that the distance would be under 40 miles. It is quite evident from Mr. Hall's letter that he did not see, or go anywhere near the line of the proposed new road, or he would never have written about the hills and rotten gullies forming the most "damnable," road in the back country. It strikes me Mr. Hall has lived so long in the level western country that the sight of a molehill has terrors for him, that appear ridiculous to more experienced travellers; or is it that he is grieving over the prospective demand on his sympathy for the poor teamsters that may have to travel the new road. Further on he says he should like to see some of our teams, with 6 or 8 tons of copper, attempting this road. Well, however much it may surprise him, such loads have been taken over the particular part of the road he describes "most damnable," and which is still used by the mail coach from Cobar, and any other vehicles travelling in that direction. During the early part of 1881 all the copper and regulus made in Nymagee was sent to Cobar, and fire-clay brought back from the Limekilns, over this very road. The carriage rate was much lower than is being paid now from Nyngan. The weights of various loads, with the names of the carriers I append for Mr. Hall's special benefit, which I trust may save his digestion, render his sleep lighter, and prevent him wasting his sympathy on undeserving objects. These are the names and weight:—

	Carrier.	Weight of load.			
		Tons.	cwts.	qr.	lb.
March, 1881.....	Harlow.....	7	15	3	15
April, ".....	Ralph.....	7	1	0	10
".....	Elvard.....	5	12	1	5
".....	Ryan.....	7	1	3	13
".....	Bourke.....	6	6	2	17

These instances are, I think, sufficient to show that even the "old road," still in use, is not what Mr. Hall wishes to make it appear. Personally, I consider it to be, without exception, the best piece of road I have seen this side of Orange, and for this season. From the foot of the Gap to the extreme end of the hills the road crosses the foot of every low spur, and, as they are all granite, the teamster has a road under him which he can travel on in any weather. Once across this piece of road the teamster is on the flat red soil country (of exactly the same description as the 'undeniable' country between Nymagee and Hermitage Plains), which is impassable for heavily loaded teams in wet weather, as are all other roads in this district without exception.

In case any one may not know, I may here say that the road to Cobar and to Budd's are identical as far as the "Rock-holes," from which place Budd's lies almost north, and Cobar nearly west.

Now as the "disinterestedness" of those people who took the trouble to ride through the bush on a hot day for the purpose of seeing if a new and better road could be found. Does Mr. Hall imagine that a number of sane business men would throw away two days on such an errand, unless they had good reasons for so doing? Their reasons were, as I have stated, to get a short road to the railway, with subsequently a reduction in the rates of carriage. Unlike himself, I am afraid few of them can lay claim to such lofty motives as, according to his letter, prompted Mr. Hall to write. The object of the journey was attained, and the result will be, if the road is opened, of which I have little doubt, that Nymagee will be one day nearer Sydney, with carriage rates proportionately lower. Another statement concerning the length of the road from Nymagee to the "Pigeon Holes," or "Hermitage Plains." Mr. Hall gives it as $4\frac{1}{2}$ miles. This cannot be correct, as it is $43\frac{1}{2}$ miles in a bee line as shown on the Government plan. Taking a similar line to Budd's from Nymagee, the distance is 38 miles, and I am quite sure the new road can be made under 40 miles. The present road is no more.

There is one other matter I must refer to, and that is the delivery of the mails in Nymagee. I believe the new road will be certainly not less than 10 miles shorter than to Hall's. It follows then that the coach would be two hours less on the road. One of these two would be lost by the train traversing the distance between Hall's and Budd's. The time lost in delivering the mail would be the same in both places, so that there would be a clear gain of one hour, and that is worth consideration, two hours less on the road for mail coach passengers, who could be comfortably in bed after seven or eight hours travelling, instead of being all night on the road as they are now.

The next time Mr. Hall favours you with a letter I trust he may exercise a little self denial, and give some of us in Nymagee a little credit for honesty of purpose, but if he should unfortunately claim a monopoly of that particular virtue we will try to forgive him, when we remember that it is for the "public" good, and not his own, that he is taking so much trouble.—Yours, &c.

W. BLAKEMORE.

Mr. G. Barton to The Assistant Traffic Manager.

Dear Sir,

Cobar, 2 May, 1887.

Herewith I beg to hand you full statement of the quantity of sheep depastured in the Cobar district, with the quantity of wool shorn last year, and the estimated cost of stock for 1887. You will see that the stock have been left out on some of the stations, as we could not get the necessary information in time. However, we have got the correct quantity of sheep, and hence the correct quantity of wool. The stations that sent their wool by river this year were Booroondara, Wittagoona, Pullpulla, Gidgee, Barnoto, Paddington, Bulla Bulla, Tielhour, Nekator, Marfield, Mount Manari, Baden Park, Kew, and Keewong.

The greater part of all the above wool went by Darling river steamers, and some to Hay, and thence down river to Melbourne, while some of them sent some *via* Nyngan, and if the Railway were constructed here, all of it would have come this way, and gone to Sydney, and as to this statement I challenge contradiction.

There

There was also a portion of Eremeran and Overflow wool went to Orange. As regards the stock to be trucked,—this item was estimated early in the season, and since the season has turned out so good there will be more fat stock to go to market than was estimated earlier in the season.

The stations that have sent their wool by Coolabah and Byerock, are Coronga Downs, Tindary, Moguilambo, Buckwaroon, and Amphitheatre. I think all these went to Coolabah, and as I said before, it was simply a matter of choice that they did not go to Nyngan. The fact is, there is a contractor living on the Coolabah road, who was out of work, and he entered into a contract to remove all this wool, and as he lived on the road it suited him to take it to Coolabah, which may probably never happen again, as he is about to remove from the district, so it will not be fair to estimate these stations as sure to send to Coolabah, and thus only give the proposed Cobar line credit for a few miles of the traffic. It certainly should have credit for the lot.

Re your statement as to being able to land goods here from Adelaide, and that a large quantity had been received here from that place, you have simply been misinformed. There has been only 5 tons of goods come from Adelaide during the last five years, and since seeing you I have gone fully into the matter, and I find we could not buy goods nearly as cheap in Adelaide, nor can they be landed here at the price you were informed, viz, £6 5s, as by estimating insurance, agency, land carriage, &c., it would cost at least £8 for all classes of goods, so there is nothing to be gained, as we can land A. B. special and 1st class goods here from Sydney very much lower, which would more than make up the difference. For instance, flour at Milong, S.A. is £9 per ton; say freight to Louth, £2 10s.; by drays to Cobar, £3; insurance, commission, &c, &c, say 10s. per ton,—which equals £15, landed here.

Now, to take the other side, Wellington price is £9 15s., say freight to Coolabah, 13s. per ton, and carriage from there by bullock teams, £1 5s., which equals £11 13s. per ton, which shows a saving of 67s. per ton, as against Adelaide, which would more than make up for the small saving on other goods.

In thinking over your statements that the Bourke people informed you that had the squatters not have entered into definite arrangements to forward their wool by rail before the river rose, it would have all gone by river. Now with all due deference to the Bourke people that statement is utterly untrue; as a matter of fact M'Allister and Lee are agents for nearly all the station-holders in the Bourke district, and as a matter of fact they do not contract for wool at all, but act simply as agents for the squatters, and in most cases at a fixed salary per annum to do all their agency work, and where they don't get a salary they get 6d. or 1s. per bale for shipping by steamer or train, so in no case would the squatters be bound to send by train as against river owing to previous arrangements. And as to Wright, Heaton, and Company, and Permewan, Wright, and Company, they contract for wool near the river. The squatters always have a proviso in the agreement, that in the event of the river rising they shall be at liberty to send the wool away by steamer if it suits them.

These are statements I am prepared to prove if necessary. Their statements to you were about as truthful as their sworn testimony as to the carrying capabilities of this country, and were only made to gain their point, and all they can say will not make this district anything but a first class agricultural country.

Yours, &c.,

GRAINGER BARTON.

[Enclosure.]

COBAR DISTRICT.

Name of Station.	Owner.	No of Sheep	Horses	Cattle.	Weight of Wool at 5lb. per fleece.	Total Tons.	Rate per Ton	£ s. d.
Coronga Downs .	T. L. Richardson ..	28,000	26	40	140,000	..	£ s. d.	.....
Tindary	C. A. Chesney & Co. ...	83,265	80	150	416,325	..	.....	.....
Moguilambo	C. H. Smith	11,000	12	30	55,000	..	.....	.....
Boooroanda	Executors of S. T. O'Neil	18,920	9	3	94,600	..	.....	.....
Wattagoona	Bank of New South Wales	39,791	63	2,366	198,955	..	.....	.....
Buckwaroon ...	Hon Jno. Lackey	28,000	12	200	140,000	..	.....	.....
Amphitheatre ..	Dixons & Leshies .. .	39,531	65	1,032	197,655	..	.....	.....
Springfield ...	Fulton, Hastie, & Co. .	39,801	40	656	199,005	..	.....	.....
Mount Grenfell .	J. Harvey & Bevan ..	8,300	24	30	41,500	..	.....	.....
Mulga Downs ..	Edgar Bros ...	18,130	15	25	90,650	..	.....	.....
Pulpulla	Josephson & Nesbitt	29,524	70	70	147,620	..	.....	.....
Coolabah.....	Radier and Shaw ..	16,750	12	24	83,750	..	.....	.....
Lerida	Oakden & Brown	30,180	66	40	150,900	..	.....	.....
Villera	Roy & Co	22,313	31	22	111,565	..	.....	.....
Rookery	J. Hurley	5,000	5	30	25,000	..	.....	.....
Priory	J. C. Wallace & Co. . .	18,079	50	30	90,395	..	.....	.....
Wirlong	Smith Bros.	24,062	31	45	120,310	..	.....	.....
North Peak...	Macdonald Bros .. .	10,000	31	100	50,000	..	.....	.....
Bedonba	Reid & Evans	34,366	43	50	171,830	..	.....	.....
Thule	Allen & Paramore	21,100	12	8	105,500	..	.....	.....
Bulgoo	J. Conly	32,000	21	220	160,000	..	.....	.....
Central	G. Frew	11,300	11	5	56,500	..	.....	.....
Bulford	Bromfield Bros.	14,746	60	140	73,730	..	.....	.....
The Meadows ..	Executors of H. B. Welsh.	30,122	35	65	150,610	..	.....	.....
Gidgee	G. A. Broughton ..	38,432	36	9	192,160	..	.....	.....
Tiltagoona	H. P. Vanreman ..	21,291	29	...	106,445	..	.....	.....
Bainato	Tulley, Armstrong, & Co	47,159	67	100	237,795	..	.....	.....
Kalena	W. H. Fletcher ..	27,680	24	12	138,400	..	.....	.....
Paddington .. .	D. M'Pherson & Co. ...	66,393	123	65	331,965	..	.....	.....
Tiltagara .. .	C. A. Brigstocke & Co.	30,252	30	8	151,260	..	.....	.....
Bulla Bulla ...	H & J Campbell ..	25,000	20	20	125,000	..	.....	.....
Fulham ...	Wilkinson and Moule ..	21,000	30	2	105,000	..	.....	.....
Nekarboo	Walker Bros.	27,250	35	9	236,250	..	.....	.....
Marfield	C. Fartiere & Co.	25,230	115	74	126,150	..	.....	.....
Mount Munara	.....	40,309	140	125	201,545	..	.....	.....
Baden Park ..	Swift and Ham ..	30,495	88	84	152,475	..	.....	.....
Kew	Wallace & Turnour	8,000	12	...	40,000	..	.....	.....
Keenwong	A. Edgar	12,781	42	103	63,905	..	.....	.....
Teira	Dennis Bros.	35,300	...	...	176,500	..	.....	.....
Wirchillba	do	40,250	...	...	201,250	..	.....	.....
		1,111,102	.....	..	5,555,510 = 2,473		0 6 9	834 12 9

COBAR DISTRICT—*continued.*

Name of Station.	Owner.	No. of Sheep.	Horses.	Cattle.	Weight of Wool at 5lb. per fleece.	Total Tons.	Rate per Ton.	£ s. d.
NYMAGEE DISTRICT—"GAP INN."								
Hermitage (N.)	W. Frost	7,506	7	8	37,530	...	.....	.....
Florida	M. C. Langtree	11,396	14	22	56,980	...	.....	.....
Booroomugga	P. J. Kelly	31,200	18	25	156,000	...	.....	.....
Sussex	Gibbs, Bright, & Co.	30,325	8	20	151,625	...	.....	.....
Meryula	W. Allison & Sons	89,844	60	50	449,220	...	.....	.....
Rest Down	Robson, Whitley, & Co.	10,930	10	15	54,650	...	.....	.....
Nymagee	Davis, Craig, & Pratt	16,673	17	11	83,365	...	.....	.....
Hartwood	E. Roset	10,277	24	36	51,385	...	.....	.....
Baloura	J. Hathaway	4,857	7	13	24,285	...	.....	.....
Moothumbil	.....	28,000	.....	.....	140,000	...	.....	.....
Eremeran	M'Nicoll & Co.	49,725	.....	.....	248,625	...	.....	.....
Nangeribone	Pearson Bros.	22,420	.....	.....	112,100	...	.....	.....
The Overflow	Kinnear	35,250	.....	.....	176,250	...	.....	.....
Balgay	.....	12,618	.....	.....	63,090	...	.....	.....
		361,021	.....	.....	1,805,105 = 806		0 5 0	201 10 0
HERMITAGE.								
Wilga Downs	J. Fink & Co.	120,376	24	25	601,880	...	.....	.....
Budgery	A. H. M'Culloch	15,722	5	.....	78,610	...	.....	.....
Trowel Creek	D. and T. O'Mahowey	15,400	20	5	77,000	...	.....	.....
Guveroo	Clements Bros.	32,500	65	50	162,500	...	.....	.....
New Babinda	Petitt & Cameron	10,777	17	20	53,885	...	.....	.....
Pangec	Modie & Donaldson	73,146	60	17	365,730	...	.....	.....
		267,921	.....	.....	1,339,605 = 598		£0 3 3	£97 3 6 £1,133 6 3

Acknowledge receipt and say that my report had been sent in before the communication arrived, but I shall send it forward to put with the other papers.—D.K., 5/5/87.

There is nothing in this letter which would induce me to modify my report in any way. As regards Mr. Barton's statement that only 5 tons of South Australian goods have gone into Cobar during the last five years, I can say that from a very reliable source I was informed that at least 60 tons of general goods have come up the river to Louth for stations between there and Cobar, within the last few months, which would have gone by railway if the river had not been navigable.—D.K., 5/5/87.

Commissioner.—W. V. READ, 6/5/87.

Minute by The Commissioner for Railways.

It will be seen that crediting the line with £7,054 for the carriage of firewood (an estimate, however, as to the realization of which grave doubts are expressed) and calculating the traffic on a liberal basis the revenue is increased to £14,683.

The local committee estimated it at £21,629.

We ought to realize, to pay working expenses (estimated on a low scale) and interest upon capital, at least £23,000 a year.

We cannot raise the rates because we have the river traffic to contend with at Louth.

CH.A.G., 3/5/87.

For Minister's information.

J. Penzer, Esq., M.P., to The Secretary for Public Works.

Re Cobar Railway.

A GENTLEMAN forwards me the following reasons why the line should be made:—

- 1st. That several more copper mines would be opened out and worked if a railway was made.
- 2nd. The hardwood sleepers proposed in the specification would have to be brought from Dubbo, about 140 miles, while pine of the best quality all along the line can be had for one-third the cost. The cost of fencing should not be more than £50 per mile.
- 3rd. One train per day would satisfy the people of the district.
- 4th. People who now send their wool down the river would find it cheaper to send it to the railway on account of the high rate of the marine insurance.
- 5th. The most expensive and deepest cutting on the line could be entirely avoided by a detour of 15 chains, and the grade reduced from a very steep and difficult one to a very easy one.

J. PENZER, 31/5/87.

The Manager, Great Cobar Conper-mining Co., to The Secretary for Public Works.

Great Cobar Copper-mining Company (Limited),
131, Pitt-street, Sydney, 9 June, 1887.

Sir,

My Board have instructed me to write you anent proposed railway from Nyngan to Cobar.

By way of inducement to proceed with the immediate construction of the line, I am desired to state that the Company would, if it were deemed desirable by the Government, be prepared to enter into a bond which should embrace the following stipulations, viz.:—

- 1st. That assuming an addition to the present rate of £2 9s. 2d. per ton for carriage of copper from Nyngan to Sydney, 378 miles, at 9s. per ton for the extra 90 miles, Cobar to Nyngan, which would make the rate from Cobar to Sydney £2 18s. 2d., the Company should be charged on all copper despatched from the mine to Sydney, instead of £2 18s. 2d., the rate of £3 7s. 2d., an increase of 100 per cent. on the rate of the increased mileage.
- 2nd.

2nd. The same scale of increased carriage to apply to all goods forwarded from Sydney to Cobar for the use of the mine.

3rd. Firewood, which will likely be required to be brought in large quantities to the mine for a distance of 5, 10, 15, or 20 miles, more or less, to be exempted from this suggested abnormal increase of carriage rate.

4th. That the arrangement thus contemplated should have a currency of five years from the opening of the railway from Nyngan to Cobar.

I may add, that my Board consider it not unlikely that were storekeepers, squatters, and others interested in the district surrounding Cobar invited to come under similar obligations their assent would be obtained, and thus ensure beyond doubt the remunerativeness of the line.

I have, &c.,
JAMES WATT,
Manager.

The Manager, Great Cobar Copper-mining Co., to The Secretary for Public Works.

Great Cobar Copper-mining Company (Limited),

131 Pitt-street, Sydney, 10 June, 1887.

Sir,

My Board have instructed me to write you anent proposed railway from Nyngan to Cobar.

By way of inducement to proceed with the immediate construction of the line, I am desired to state that this Company would—if it were deemed desirable by the Government—be prepared to enter into a bond which would embrace the following stipulations, viz. :—

1st. The Company, in addition to the present rate of carriage, £2 9s. 2d. per ton from Nyngan to Sydney, should be charged for the additional mileage from the nearest point to Nymagee of the proposed railway line, where the company would deliver copper, in addition to the proportionate rate 100 per cent. more for carriage to Nyngan.

2nd. The same scale of increased carriage to apply to all goods forwarded from Sydney to said point for the use of the mine.

3rd. That the arrangement thus contemplated should have a currency of five years from the opening of the railway from Nyngan to Cobar.

I may add that my Board consider it not unlikely that were storekeepers, squatters, and others interested in the districts surrounding Nymagee invited to come under similar obligations their assent would be obtained, and thus ensure beyond doubt the remunerativeness of the line.

I have, &c.,
JAMES WATT,
Manager.

Barton Brothers to The Secretary for Public Works.

Sir,

Cobar, 9 June, 1887.

As we are by far the largest storekeepers at Cobar and Nymagee, we beg to state that we are agreeable "if it would be any inducement to the Government to construct the railway from Nyngan to Cobar," to enter into a bond with the Railway Department to pay double freight upon all goods between those places for the time of five years from the opening of the line for traffic—always providing that such extra freight shall be the regulation charge for all goods to all people.

We have, &c.,
BARTON BROTHERS.

Minute from The Engineer-in-Chief to The Secretary for Public Works.

Department of Public Works, Railway Branch,

Engineer-in-Chief's Office, Sydney, 5 January, 1887.

Intermediate Stations on the Nyngan-Cobar Railway.

I ENCLOSE two applications for stations on the railway from Nyngan to Cobar, and suggest that an officer of the Traffic Branch be instructed to inspect the country and report on the most suitable positions for stations or platforms, and the extent of accommodation required in each case. There is a public water tank at Hermitage, 18 miles from Nyngan, another at Muriel, 20 miles beyond, and a third at Booroomugga, 20 miles further, from which it is intended to obtain water for locomotive engines, and it would be advisable to place the stations or platforms near these tanks if possible.

J. WHITTON.

Peele, Borradaile, & Co. to The Commissioner for Railways.

Proposed Line of Railway from Nyngan to Cobar.

Sir,

Sydney, 17 November, 1885.

We have the honor to address you on behalf of Messrs. Alison & Son, of Meryula station, near Cobar, and to submit to you the advisability of making a siding at the following point of the proposed lines, viz., at the peg marked ^{4.4.5}, opposite Ross Tank, and about 5 chains from the hotel on the north side of the road.

In support of the above recommendation, we are informed that the traffic from this proposed siding will embrace between 3,000 and 4,000 bales of wool during the wool season, and the goods for all the surrounding stations throughout the year, also considerable passenger traffic.

Trusting you will give this matter your favorable consideration,

We have, &c.,
PEELE, BORRADAILE, & CO.

Forward to the Engineer-in-Chief.—CH.A.G., 20/11/85.

Mr.

Mr. H. B. Hall to The Commissioner for Railways.

Sir,

Hermitage Plains, 28 December, 1886.

I beg to intimate that Hermitage Plains is $26\frac{1}{2}$ miles from Nyngan, on the Nyngan to Cobar railway line; that there are three woolsheds—one 10 miles distant, one 7 miles, and one 8 miles, the latter being a leasehold of six 10-mile blocks, held by Messrs. B. J. Fink & Co., all their sheep being shorn at this shed; that this is the nearest practicable point of the line for the Nymagee and Southern Districts, and I therefore trust you will take the matter into your favorable consideration with the view of having a station erected at this point, and take the liberty to refer you to the Hon. John Lackey and Mr. Russell Barton, M.L.A., who are both aware of this necessary convenience.

I am, &c.,

HENRY B. HALL.

Engineer-in-Chief.—CH.A.G., 31/12/86. Railways.—J.R., 6/1/87. Traffic Manager to obtain report.—CH.A.G., 9/1/87. Please see report attached from the Goods Superintendent, and in connection with the whole subject be good enough to refer to my minute of this date on your 87-4,210.—D.K., 4/3/87. Commissioner. End of month to ascertain decision of Government in regard to this railway.—CH.A.G., 10/3/87.

Report of Mr. Goods-Superintendent Harper.

As directed by you I visited Nyngan for the purpose of inquiring as to the most suitable site for station and siding accommodation on the projected line to Cobar.

The whole of the intervening country between Nyngan and Cobar is of course purely pastoral, and the only settlement outside the employees of the pastoral tenants are the four or five roadside public-houses, and consequently the only traffic of any real importance will be to Nymagee, which is distant 36 miles in a direct line from the nearest point of the line. The present average tonnage carried from Nyngan to Nymagee by road is, to Nymagee 90 tons per month, and from Nymagee 50 tons per month; and the number of bales of wool for the whole district tapped by the Nyngan station, 14,000 bales. It will thus be seen that very limited and inexpensive appliances should meet the demand in the shape of station buildings.

The most important point to settle is of course the location of a site for the station to receive the Nymagee traffic, and I found local opinion very strongly divided on the subject.

The present route is from Nyngan to a public-house on the Cobar road 12 miles from that town, thence *via* a road 53 miles in length to Nymagee, along which three tanks have been constructed by the Roads Department at a cost of £7,000. This road is naturally favoured by the Roads Department, and it is stated that the worst portion of it is that between Nyngan and Dawson's, and there is no doubt that it will continue to be used to a certain extent even should another route be selected. My impression is that at least temporary accommodation should be supplied at this point until a good practicable road for heavy loading is elsewhere provided for. Six miles beyond this is Hermitage Tank, which it is intended to use for watering purposes. At $27\frac{1}{2}$ miles is Hall's public-house, from which point a surveyed road joins the Nymagee Road, the distance from Hall's to Nymagee being 46 miles. By many people this route is favoured, but it is not provided with Government water, and is not viewed as a good one by the Roads Department. A road from Girilambone crosses the line at this point, and, as stated, there are three wool-sheds in the immediate vicinity, which would warrant, I think, its being made a stopping-place, awaiting the development of traffic to provide siding accommodation. At a point 38 miles from Nyngan is Muriel Tank, which it is proposed to use for watering purposes, and I understand that a petition is being extensively signed to locate the station for the Nymagee traffic at this point. If this is so, and there is no difficulty in the way of constructing a road, I need scarcely say that it will suit the Department admirably, as we shall obtain an increased mileage as against Dawson's of 26 miles.

At 50 miles from Nyngan is another hotel called Budd's, and this is the nearest point on the line to Nymagee, the distance in a direct line being about 36 or 37 miles. The country, however, is somewhat broken, and opinions differ as to whether a practicable road can be made, and strong exception will be taken to it by several Crown tenants. The Nymagee people petitioned the Roads Department some time since with a view to having this road made in anticipation of the railway, and there is a quantity of correspondence on the subject. Of course the argument as to increased mileage applies with more force in this case than with Muriel, but there is at present no water supply. At 58 miles is Burrumugga Tank (a watering-place), where, I think, a siding should be put in to receive wool from the country lying between that point and Cobar (81 miles), whilst at Ross's, 67 miles, I think a stopping-place would meet the requirements. As a matter of fact, Ross's is closer by some 6 miles to Messrs. Alison and Sons' home station, but I think we should consider the fact that at Burrumugga we have water available, and the cost of carrying wool some 5 miles further would scarcely outweigh this consideration. I do not suggest any other siding accommodation on this line, as I have no doubt you will agree with me that it is far more desirable to await the development of the traffic. I do not expect, from what I gathered, that we shall carry much stock from any intermediate points, and the question of trucking-yards might be allowed to stand.

I would strongly urge in conclusion that whatever station buildings or platforms are erected should be of the simplest and most inexpensive character.

J. HARPER, 21/2/87.

The Traffic Manager.

Memo. by The Chief Clerk.

* * * * *

SINCE the above reports were written, it has been decided to re-survey and cross-level portions of the present line, and get the best possible section with gradients, if practicable, of not less than 1 in 100. This work is now in progress. D.C.M'L., 15/9/87.

1887.

(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

RAILWAY, HOMEBUSH TO WARATAH.

(RETURN IN REFERENCE TO.)

Ordered by the Legislative Assembly to be printed, 29 November, 1887.

[Laid upon the Table of the House in accordance with promise made by the Honorable the Secretary for Public Works, in answer to Question No. 8, on Votes and Proceedings of 26 October, 1887.]

QUESTIONS AND ANSWERS.

- (1.) What amount has been paid to the contractors for the railway bridge at Peat's Ferry? £116,552 11s. 6d.
- (2.) What security is held for the due performance of the work? £10,000, and ten per cent. retention money.
- (3.) In what state is the work now? Caisson No. 1 has been sunk to a depth of 53 feet below the bed of the river, and is within a few feet of its proper depth. Caisson No. 2 has been floated out and moored, but not yet placed in position. Caisson No. 3 has not yet been placed in position. Caisson No. 4 has been founded to its proper depth, and the masonry pier is in progress. Caissons Nos. 5 and 6 are in progress, as are also the abutments, and the superstructure for one span has been delivered at Dangar Island.
- (4.) Is it true that on sinking the cylinders it has been found necessary to go to a greater depth than was contemplated by the Engineer-in-Chief? No.
- (5.) Is it true that the cylinders put down are resting on water-worn boulders, and not on solid rock? The Caissons were not intended to reach solid rock, and no water-worn boulders have been met with in sinking them.
- (6.) Did any officer of the Railway Department inspect the foundation upon which the cylinders have been placed; if so, when, and who was the officer? As the proposed level of the foundations is about 125 feet below the bed of the river, it goes without saying that no officer of the Railway Department did inspect them.
- (7.) Is there any Inspector continually employed for the purpose of overlooking this work as it proceeds? There are five Inspectors continually employed under the District Engineer in charge of the works.
- (8.) Is it specified in the contract for this work that the iron to be used should stand a certain test; if so, has that test been made; and when, where, and by whom? The steel for the superstructure is tested by the Inspecting Engineer in England.
- (9.) What is the height of the stone embankment across the shallow channel to Dangar's Island, above ordinary spring tides? There is no embankment to Dangar Island. The height of the embankment to Long Island varies from 8 to 28 feet above high-water level.
- (10.) Is there any reliable record in the Railway Department of the height to which flood-waters have reached in that channel? Yes, a little over 3 feet.
- (11.) Is the present embankment to be allowed to remain at its present height? Yes.
- (12.) Was the wharf at Dangar's Island, at which the Gosford steamer calls, put up at the expense of the Government; if so, for what purpose, what did it cost, and from what fund was it paid for? The wharf at Long Island, at which the Gosford steamers call, was constructed at the expense of the Railway Department, and will be paid for from the Vote for the Homebush-Waratah Railway. It was built for the accommodation of the traffic coming to the railway from the Hawkesbury River. The cost cannot be stated at present, as the final measurement has not been made.
- (13.) Has any representation been made by the Commissioner or other officer to the contractors for the bridge, that the work is not being proceeded with as speedily as is required by the contract? No, as the rate of procedure is not provided for in the specification. The whole of the work is to be completed in 2½ years from the 20th May, 1886, the date on which the contract was signed, under a penalty of £250 per week, with a bonus of £250 for every week the bridge is completed before contract date.

- (14.) Has any extra cost (above the contract price) been incurred, or is such cost likely to be incurred in connection with the bridge works; if so, how much, and from what cause? Some extra cost has been, and more may be, incurred, but the total amount cannot be ascertained until the bridge has been finished.
- (15.) What causes the delay in the completion of the contract for the construction of the line from the Hawkesbury to Gosford? Extra lining to the tunnel, and the bad foundations of the embankment along Mullet Creek.
- (16.) Has any extra cost been incurred on that line? (17.) If so, what has been the cost? (18.) Is that cost likely to be increased, and to what extent, and from what cause has it arisen or is it likely to arise? Yes; the total amount cannot be ascertained until the works have been completed and measured.
- (19.) What has been the cost of running the train to Peat's Ferry? The cost of running the train between Strathfield and Peat's Ferry, from the 5th April (date of opening) to 30th September, 1887, was £3,966 14s. 9d. *Note.*—The expenditure which will be caused by the accident at Peat's Ferry, in June, 1887, is omitted from this statement.
- (20.) Has there been any loss on the running; and if so, how much? There has not been any loss on the running, but the line has not paid both working expenses and interest on the capital invested. The exact figures cannot be given until the accounts are balanced at the close of the year.
- (21.) What have been the earnings? £9,392 8s. 3d.
- (22.) The same information with regard to the train from Hamilton to Gosford as in three previous questions? (A.) The cost of running the train between Hamilton and Gosford, from 15th August (date of opening) to the 16th October, 1887, is calculated at £1,350 2s. (B.) There has not been any loss on the running, but the line has not paid both working expenses and interest on the capital invested. The exact figures cannot be given until the accounts are balanced at the close of the year. (C.) The total earnings for the same period amounted to £2,203 17s.

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(INFORMATION RESPECTING DUPLICATION OF LINE GRANVILLE TO PENRITH.)

Ordered by the Legislative Assembly to be printed, 4 April, 1888.

[Laid upon the Table of the Honorable the Legislative Assembly, in accordance with promise made by the Honorable the Secretary for Public Works, in answer to Question No. 2, Votes No. 63, of the 7th March, 1888.]

QUESTIONS AND ANSWERS.

1. What officer in the Railway Service compiled and prepared the estimate of cost of duplicating the Railway Line Granville to Penrith? Mr. G. W. Townsend prepared the original estimate.
2. What was such estimate, and what the actual cost? The amount of Mr. Townsend's estimate was £84,203, and the actual cost of the works provided for by him and included in his original estimate was £98,493 3s. 3d., a difference of £14,490 3s. 3d., of which £9,900 was for extra earthworks. Additional works, principally new station buildings and platforms, which were not included in Mr. Townsend's estimate, made the total cost £126,505 12s. 8d.

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(DUPLICATED LINE, PARRAMATTA TO PENRITH—INSTRUCTIONS TO PROFESSOR WARREN TO INSPECT.)

Ordered by the Legislative Assembly to be printed, 3 May, 1888.

[Laid upon the Table of the House, in accordance with promise made by the Honorable the Secretary for Public Works, in answer to Question No. 2, Votes and Proceedings No. 86, of the 3rd May, 1888.]

COPY of the Instructions issued to Professor Warren to inquire into and report upon the condition of the Iron Bridges between Parramatta and Penrith.

Sir,

Railway Branch, Sydney, 5 April, 1888.

In view of a difference of opinion which exists with regard to the design and construction of certain bridges on the duplicated line between Parramatta and Penrith, the Commissioner for Railways considers it desirable that an independent report in the matter should be obtained.

To that end, I am desired to ask that you will be good enough to inspect such bridges as are reported to be defective, viz., those between Parramatta and Blacktown, and report upon the girders and abutments of such structures.

I have, &c.,

D. VERNON,

Secretary of Railways.

Professor Warren, University.

1887-8.

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

RAILWAYS.

(RETURN GIVING PARTICULARS OF PROPOSED LINES TO FORBES.)

*Ordered by the Legislative Assembly to be printed, 19 June, 1888.**[Laid upon the Table of the House, in accordance with promise made by the Honorable the Secretary for Public Works, in answer to Question No. 1, of 19th June, 1888.]*

RAILWAY TO FORBES.

1. (1 to 4.) No railway has been proposed from Molong to Forbes, nor has any survey been made of this route.

2. Distance from Borenore to Forbes, 67 miles 10 chains; steepest gradient, 1 in 40; height of Borenore above Forbes, 1886 feet; estimated cost per mile, £5,500; total cost, £369,187; distance from Sydney to Forbes, *via* Borenore and Toogong, 267½ miles. Distance from Coombing to Forbes, 83 miles 50 chains; steepest gradient, 1 in 40; height of Coombing above Forbes, 1,442 feet; estimated cost per mile, £7,678 14s. 6d.; total cost, £642,133 10s.; distance from Sydney to Forbes, *via* Blayney, Coombing, and Long's Corner, 269 miles 76 chains. Distance from Woodstock to Forbes, 64 miles 40 chains; steepest gradient, 1 in 40; height of Woodstock above Forbes, 597 feet; estimated cost per mile, £5,988; total cost, £386,229; distance from Sydney to Forbes, *via* Blayney, Woodstock, and Eugowra, 273 miles 57 chains. Distance from Cowra to Forbes, 65½ miles; steepest gradient, 1 in 40; height of Cowra above Forbes, 303 feet; estimated cost per mile, £5,950; total cost, £389,725; distance from Sydney, *via* Blayney Junction, Cowra, and Eugowra, 282 miles 60 chains.

1887.

(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

ST. PETERS-LIVERPOOL RAILWAY.
(PETITION IN FAVOUR OF--T. A. DAVIS, CHAIRMAN OF PUBLIC MEETING, CANTERBURY.)

Received by the Legislative Assembly, 11 October, 1887.

To the Honorable the Speaker and the Honorable the Members of the Legislative Assembly.

The humble Petition of the residents of Canterbury, in Public Meeting assembled,—

SHOWETH:—

1. That at the present time there is a population exceeding four thousand (4,000) souls in the Municipal District of Canterbury.
 2. That your Petitioners living within six miles of Sydney are compelled to lose upwards of two hours in daily transit to and from the city.
 3. That your Petitioners are living midway between Illawarra and Southern and Western Railways.
 4. That the construction of the St. Peters-Liverpool Railway will open up a large suburban area, the carrying profits of which will help to subsidise some of the non-paying lines in the interior.
 5. That the construction of proposed railway will shorten the distance between Sydney and Liverpool about six miles.
 6. Your Petitioners would also point out that nearly all the landowners have signed a bond undertaking to transfer land required for above railway free of cost to the Government.
 7. Your Petitioners would also point out that in the event of any accident or block occurring on the present suburban line, the construction of above railway would not only relieve the present line of all the southern traffic but leave another road open to Sydney.
 8. Your Petitioners humbly submit that living in a large suburban area they have been unjustly treated in being debarred from railway communication with the city.
- Your Petitioners therefore humbly pray that your Honorable House may be pleased to authorize the early construction of the St. Peters-Liverpool Railway.
- And your Petitioners, as in duty bound, will ever pray.

THOMAS AUSTEN DAVIS,
Chairman.

Canterbury, 30 September, 1887.

1887.

(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

ST. PETERS-LIVERPOOL RAILWAY.

(PETITION IN FAVOUR OF—BENJAMIN TAYLOR, CHAIRMAN OF PUBLIC MEETING, BELMORE.)

Received by the Legislative Assembly, 18 October, 1887.

To the Honorable the Speaker and the Honorable the Members of the Legislative Assembly.

The humble Petition of the residents of Belmore, in Public Meeting assembled,—

SHOWETH:—

1. That at the present time there is a population exceeding five thousand (5,000) souls in Canterbury, Belmore, and Salt Pan.
2. That your Petitioners living within ten (10) miles of Sydney are compelled to lose upwards of four hours in daily transit to and from the city.
3. That your Petitioners are living midway between the Illawarra and Southern and Western Railways.
4. That the construction of the St. Peters-Liverpool Railway will open up a large suburban area, the carrying profits of which will help to subsidise some of the non-paying lines in the interior.
5. That the construction of the proposed railway will shorten the distance between Sydney and Melbourne about six miles.
6. That your Petitioners would point out that nearly all the landowners have signed a bond undertaking to transfer land required for above railway free of cost to the Government.
7. That your Petitioners would also point out that in the event of any accident or block occurring on the present suburban line, the construction of above railway would not only relieve the present line of all southern traffic but leave another road open to Sydney.
8. Your Petitioners humbly submit that living in a large suburban area they have been unjustly treated in being debarred from railway communication with the city.

Your Petitioners therefore humbly pray that your Honorable House may be pleased to authorize the early construction of the St. Peters-Liverpool Railway.

And your Petitioners, as in duty bound, will ever pray.

Belmore, October 4th, 1887.

BENJAMIN TAYLOR,
Chairman.

1887.

(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

RAILWAY TO INVERELL.

(PETITION FROM RESIDENTS OF ARMIDALE, GUYRA, TINGHA, STANNIFER, &c.)

Received by the Legislative Assembly, 20 October, 1887.

To the Honorable the Speaker and Members of the Legislative Assembly of New South Wales, in
Parliament assembled.

The humble Petition of the undersigned residents of Armidale, Guyra, Tingha, Stannifer,
Wandsworth, and Inverell,—

RESPECTFULLY SHOWETH:—

1. That it would be greatly to the advantage of the whole of the northern districts if a railway is to be constructed from the Great Northern Railway to Inverell, and thence to the north-western districts of the Colony—that the shortest and cheapest route should be chosen, and one that passes through the most fertile country.

2. That a flying survey of the suggested route branching off from Guyra, and passing by Wandsworth and Tingha, made by Mr. Railway-Surveyor Hogg, it has been ascertained beyond doubt that this line would be the shortest, most level and cheapest, and in every way preferable to that from either Glen Innes or Uralla, avoiding, as would be the case on the Glen Innes route, having to pass over the Ben Lomond mountain, and the serious engineering difficulties of construction caused by the Waterloo Ranges, and avoiding an immense outlay for construction on the Uralla route.

3. That a line branching off from Glen Innes at right angles to the Northern line would cost more than double that from Guyra, and would make the journey from Inverell to Newcastle about 25 miles longer than that from Inverell by Tingha to Guyra, in addition to the heavy haulage over the Waterloo Ranges and Ben Lomond mountains, both of which obstructions would be avoided on the Tingha-Guyra route.

4. That the Glen Innes route would necessitate a backward journey by team to the rich tin-fields of Tingha and Stannifer, and that in fact the two last-named places would prefer sending their goods by teams to meet the line at Guyra, rather than adopt the circuitous route by team and railway by Glen Innes.

5. That one effect of the Glen Innes route would be to drive the north-western trade of the Colony to Queensland.

Your Petitioners therefore earnestly pray that your Honourable House will order a trial survey of the route by Guyra, Wandsworth, and Tingha, before any line be determined upon.

And your Petitioners, as in duty bound, will ever pray.

[*Here follow 151 signatures.*]

1887-8.

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

RAILWAY TO INVERELL.

(PETITION FROM CERTAIN RESIDENTS OF TINGHA IN FAVOUR OF ROUTE FROM GUYRA.)

Received by the Legislative Assembly, 20 June, 1888.

To the Honorable the Members of the Legislative Assembly of New South Wales, in Parliament assembled.

The Petition of the undersigned residents of Tingha and district,—

SHOWETH:—

That your Petitioners thoroughly endorse the policy of the Government in their Railway scheme regarding this district, and pray that your Honorable House will sanction the route from Guyra to Inverell in preference to any alternative route.

And your Petitioners, as in duty bound, will ever pray.

[*Here follow 347 signatures.*]

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAY FROM YOUNG TO DUBBO.

(PETITION FROM CERTAIN INHABITANTS OF GRENFELL IN FAVOUR OF.)

Ordered by the Legislative Assembly to be printed 29 May, 1888.

To the Honorable the Members of the Legislative Assembly of New South Wales in Parliament assembled.
HONORABLE GENTLEMEN:—

When the Government Railway Policy of the country is submitted for debate, we, the undersigned, inhabitants of the town and district of Grenfell, petition your Honorable House to consider favourably the projected cross line, and that it may be constructed from Young as the starting point south, thence to Grenfell, Forbes, Parkes, and Dubbo, for the following reasons:—The large and important commercial centres this line would pass through, the enormous amount of tonnage carried at the present time by horse and bullock teams, the fabulous number of sheep and cattle travelled, the prodigious quantity of produce grown, the immense number of bales of wool sent to Sydney, the excellent quality of the soil throughout the whole of this particular route, and also a very important matter in railway communication, the country this particular line would pass through is of such a character that the cost of building would be inexpensive in comparison with other routes. We, your humble petitioners, do pray that this line be constructed at as early a date as possible, as the great traffic which undoubtedly exists warrants the payment of good interest on the expenditure.

The country all along the line Young to Dubbo, has a very large population principally farmers of small holdings, but whose prosperity is painfully retarded for want of a more expeditious and less expensive means of conveying their produce to market than the existing old fashioned method.

Many industries are prevented from being established owing to want of rapid and less costly means of obtaining plant from Sydney, and sending manufactures to market.

Tons upon tons of fruit are simply allowed to rot as it cannot be sent to the already under supplied markets.

The prosperity of the whole district is materially retarded in consequence of having no direct and speedy communication with the metropolis.

Your humble petitioners sincerely pray your Honorable House will be pleased to take the foregoing into favourable consideration.

And your petitioners, as in duty bound, will ever pray.

[Here follow 545 signatures.]

[A similar petition was received from certain inhabitants of the town and district of Parkes, and from certain inhabitants of the town and district of Dubbo. 593 signatures.]

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(PETITION FROM CERTAIN INHABITANTS OF YOUNG FOR CONSTRUCTION OF—FROM YOUNG TO DUBBO.)

Received by the Legislative Assembly, 6 June, 1888.

To the Honorable the Members of the Legislative Assembly of New South Wales, in Parliament assembled.

Honorable Gentlemen,—

When the Government Railway policy of the country is submitted for debate, we, the undersigned inhabitants of the town and district of Young, petition your Honorable House to consider favourably the projected cross-line of railway, and that it may be constructed from Young as the starting point from the south, thence to Grenfell, Forbes, Parkes, and Dubbo, for the following reasons :—

1. That the line advocated is direct, and being almost straight, as the Government map will indicate.
2. That the country through which the proposed line would traverse is rich agricultural soil, and is thickly populated with *bonâ fide* settlers along the whole route, but whose prosperity is retarded for want of a market for their agricultural and pastoral produce. We would also point out that the country referred to is rich in minerals, gold-bearing quartz reefs having been recently discovered and reported to the Mines Department. A new industry in the timber trade would also be opened up, as iron bark and cypress pine grow in abundance along the line, and which are comparatively useless without railway communication to populous centres. As a further proof of the producing capabilities of the soil through which this line would pass, Grenfell District alone (which is comparatively a new place) produced last year 145,000 bushels of wheat, besides a considerable quantity of other cereals.
3. Your Petitioners would further point out that a large tract of country lying west of Young, Grenfell, Forbes, and Dubbo, would be tapped, which up to the present has been almost without a market, owing to the extreme difficulties attending transit; but the richness of this tract of country for pastoral and agricultural pursuits is well known to many honorable Members of your Honorable House.
4. And further beyond all benefits accruing to the inhabitants surrounding the proposed line, it would be a great national benefit, as it would open up immediate communication between the Great North-Western and Great Southern lines.
5. Your Petitioners could produce volumes of substantial evidence in favour of the proposed line, but we think the above is sufficient to command your honorable consideration.

Your Petitioners, therefore, pray that this Honorable House will, in view of the above statements, favourably consider the proposed line of railway.

And your Petitioners, as in duty bound, will ever pray.

[87 signatures.]

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(TRIAL SURVEY COOMA TO BOMBALA—PAPERS, &c.)

Ordered by the Legislative Assembly to be printed, 15 February, 1888.

RETURN to an *Order* of the Honorable the Legislative Assembly of New South Wales, dated 18th October, 1887, That there be laid upon the Table of this House,—

“Copies of all papers and correspondence in connection with the Trial
“Survey of the Extension of the Railway—Cooma to Bombala.”

(Mr. O'Mara for Mr. Dawson.)

SCHEDULE.

NO.	PAGE.
1. Petition from residents of Monaro to the Minister for Works, urging construction of line. 6 June, 1882	1
2. Mr. Tooth, M.P., to the Minister for Works, referring to above, and asking that survey be made, with remarks. 11 August, 1882	2
3. Mr. Badgery, M.P., and Mr. Tooth, M.P., to the Minister for Works, asking that discontinued survey be completed, and remarks. 21 March, 1884.....	2
4. Mr. Carver to the Engineer-in-Chief, report on survey and routes. 19 April, 1884.	2
5. Petition from residents of Bombala to the Minister for Works, urging construction of line. 6 August, 1884.	3
6. Mr. Badgery, M.P., to the Engineer-in-Chief, asking that Mr. Surveyor Jones be sent to survey line. 20 August, 1884	3
7. Engineer-in-Chief to Mr. Palmer, instructions as to pushing on survey and employing another surveyor. 20 August, 1884	4
8. Mr. Carver to Engineer-in-Chief, report on survey and routes. 26 August, 1884.	4
9. Mr. Ryrie, M.P., to the Minister for Works, asking when survey will be completed, with remarks. 10 December, 1884	4
10. Mr. Carver to the Engineer-in-Chief, plan, &c., to be ready by end of December. 16 December, 1884.	4
11. Petition from residents of Nimitybelle to the Minister for Works, that line may be so altered as to pass Nimitybelle. 17 December, 1884	5
12. Mr. Carver to the Engineer-in-Chief, that instructions be carried out. 30 December, 1884.	5
13. Mr. Carver to the Engineer-in-Chief, forwarding plans, &c. 14 January, 1885	5

No. 1.

Petition from Residents of Monaro.

To The Honorable the Minister for Works.

The Petition of the undersigned residents of Monaro,—

RESPECTFULLY SHOWETH :—

1. That a line of railway is about to be constructed from Goulburn to Cooma, the centre of the northern portion of Monaro. The expenditure for this purpose was submitted by the Government to the Parliament and sanctioned by the latter upon the basis of Statistics, showing the actual population, the products, wealth, and resources of Monaro.

2. Monaro is of such geographical extent that it has a northern and southern centre of activity. The northern centre finds its outlet mainly through Goulburn, while the southern or Bombala portion has always been connected with Sydney through Merimbula or Twofold Bay; and unless Bombala is brought in connection with the Great Southern Railway, *via* Cooma, it must continue to depend for an outlet upon the uncertainty of coastal import and export.

497—A

[817 copies—Approximate Cost of Printing (labour and material), £3 16s. 5d.]

3. The area of that portion of Monaro, which necessarily lies along the coast, and which will be precluded (by the fact of distance) from the Bombala trade to and from the Railway, while Cooma remains the terminus, embraces over one third the advantages of the Southern Railway; and your petitioners desire the material basis upon which Parliament has voted the railway to Cooma; and your petitioners desire the material basis upon which therefore, the fact that without a connection by rail between Bombala and Cooma, the scheme will be only a partial one, and lose a great deal of its advantages.

4. Your petitioners submit that from the generally level nature of the country between Cooma and Bombala, and the absence of any considerable engineering difficulties, besides the abundance of material lying along the line of the proposed railway, the line would not involve any further expenditure than would be warranted by the present traffic, exclusive of prospective increase.

5. The road from Cooma to Bombala has been raised to the rank as first class, but being in a comparatively unmade condition, in order to render it efficient for the traffic as a feeder to the railway, if the terminus were at Cooma, there would certainly be involved a very large expenditure, and one which, if applied to the making of a line of light railway instead, would go far to construct the same.

Your petitioners, therefore, respectfully pray that a sum of money be placed upon the estimates for the purpose of constructing a line of railway from Bombala to Cooma to connect the former with the main Southern line of the Colony.

(And others.)

H. M. JOSEPH, J.P.,
Maharatta.

No. 2.

R. L. Tooth, Esq., M.P., to The Secretary for Public Works.

Sir,

I have the honor to refer to the petition presented by a deputation in June last, for the extension of the proposed railway line from Cooma to Bombala, and to suggest that in order to obtain some definite and reliable information upon the matter, a trial survey be made, in order that the nature of the country through which the proposed line will run may be ascertained.

Sydney, 11 August, 1882.

I have, &c.,

ROBERT L. TOOTH.

Mr. Palmer to say what has been done in this matter.—J.W., 31/8/82. A trial survey from Cooma to Bombala has been completed, and an approximate estimate can be prepared when required.—H.P., 1/9/82. This must stand over until other very important work has been completed.—J.W., 11/9/82.

No. 3.

H. S. Badgery and R. L. Tooth, Esqs., M's.P., to The Secretary for Public Works.

Sir,

We have received a communication from the Bombala Progress Committee, stating that the trial railway survey between Bombala and Cooma, which has been commenced, has now been discontinued, the survey being still incomplete.

We have the honor, therefore, to ask in view of the above, when it is proposed to send surveyors to complete the survey.

Sydney, 21 March, 1884.

We have, &c.,

HENRY S. BADGERY,
ROBERT L. TOOTH.

Engineer-in-Chief for report.—F.A.W., 24/3/84.

Mr. Palmer.—W.H.Q., 26/3/84.

This survey was discontinued by Mr. Morris some time ago, when he reported that he could not proceed with it, on account of the severity of the climate, but when the permanent staking of the extension to Cooma was completed, the trial survey from Cooma towards Bombala was resumed, and is now in progress.—H.P., 27/3/84. The Engineer-in-Chief.

Inform Messrs. Badgery and Tooth.—28/3/84.

No. 4.

Mr. Surveyor Carver to The Engineer-in-Chief.

Sir,

Camp Curry Flat, Cooma, 19 April, 1884.

I have the honor to submit the following for your information and decision, relative to the route of trial survey, "Cooma to Bombala." As Mr. Morris did not level the last 9 miles of the part of the route, *via* Nimitybelle, that he surveyed, I have done so, and by same post forward you the completed section, together with a tracing of his plan. They give very little idea of what a practicable line would be like over the part of this route they represent, for in such country, had the standard, 1 in 40, been the ruling gradient instead of 1 in 20, the plan and section would have appeared entirely different. Beyond the crossing of the M'Laughlan River (as shown in part) a long tunnel is necessary, the line must then rise several hundred feet, and be much cramped for distance to do so, through a steep, sidelong, and broken country.

To obtain the easiest practicable and least costly line between Cooma and Bombala advantage must be taken of the descending country to Bombala, immediately the watershed range is crossed, dividing the Murrumbidgee from the Snowy River water. If, after crossing that, the highest necessary level between the two places, any route is taken near Nimitybelle, the line must rise about 200 feet more in 9 miles, and then descend to the M'Laughlan River, thus losing command of 1,000 feet in levels, and the advantage that gives in a choice of crossing the M'Laughlan River, the real difficulty to be overcome.

The

The country is more broken and disturbed by trappean outbursts the nearer to the coast range. The Nimitybelle route takes a distance from the range the country is more rounded off and favourable near its summit. At a further distance from the range the country is more rounded off and favourable for railway construction, and presents little difficulty in surveying a practicable line through it without any exceptional severe agents of heavy earthworks. I therefore respectfully suggest that instead of adopting the Nimitybelle route I survey the more favourable one indicated to Bombala.

In that the distance to connect with Mr. Morris' work, near Nimitybelle, need not be surveyed, and fit 16 miles of additional trial line would complete a useful survey to Bombala.

I reply at your earliest convenience would oblige.

I have, &c.,

N. P. CARVER.

Mr. Palmer.—W.H.Q., 22/4/84. Tracings returned to Mr. Carver with instructions.—H.P., 23/4/84.

No. 5.

Petition from Residents of Bombala.

To the Honorable the Minister for Works.

The humble Petition of the undersigned Residents of the district of Bombala,—

SHOWETH:—

1. That at a public meeting of the residents of Bombala, held on the 6th day of August, 1884, it was resolved that a petition be presented to the Hon. the Minister for Works, praying that a sum of money be placed on the estimates sufficient to defray the expense of the construction of a line of railway from Cooma to Bombala, and (2) That the survey of the said line be at once proceeded with and completed, and (3) That the specifications of the said line be forthwith prepared and tenders called for the construction of the said line of railway.

2. That a railway to Bombala is absolutely necessary for the development of the resources of the district.

3. That the business of the district is almost at a standstill owing to the great difficulties at present experienced through not having any outlet for the product thereof.

4. That a majority of the population of the Bombala district are holders of very small areas far too small to return anything like a living except by the production of grain, and at the present time the production is largely in excess of the local consumption, and the cost of carriage to the coast alone is much too great to admit of farmers growing their produce for other markets, and even now some thousands of acres, which have in the past been cultivated, are lying neglected for the above reasons.

5. That a railway appears to your petitioners to be the only means of overcoming the present difficulties, and that it would be the means of fully developing the resources of the district.

6. That if railway communication between Bombala and Sydney were completed an area of some 50,000 acres of land would be placed under cultivation, and an immense amount of produce would be annually forwarded to Sydney, as also not less than 20,000 head of cattle and 150,000 sheep.

7. That the district is very rich in minerals, and your petitioners believe that a line of railway would cause fuller development thereof in every way.

8. That there are annually shipped at Eden and Merimbula not less than from 8,000 to 9,000 bales of wool, such wool being grown in the Bombala district.

Your petitioners therefore humbly pray that the survey of the said line be at once proceeded with and completed; (2) That the plans and specifications of the said line be then forthwith prepared and tenders for the construction thereof called; (3) That a sum of money sufficient to defray the cost of such line be placed upon the estimates.

And your petitioners, as in duty bound, will ever pray, &c.

Dated this 6th day of August, 1884.

Signed on behalf of the meeting,

JNO. CRUICKSHANK,

Chairman.

I should like Mr. Whitton to give instructions for the completion of the Cooma to Bombala survey line as speedily as possible, and a second surveyor may be employed to expedite the work.—G.R.D., 10/8/84.

No. 6.

H. S. Badgery, Esq., M.P., to The Engineer-in-Chief.

Dear Sir,

Sydney, 20 August, 1884.

If you intend, as we hope you do, to send a surveyor to push on the survey of the line Cooma to Bombala, I would take the liberty of suggesting Mr. Jones, now in your office.

I must admit some delicacy I feel in presuming to mention this to you, but I am prompted to do so because some of my Bombala friends are anxious for this gentleman to go, and because he has given great satisfaction in the district of Braidwood when surveying that line.

I remain, &c.,

H. S. BADGERY.

I have to express my regret that I cannot comply with Mr. Badgery's request.—J.W., 21/8/84.

No. 7.

The Engineer-in-Chief to Mr. Palmer.

Cooma to Bombala Trial Survey. Sydney, 20 August, 1884.

PLEASE push forward the trial survey from Cooma to Bombala to completion, & surveyor should be despatched to assist in the work as soon as possible.—J.W. (per which purpose another H.Q.)

I lately found among tracings of field plans copies of the original plan and section of 15 miles of Mr. Simpkin's trial survey from Bombala towards Cooma. As Mr. Carver's survey at the end of last month was within 7 miles of this point, I have forwarded copies of Mr. Simpkin's plan and section to Mr. Carver, informing him that he may connect with this original survey unless he is able to find a better route. If Mr. Simpkin's line is used, it could hardly be necessary to send up another surveyor.—H.P., 21/8/84.

Approved.—J.W., 26/8/84. I expect to have a through plan and section—Cooma to Bombala—very shortly.—H.P., 22/9/84.

No. 8.

Mr. Surveyor Carver to The Engineer-in-Chief.

Sir,

Camp Wangellic, 26 August, 1884.

I have the honor, in reply to memo. No. 84-162, to inform you that if the town of Bombala has to be entered, the approach to it by a middle course—between Mr. Morris' line, which enters the town on a descending gradient of 1 in 25 for $1\frac{1}{2}$ miles, and that of Mr. Simpkin's, which has to rise considerably to the level of the town—would be a material improvement, and which I intended to adopt. Since, however, I know the surrounding country, I look upon it in a different light—as follows. If a get-away from Bombala towards the coast has to be taken into consideration, it is extremely doubtful if the town should be entered at all, for the line must pass through it—in the direction indicated—which leaves no alternative but to adopt the "Cathcart Pass route" through the coast range, and that pass may be reached by a line many miles shorter if Bombala is not closely approached. I have shown this generally on sketch enclosed.

The only other get-away from Bombala, or from close to it, is that *viâ* the "Maharatta Pass route," and to have it open, it would be necessary to cross the Bombala River below, and not to enter the town. In this case it would be as well to adopt Mr. Simpkin's line, for it admits of a choice of river crossing at any future time along a considerable distance of its course. This (Mr. Simpkin's line) will require restaking throughout, and a great portion of it resurveying to replace the number of survey pegs that are either completely rotted off, or are laying about the surface. I may also state that, if the "Maharatta Pass route" is practicable on the coast side of the range—and, from what I have been able to learn, it would seem to compare favourably with any other—I think the pass could be reached from this side with but little difficulty; and it certainly appears to me the best possible route to serve the interests of Bombala, as also those of Delegate and the valley of the Snowy River.* I respectfully request instructions by which route to proceed.

I have, &c.,

N. P. CARVER.

* If you desire it, a little extra work would show a favourable crossing of the Bombala River, as well as a line through the town.

Mr. Palmer.—W.H.Q., 1/9/84. Instructions sent to Mr. Carver.—H.P., 1/9/84.

No. 9.

D. Ryrie, Esq., M.P., to The Secretary for Public Works.

Sir,

Cooma, 10 December, 1884.

I have the honor to request you will have the goodness to inform me when the final survey for the line of railway from Cooma to Bombala will be completed.

I have further to request that you will cause a trial survey for a continuation of that line to be made as early as practicable from Bombala *viâ* Mahratta, Bondi, and Toowomba, to join the coast line at Eden, thereby uniting the rich table-lands of Monaro with the seaboard.*

I have, &c.,

D. RYRIE.

* What has been done in this case?—F.A.W., 21/12/84.

The Cooma and Bombala trial survey has been completed and the route of trial survey between Bombala and Eden, as indicated in these papers, has been commenced. The surveyor has been instructed to report generally, after a thorough examination of the country, on the route throughout, before proceeding further with the survey.—H.P., 30/12/84.

Inform.—F.A.W., 7/1/85.

No. 10.

Mr. Surveyor Carver to The Engineer-in-Chief.

Sir,

Bombala, 16 December, 1884.

I have the honor to acknowledge the receipt of memo. No. 84-279.

I hope to be able to forward plan, sections, &c., of the trial survey Cooma to Bombala, by the end of this month.

I have, &c.,

N. P. CARVER.

No. 11.

No. 11.

Petition from Residents of Nimitybelle.
Public Works.

The Honorable The Minister of Public Works, at and near the town of Nimitybelle, in the district of Coomangire to bring under your notice:—

Most respectfully at the railway route from Cooma to Bombala, as the first trial survey, has been marked out—same nearly 6 miles distant from the above-named town, going westward instead of east of One-tree hill.

1st. That this town, if the present route is adhered to, will be totally destroyed, both public buildings and private enterprise, inasmuch as that in natural course of events another town will be expected to grow in the vicinity of the Railway Station upon private property.

2nd. We believe that a much better route could be found coming nearly, if not quite through this town, and which would tend to the advancement of; and also, by coming near the coast range, this is the nearest town to which excellent roads are made, and, until the railway is connected between coast and Monaro districts, the principal traffic to the Monaro railway comes through here.

3rd. That by the railway coming through or near adjacent to this town, it will not only serve the interests of us inhabitants, but also the residents of the Bega district, being quick and convenient for farm and dairy produce as well as travelling to and from Sydney.

Your memorialists, therefore, pray that you will take the above into your serious consideration, and direct that the railway route comes through or near adjacent here as requested, and your humble memorialists will, as in duty bound, ever pray.

S. M'DONALD, J.P.

(And others.)

No. 12.

Mr. Surveyor Carver to The Engineer-in-Chief.

Sir,

Bombala, 30 December, 1884.
I have the honor to acknowledge the receipt of Memo. No. 84-284, and will carry out my instructions directly I forward plan section, &c., of the "Cooma to Bombala" trial survey, which will be ready in a few days.

I have, &c.,
N. P. CARVER.

No. 13.

Mr. Surveyor Carver to The Secretary for Public Works.

Sir,

Camp Bombala, 14 January, 1885.
I have the honor to inform you that by the same post I forward you the plan section and reference sheets of the trial survey, Cooma to Bombala. The field and level books will be posted to-morrow.

I have before informed you that I was unavoidably backward with my drawing, and finding it impossible to pull the work up and keep my party employed in the field, I temporarily disbanded them last month, with the exception of one man, and worked myself throughout the holidays and up to this date on the drawings.

To-morrow I proceed to examine the country between this and Eden, upon which I will report without delay.

I have, &c.,
N. P. CARVER.

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

COLO VALLEY RAILWAY SURVEY.

(REPORTS, PAPERS, &c., CONNECTED WITH.)

Ordered by the Legislative Assembly to be printed, 22 March, 1888.

RETURN (*in part*) to an Order of the Honorable the Legislative Assembly of New South Wales, dated 28th February, 1888, That there be laid upon the Table of this House,—

“Copies of all Reports, Papers, &c., connected with the Colo Valley Survey, including Mr. Surveyor G. W. Townsend’s final Report, and the Engineer-in-Chief’s Report on the plan and estimate.”

(*Mr. Frank Farnell.*)

SCHEDULE.

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No. 1. .

Minute by The Engineer-in-Chief to The Secretary for Public Works.

Department of Public Works, Railway Branch,
Engineer-in-Chief’s Office, Sydney, 1 February, 1888.

Subject :—Recommending appointment of Mr. T. R. Firth as Assistant Engineer for Trial Surveys.

THE office of Assistant Engineer for Trial Surveys has been vacant since Mr. Palmer retired from the service in February last, but in consequence of several proposed railway lines now being resurveyed and staked, it is absolutely necessary that some one should be appointed to this office who is not only a good surveyor but who has a thorough knowledge of construction.

Mr. Thomas Rhodes Firth has full knowledge of both these branches, and I strongly recommend him for this office.

The salary received by the late occupant of this office, Mr. Palmer, was £750 a year, with an allowance of £150 a year for equipment.

I propose that Mr. Firth’s salary for the same duties should be £700 per annum, with no allowance for equipment, thus effecting a saving of £200 a year.

Mr. Firth is now in charge of the works on contract No. 2 of the Illawarra Railway, but as there will shortly be several District Engineers at liberty, I can place one of them to superintend the completion of the work on this contract.

I also recommend that Mr. Firth’s appointment takes effect from the date of commencing duties.

JOHN WHITTON.
B.C.,

558—A

B.C., Railways.—J.R., 2/2/88.

I do not think it desirable to fill the vacancy caused by the resignation of Mr. Palmer, and as regards Mr. Firth his services may be continued in his present position of District Engineer for construction. I propose to have two high class trial surveyors, one for the lines on the south and west, and one for the lines in the Northern District, who, under the direction of the Engineer-in-Chief, will take charge of the field parties engaged upon the surveys, and whose special duty it will be to survey such routes as will best carry into effect the determination of the Government, to have light and inexpensive railways for opening up the country and developing its resources. For one of the positions I have named I select Mr. Townsend, and I think the officer who conducted the resurvey of the line from Nyngan to Cobar should be entrusted with the duties of the other portion. Each of these officers should be paid £600 a year, with £100 a year for equipment.—J.S., 6/2/88.

The Engineer-in-Chief, B.C. Memo. to Minister, No. 88, herewith.—J.W. *pro* W.H.Q., 15/2/88. Under Secretary, B.C.

No. 2.

The Engineer-in-Chief to The Secretary for Public Works.

Department of Public Works, Railway Branch,
Engineer-in-Chief's Office, Sydney, 14 February, 1888.

Appointment of an Assistant Engineer for Trial Surveys.

I REGRET that the Minister should have considered it advisable to refuse to carry out my recommendation for the appointment of Mr. Firth to fill the office of Engineer for Trial Surveys, left vacant by the retirement of Mr. Palmer.

My proposal was to have one Engineer for Trial Surveys who had a thorough knowledge both of construction and surveying in all their branches, the salary to be £700 per annum.

The proposal of the Minister, in his memo. of the 6th instant, is to have "two high class surveyors"—one for the lines on the South and West, and one for the lines in the Northern District—and to take charge, under the Engineer-in-Chief, of the field parties engaged upon the surveys. These officers are to have salaries of £600 a year each, with £100 each for equipment, making a total payment for superintendence of £1,400 a year.

I fully admit the right of the Minister to make any appointment he may think desirable in my Department; but as I have not been consulted in this matter, I may be pardoned if I offer some remarks as to the qualifications of these gentlemen for the positions which have been assigned to them.

It may not be within the knowledge of the Minister that Mr. Townsend was, some years ago, a surveyor directly under me in this Department; that he resigned those duties for an appointment in the Existing Lines Branch, under the Commissioner for Railways, at, of course, an increased salary; that he obtained leave of absence from the Commissioner to explore the country between Emu Plains and Rylstone, through the Colo Valley, for the purpose of discovering a line to facilitate the working of the traffic of the Western Railway; that his report of this line was so favourable as to cost and gradients that the Commissioner advised the Minister, Mr. Secretary Wright, to have a survey of this route made by Mr. Townsend.

The Minister consequently ordered this survey to be made, nominally under me, but practically under the Commissioner.

Inspired reports frequently appeared in the newspapers, particularly after a visit of Mr. Townsend to Sydney (but never to see me, as I was entirely ignored by him), on the splendid discovery made by him of a cheap line, with no gradient worse than 1 in 100; and, in fact, so great was the enthusiasm of the public generally, and the newspapers in particular, that it was alleged that, had this line only been discovered earlier, the absurd and costly blunder of making the existing railway over the Blue Mountains would never have been perpetrated. The following is Mr. Townsend's first rough estimate of the cost of this line:—

6½ miles of tunnelling, in short lengths	...	...	...	...	...	...	£600,000
12 miles, at £15,000 per mile	...	...	...	...	...	...	180,000
25 miles, at £10,000 "	...	...	...	...	...	...	250,000
60 miles, at £5,000 "	...	...	...	...	...	...	300,000
Bridges and culverts, including Grose River Bridge	...	...	...	...	...	...	100,000
							<u>£1,430,000</u>

Mr. Townsend has been employed upon this survey for three and a half years, at a cost, up to the present time, of nearly £8,000, and his plans and estimate are not yet finished; but sufficient has been done to show that instead of 6½ miles of tunnels there will be 20½ miles, which he estimates to cost £1,293,400 instead of £600,000. The estimate now submitted for tunnels being doubled only, although the length is trebled.

In the first estimate the bridges and culverts were to cost £100,000; in Mr. Townsend's revised estimate they are stated to cost £435,340.

The quantity of earthwork has not yet been furnished to me in a shape in which I can deal with it, but I am expecting it shortly.

The first estimate was made without any plans or sections, which is a doubtful way of giving reliable information. The second estimate purports to have been based on a correct survey. The first amounted to £1,430,000, and the second is £2,695,000. The total length of this line is stated to be about 104 miles, and nearly one fourth . . . or 25 miles, will consist of bridges, tunnels, and viaducts.

Before offering a positive opinion as to the cost of this line, I must be in a position to check Mr. Townsend's survey, quantities, and prices, as I have little doubt that the amended estimate is far below the expenditure which would have to be incurred should the work ever be undertaken.

The

The tunnels alone would cost at least £3,247,000, and I may safely say that the line could not be constructed for less than £5,000,000.

In consequence of Mr. Townsend's original report the survey was no doubt carried out, and by the newspaper paragraphs the interest in it was kept alive, and the speedy completion of the railway confidently predicted. The result, however, must be disappointing to the country, as the relief promised to the overcrowded traffic on the Western Railway (if it ever existed) will have to be found in some other channel.

I therefore suggest that the cost of this survey is so much money thrown away.

I was strongly opposed to this survey from its inception, as I knew, and explained, that this country had been previously explored under my directions.

As the Minister has proposed the employment of Mr. Townsend and Mr. Simpson, instead of Mr. Firth—recommended by me—I have considered it my duty to place him in possession of some facts connected with Mr. Townsend's engineering antecedents with which he could hardly have been acquainted.

As to Mr. D. C. Simpson, I can only say generally I should not have selected him for so important a work, as I do not think he has had sufficient experience either in surveying or construction to warrant his appointment.

If two surveyors be placed on the surveys for proposed extensions merely to superintend the surveyors in the field, I doubt not that for a large portion of their time they will have little to do; but other important work will have to be done.

I should feel no confidence in either of the gentlemen named to take out quantities, lay down gradients, and prepare estimates for submission to me.

The field work would only represent a part of their duties, but the other work would be necessary as the surveys came into the office.

Mr. Firth, from his long experience, both of surveying and construction, is fully competent to discharge all the duties required, and the cost of his employment would only be £700 per annum, as against the employment of the two surveyors named at a cost of £1,400 per annum, and the work, in my judgment, would be far more efficiently performed.

The head of any particular branch should be a man of superior intelligence and great experience, to whom the surveyors could look for information and guidance.

Such an officer is Mr. Firth; but, should he not be appointed, I have in my Department surveyors of greater experience and much longer service than either of the gentlemen named by the Minister, and to appoint Messrs. Townsend and Simpson would not, in my opinion, be utilizing to the best purpose the officers now in the Department.

In all professional appointments for thirty-one years I have, with one exception (Mr. Townsend), selected my assistants, and my sole desire has been to obtain the services of the best men available. I have done so in this instance, and I must claim to be permitted to express my regret that it has not met with the favourable consideration of the Minister.

JOHN WHITTON.

Railways.—J.R., B.C., 15/2/88.

The information now furnished by Mr. Whitton is certainly new to me, and, in the meantime, I wish no further action taken until the matter is further considered. I know, as Mr. Whitton mentions, that Mr. Townsend was an officer at one time under the Engineer-in-Chief, and I was always under the impression that Mr. Whitton entertained a very high opinion of Mr. Townsend's qualifications, and had so expressed himself. Let a copy of this report be furnished to Mr. Townsend for reply should he desire to do so.—JOHN SUTHERLAND, 18/2/88.

Engineer-in-Chief.—CHAS. A.G., *per* D.C.McL., B.C., 20/2/88. Mr. Townsend.—W.H.Q., 21/2/88.

No. 3.

Mr. G. W. Townsend to The Secretary for Public Works.

Railway Survey Office, 22 February, 1888.

Sir,

I have to-day received Mr. Whitton's minute, with your minute thereon. Permit me to thank you sincerely for giving me an opportunity of replying.

On page 3 of his minute Mr. Whitton says:—

Page 3 of minute: "Mr. Townsend was some years ago a surveyor directly under me in this Department; that he resigned those duties for an appointment in the Existing Lines Branch, under the Commissioner for Railways, at, of course, an increased salary."

The facts of this matter are as follows:—In 1880 my services under Mr. Whitton were dispensed with, as the work on which I was engaged was finished. In the early part of 1882 I was re-appointed, under Mr. Whitton, at the same salary that I had formerly received, viz., £350 per annum, with a special note on the letter appointing me that the employment was only temporary. Previous to this re-appointment I had been engaged by the people of Carcoar to make a trial survey in opposition to the survey then being made by the Department, the departmental survey passing about a mile from the town of Carcoar, while the people of Carcoar wanted the line brought through the town. My survey made for the townspeople proved that a practicable line could be obtained through the town, although Mr. Whitton was said to have stated that this was impossible. On my re-appointment I was instructed to permanently stake for the Department the trial line I had run for the townspeople. While engaged on this work I was informed by a friend that, owing to the turn affairs had taken, Mr. Whitton would take the first opportunity of getting rid of me again, for he was very much annoyed at having to accept my survey; therefore, as soon as I had finished the work upon which I was engaged, I resigned, and obtained employment under Mr. Cowdery (Mr. Palmer having

Page 3 of minute: "At, of course, increased salary; that he obtained leave of absence from the Commissioner to explore the country between Emu Plains and Rylstone, through the Colo Valley, &c."

Pages 3 and 4 of minute: "That his report of this line was so favourable as to cost and gradients that the Commissioner advised the Minister, Mr. Secretary Wright, to have a survey of this route made by Mr. Townsend."

Page 4 of minute: "The Minister consequently ordered this survey to be made nominally under me, but practically under the Commissioner."

Page 4 of minute: "Inspired reports frequently appeared in the newspapers, particularly after a visit of Mr. Townsend to Sydney (but never to see me, as I was entirely ignored by him)."

Page 4 of minute: "(But never to see me, as I was entirely ignored by him.)"

Page 5 of minute: "The following is Mr. Townsend's first rough estimate of the cost of this line."

Total, £1,430,000.

Page 5 of minute: "Mr. Townsend has been employed upon this survey for 3½ years, at a cost up to the present time of nearly £8,000."

Page 6 of minute: "The estimate now submitted for tunnels being doubled only, although the length is trebled."

having spoken very warmly on my behalf to Mr. Cowdery), at the same rate of pay that I had been receiving, as the Blue Book for 1882 will show; date of appointment, June 5th, 1882. In October, 1883, I obtained leave of absence to explore the Colo Valley, as I stated to the Commissioner that from observations made while employed on the trial survey for the Mudjee line I believed a line with easy grades could be obtained. The result of this exploration is known. In the early part of 1884 I was appointed district engineer, at a salary of £500, eighteen months after joining the Existing Lines Branch. I am sure no one would be more sorry than Mr. Whitton should a wrong construction be put upon any portion of his minute, I therefore have explained at some length *the facts* which Mr. Whitton has merely glanced at in this portion of his minute, and from which an inference might be drawn that I had been bribed by the Existing Lines Branch to leave Mr. Whitton's branch for the purpose of undertaking the Colo Valley survey.

I have a copy of my first report now before me. As to gradients, the plan and sections bear out all that I said therein, namely, that no gradient need be heavier than 1 in 100, and no curve sharper than 20 chains radius. As to cost, the difference between what I now estimate and what I first thought would cover the cost is mainly due to the large extra amount of tunnelling that I have thought it advisable to recommend to avoid a recurrence of the inconvenience, expense, and danger that we are already suffering from on the Mudjee and Illawarra lines from landslips, and from the extra amount of flood-opening I have proposed.

This paragraph I take to be a matter between the then Minister for Works and the Commissioner for Railways, but I must distinctly deny the inference to be drawn therefrom, that I ever received instructions from any one regarding the survey but Mr. Whitton, through Messrs. Deane and Palmer.

As this survey was of great public interest, I have frequently been asked for information on the subject, and as there was an evident strong feeling both against me and against the work I was carrying out throughout the whole of Mr. Whitton's branch, I frequently gave information so far as I could without infringing the rules of the Department on this subject. As to my not going to see Mr. Whitton, I may say that no subordinate officer in Mr. Whitton's branch dares to think of going to see Mr. Whitton. There are men who have joined the Department under Mr. Whitton, have been for years under him, and have left the Department without having ever seen him. I have not seen Mr. Whitton to speak to for about twelve years, and when I was instructed to report myself to Mr. Whitton at the time of my transfer to his branch of the Department for the purpose of carrying out the Colo Valley survey under him, I was told by Mr. Whitton's clerk, in the most uncivil manner, "Go to Mr. Palmer, Mr. Whitton won't see you." I have frequently seen Mr. Palmer on the subject, and once Mr. Deane, who was acting for Mr. Palmer, but the treatment I have always received from Mr. Whitton's branch regarding this matter has not been such as to invite confidence, but has been harsh in the extreme, and peculiarly painful to a man of a nervous timid disposition, as I unfortunately am; still, I have reported fully, every month, in writing to Mr. Whitton as to the progress of the work.

This rough approximation to an estimate was made from a mere examination of the country without any survey.

The items on which cost has been increased are tunnels by reason of increased length to avoid landslips, and giving greater height and capacity to bridges, as I found the floods were much more serious than I at first supposed.

Mr. Whitton should state that a track along the river which cost £3,000 is included in the sum of £8,000.

My first idea was to make the tunnels for double line, but on mature consideration of the fact that by the design for single-line tunnel submitted by me to Mr. Whitton, the cost of single-line tunnel is just half of that for double-line, and that it is very unlikely that the traffic on this light-grade line will be sufficiently heavy for many years to need a double line of rails being laid, I think it will be better to make single-line tunnels now and second single-line tunnels parallel or nearly so to those first made for the second pair of rails. The interest saved by this method would amount to the price of the second tunnel in twenty years, hence the reason for the amount of estimate for tunnels being only doubled while the length is trebled.

Page 6 of minute: "In the first estimate the bridges and culverts were to cost £100,000; in Mr. Townsend's revised estimate they are stated to cost £435,340."

Page 6 of minute: "The quantity of earthwork has not yet been furnished to me in a shape in which I can deal with it."

Page 6 of minute: "The first estimate was made without any plans or sections, which is a doubtful way of giving reliable information."

Page 7 of minute: "The total length of this line is stated to be about 104 miles."

Page 7 of minute: "The tunnels alone would cost at least £3,247,000, and I may safely say that the line could not be constructed for less than £5,000,000."

Page 8 of minute: "I therefore suggest that the cost of this survey is so much money thrown away."

Page 9 of minute: "I have considered it my duty to place him (the Minister) in possession of some facts connected with Mr. Townsend's engineering antecedents with which he could hardly have been acquainted."

The increase in cost of bridges is due to my having, as above stated, found that the floods on the Colo and its tributaries were much more serious than I at first supposed. I lay no claim to infallibility, and must acknowledge my indebtedness to Mr. Whitton for the large amount of experience I have gained by having carefully noted his serious errors in the matter of lines liable to landslips, and having allowed insufficient waterway. Bridges are for double line. (See note on last page.)

The whole of the quantities of earthwork are written on the section, and Mr. Whitton was in a position to have dealt with the whole matter on the 11th of January last had he felt so inclined, and had he chosen to send for me to explain my work he might have dealt with the whole matter last October.

Quite so, and yet Mr. Whitton presumes to pronounce me incompetent, because my first rough approximation to an estimate does not agree with my final one. I should be much surprised, in view of the increased works recommended in my survey beyond what I first proposed, if it did, and I only made that first rough estimate at the urgent request of Mr. Wright, then Minister for Works, to whom I stated that it was a most unusual and risky thing to do.

The length of the line is by survey within a few links of 104 miles, within a mile of the length I first stated in my first report, viz., 103 miles, but at that time I purposed joining the Mudgee line nearer Penrith.

£3,247,000 for (say) 21 miles of single-line tunnel—the modest sum of £154,500 per mile. At that rate Mr. Whitton "may safely say that the line could not be constructed for less than £5,000,000. Mr. Whitton is in possession of a memo. from me, giving answers to a series of questions made by him, in which I state "the tunnels are for single line."

As to whether the expenditure on the survey for this line is money thrown away, I can safely leave for the Minister for Works to decide.

With regard to this matter of my engineering antecedents, there is one item that Mr. Whitton can scarcely have forgotten, and which I think it well the Minister should know. In, I believe, 1876, while I was engaged upon a survey for railway extension into the city, I formed the idea that the shipping accommodation at Circular Quay could be largely increased by means of a floating pier extending down the centre of the basin as far as the extreme end of the tongue of land on which Fort Macquarie is situated. In my own time I made a design and estimate for the work, and as at that time Mr. Whitton had always treated me in a friendly manner, I asked permission to show my work to him, which was granted. I was astounded by the anger shown by Mr. Whitton at my having dared to think of such a thing, alleging as a cause for his anger that "I was interfering with Mr. Moriarty's work." After cooling down a little he condescended to look at the drawing and estimate, apparently taking great interest therein, and discussing the value of the idea in a most friendly manner, finally remarking, "Yes, if anything is done in this direction, this is the sort of thing that will have to be adopted; but mind I have set my face against anything being done in this direction, and I will do all in my power to prevent it."

Since that time I have never been allowed to speak to Mr. Whitton, and he took the first opportunity of a reduction in the staff of surveyors for getting rid of me.

Further, I will give the prices of the iron bridges on brick piers and abutments designed by me for the duplication of the line between Parramatta and Penrith. These bridges have spans of 44 feet centre to centre, and are for *double line*, and cost per lineal foot £23. I have taken from some final certificates, given by Mr. Whitton, the following prices of recently constructed *timber* bridges of 40-foot span for *single line*.

Beardy iron bridge—9 spans of 40 feet each.

Cost £8,815, equal to £24 9s. per lin. foot.

Severn River Bridge—13 spans of 40 feet each.

Cost £12,600, equal to £24 4s. per lin. foot.

Bluff River Bridge—10 spans of 40 feet each.

Cost £10,947, equal to £27 6s. per lin. foot.

Average cost, £25 9s. 4d.

I will now give for comparison two examples of iron viaducts from other countries.

The Kinzna viaduct, on the New York and Erie line, for single line, built of iron with alternate spans of about 60 feet and 40 feet, on Phoenix column trestles; maximum height, 301 feet; average height, 178 feet; tested with a whole train of consolidation engines on 4 feet 8½ inch gauge.

Cost under £25 per lin. foot.

Nairn viaducts, S.A., for single line, carry consolidation engines, on 5 feet 3 inch gauge; maximum height of viaducts, 100 feet; average height, 53 feet in 30 feet spans, with discontinuous plate girders, rolled iron cross-girders and bracketed plate deck carrying a ballasted road, built on a curve of $10\frac{1}{2}$ chains radius, and on a grade of 1 in 82, which will materially add to cost of construction.

Cost about £27 14s. per lineal foot, while Mr. Whitton's perishable timber bridges, with an outside life of twenty-five years, for single line, recently constructed on Cobb & Co.'s contract on the Northern Line, cost an average of £25 9s. 4d. per lineal foot.

Page 10 of minute: "I should feel no confidence in either of the gentlemen named to take out quantities, lay down gradients, and prepare estimates for submission to me."

Page 11 of minute: "In all professional appointments for thirty-one years, I have, with one exception (Mr. Townsend), selected my assistants, and my sole desire has been to obtain the services of the best men available."

In the adjoining paragraphs Mr. Whitton makes a direct charge against me of incompetency, yet I am not aware of any outside influence having been used to procure my re-appointment under Mr. Whitton when I rejoined his branch of the Railway Department in 1882, the circumstances of which re-appointment are as follows:—

At the end of 1881 I saw Mr. Palmer, at the request of the Carcoar Railway League, when he came to Carcoar to inquire into the practicability of an alternative line through the town. I explained the matter to him, and offered him a horse that he might ride over the proposed deviation with me the next day. His reply was, "If you have surveyed it, I am satisfied." He then asked me how I was getting on; I said, "Not any too well." He proposed that I should rejoin Mr. Whitton's branch, and I gave him an application for re-employment. I was re-appointed within about a fortnight of date of application, yet from Mr. Whitton's remark, it would appear that I had always been forced upon him.

Again thanking you sincerely for having adopted the somewhat unusual course of allowing a subordinate officer the right of reply to any of Mr. Whitton's charges, and leaving the matter in your hands with full confidence that I shall receive justice,—

I have, &c.,

GEO. WM. TOWNSEND.

NOTE (see page 7).—Bridges are designed for double line, as the extra expense of duplicating large bridges is very much greater than the difference between the cost of a large bridge for double line and that for single line. The viaducts are all designed for single line, as they can easily be duplicated for about the difference in cost between double and single line.—G.W.T.

Railway Survey Office, 28 February, 1888.

The Honorable the Minister for Works,—

Sir,

I have the honor to forward, herewith, copy of supplementary report supplied to Mr. Whitton at his request.

I have, &c.,

GEO. WM. TOWNSEND.

P.S.—To my memo. of 17th instant I have received no reply.—G.W.T.

Railway Survey Office, Sydney, 17 February, 1888.

The Engineer-in-Chief,—

Sir,

I have the honor to forward herewith, plan, section, and supplementary report, giving information on various points that I am informed you have asked for. The quantities of banks are now written on the section as well as mentioned in estimate.

The cross-section sheets I will forward as soon as ready, also disposal-sheets in preparation, of which I have the honor to request that you will allow me the assistance of two draughtsmen so that I may get this work out of hand, as I am in bad health, and the medical man who is attending me informs me that the complaint from which I am suffering may become chronic unless I am able to get away for a change.

I have, &c.,

GEO. WM. TOWNSEND.

P.S.—To this I have received no reply.—G.W.T., 29/2/88.

Railway Survey Office, Sydney, 15 February, 1888.

The Engineer-in-Chief,—

Sir,

I herewith, in accordance with a memorandum shown to me by Mr. Thomas, purporting to be from you, supply information on the various points mentioned in the memorandum in question:—

1. Whether estimate is for double or single line? Single, except the bridges which are designed for double line.
2. Width of formation and gauge? Cuttings, 15 feet; banks, 17 feet; gauge, 4 feet $8\frac{1}{2}$ inches.
3. Weight of rails? Steel rails, 70 lb. per lineal yard.
4. Slopes of cuttings? 1—1, excepting when the cuttings are certain to be in solid rock, when $\frac{1}{4}$ —1 is adopted as stated in report.
5. Quantities in embankment? 4,887,785 cubic yards.

6. Cross-sections to be furnished? Are written on plan; but sheets of cross-sections are being plotted.
 7. Disposal-sheets to be furnished?
 8. Proper estimates of quantities and prices to be furnished? Sent herewith.
 9. Also, section of tunnels showing thickness of lining and length proposed to be lined in each tunnel? Section herewith, also list of tunnels with length of each lined and unlined.

I have, &c.,

GEO. WM. TOWNSEND.

COLO VALLEY LINE—List of Tunnels on first 104 miles.

No.	Length in lineal yards.	Lineal yards lined.	Lineal yards unlined.	No.	Length in lineal yards.	Lineal yards lined.	Lineal yards unlined.
1	96·80	96·80		22	1190·20	1190·20	
2	179·52	179·52		23	1137·40	537·40	600
3	191·40	191·40		24	841·94	441·94	400
4	849·20	849·20	200	25	1977·92	977·92	1,000
5	211·64	211·64		26	1123·60	523·60	600
6	199·76	99·76	100	27	767·80	267·80	500
7	627·00	427·00	200	28	1960·20	960·20	1,000
7½	104·72	104·72		29	1427·80	527·80	900
8	486·20	486·20		30	891·40	591·40	300
9	142·12	142·12		31	315·70	315·70	
10	545·60	245·60	300	32	149·60	149·60	
11	1425·60	425·60	1,000	33	628·00	628·00	
12	1818·40	618·40	1,200	34	772·86	772·86	
13	253·00	253·00		35	607·64	607·64	
14	359·70	359·70		36	2632·96	1132·96	1,500
15	436·04	236·04	200	37	188·10	188·10	
16	1001·00	201·00	800	38	388·30	388·30	
17	630·30	230·30	400	39	476·96	276·96	200
18	2363·70	2363·70		40	2036·10	2036·10	
19-20	2932·60	1432·60	1,500				
21	1936·00	936·00	1,000				
					36304·78	22404·78	13,900

The unlined portions are in positions in which there is strong evidence in favour of heavy beds of solid sandstone being met with, as such are shown in the faces on each side of the spurs in question.

GEO. WM. TOWNSEND.

ESTIMATE for first 104 miles of Colo Valley Line.

			£	s.	d.
5,338,008 cub. yds.	Excavation:—				
250,000 "	Cutting—4,887,785 to bank, 450,223 to spoil	2/6	667,251	0	0
384,762 "	Side cutting	1/6	18,750	0	0
759,642·3 "	Tunnels, unlined (for single line)	10/-	192,376	0	0
	" lined	8/6	322,848	0	0
149,440 "	Lining:—				
16,000 "	Lining 6·67 cubic yards, per linear yard	50/-	373,600	0	0
37,000 lin. yds.	Facing 40 tunnels.....	50/-	40,000	0	0
	Drains	6/8	12,334	0	0
8,417·2 tons ...	Bridges (for double line):—				
	Ironwork, delivered on work	£20	168,344	0	0
	Erection	£4	33,669	0	0
48,178 sq. yds.	Painting	2/6	6,029	10	0
8,971·6 tons ...	Viaducts (single line):—				
	20,390 linear feet, delivered on work.....	£18	161,330	0	0
	Erection	£3	26,914	16	0
144,768 sq. yds.	Painting	2/6	18,096	0	0
	Pedestals for legs of trestles		24,480	0	0
10,314 cub. yds.	Culverts:—				
20 "	Brickwork in cement	50/-	25,785	0	0
18,824 rods	Level crossings (occupation)	£50	1,000	0	0
	Fencing	8/6	8,000	16	0
	Permanent Way:—				
	2,000 sleepers at 4s.	£400 0 0			
	2,640 cubic yards ballast, 35s.....	660 0 0			
	110 tons 70-lb. rails, £6	660 0 0			
	Fastenings	60 0 0			
	Laying to 4 ft. 8½ in. gauge.....	220 0 0			
100,000 cub. yds.	Side drains and creek diversions	£2,000	208,000	0	0
	Platforms and sheds	1/8	15,000	0	0
62 miles ...	Tramway along Colo River		5,000	0	0
20 " ...	Tramway along Nepean and Wheeny Creek	£1,000	62,000	0	0
	Purchase of land for depot at junction of Colo River and Hawkesbury River.....	£1,000	20,000	0	0
3 miles ...	Sidings at, including permanent way		1,000	0	0
	Contingencies and engineering expenses	£8,000	24,000	0	0
			142,703	18	0
	Total.....		2,695,000	0	0

GEO. WM. TOWNSEND.

Copies

Copies of Mr. Townsend's Testimonials.

Double Bay, 24 March, 1874.

To John Whitton, Esq., C.E., Engineer-in-Chief for Railways, New South Wales,—

Sir,

I have the honor herewith to make application for employment in your Department on any extension surveys that you may have at present in hand.

I enclose memo. of railway employment and testimonials.

I have, &c.,

GEO. WM. TOWNSEND.

Memo.—Entered the East Indian Railway Co's. service in June, 1858, as sub-assistant engineer; left that employ at my own request in November, 1860. Was employed on the following works, Central Rajmahal District:—

Seetapahar; length, heavy cutting, 60 feet, and 9 miles of filling with several 12-foot openings, and one 28-feet.

In Head Office, Calcutta, and in District Office, Howrah.

On the Singaruu Valley extension, a line of about 9 miles, to a coal-field near Raneegunge, with Assistant Engineer M'Clure completed the whole of the surveys for this line.

Burrackur extension, a line of about 30 miles, to coal-fields in various positions along the line of the Grand Trunk Road from Raneegunge; set out the side width on 11 miles at the Barrackur end of line; entered the Calcutta and South-Eastern Co.'s service as assistant engineer and left in September of the same year, as I was suffering from fever and ague; was employed on this line principally on the Piallee or lower length between the Piallee River and terminus on the Umtlah River. I put in permanent-way levels for 20 miles and formation levels for 12 of that 20; put in levels for filling for station platform at Untlah; I also set out afresh all the curves on the lower length (12 miles) where a low bank had been thrown up and had been washed down by the rain, hereby obliterating the original stakes; it was on this length (low and swampy) that I caught the fever and ague, or jungle fever as it is there called, which led to my leaving the country, whence I went to England, taking with me all professional papers I had. While in England a gentleman, then at Home from British Columbia (Mr. Muldrum), promised to get me an appointment on the line that was then projected to be run between Canada and British Columbia; I handed to Mr. Meldrum all my papers, and he afterwards told me that he had obtained for me the appointment of assistant engineer.

I then left for Calcutta, where I had left my wife, and proceeded from Calcutta to Melbourne, where I presented a letter I had from Fernie Brothers, of Liverpool, to Messrs. Lorimer, Marwood, & Rome, in which they were requested to give me a first-class passage in any of Fernie's ships that might be going to Callao; thence I should have proceeded to San Francisco, thence to Vancouver Island, but on reading accounts of the projected line I found that it had been stopped, so I remained in Melbourne and obtained employment in the Roads and Bridges Department, there being at that time no extension railway work going on in Victoria (1862).

GEO. WM. TOWNSEND.

I HAVE been employed for the last twenty months in New England, by Messrs Elder, Smith, & Co., of South Australia, and for twelve months previously by the same firm in South Australia, in the erection of various mining works. Mr. J. B. Watt, of Gilchrist, Watt, & Co., Sydney, can say what I have been doing.

GEO. WM. TOWNSEND.

Recommended for an appointment, memo. 24-174 of 2 April, 1874.—W.H.Q.

I recommend that Mr. G. W. Townsend be appointed as a surveyor in this Department, with salary at the rate of £250 per annum, and the usual allowance of £200 per annum for equipment and travelling expenses when actually employed in the field.—J. WHITTON, 2/4/74. Commissioner.

Approved—J.S., 8/4/74. Mr. Townsend informed as per letter, 74-177, of 9th April.—W.H.R. Commissioner. J.W., 9/4/74.

Sir,

9 April, 1874.

I am directed by the Engineer-in-Chief to inform you that the Hon. the Minister for Works has been pleased to appoint you a Railway Trial Surveyor in this Department, with salary at the rate of £250 per annum, and the usual allowance of £200 per annum, for equipment and travelling expenses when actually engaged in the field.

Mr. G. W. Townsend, Double Bay.

I am, &c.,

W. QUODLING.

I recommend that the salary of Mr. G. W. Townsend be increased from £250 to £300 per annum from the 1st of August.—J. WHITTON, 14/7/74. Commissioner. Approved.—J.S., 22/7/74. Mr. Whitton—J.R., 23/7/74.

The Engineer-in-Chief to The Commissioner.
Surveyors' Salaries.

13 October, 1874.

I RECOMMEND that the salaries of the undermentioned Surveyors be increased from the 1st instant, viz:—

First Class.

Mr. Jamieson, from £350 to £400.

Mr. Kennedy, from £350 to £400.

Mr. Stephens, from £300 to £400.

Mr. Stack, from £350 to £400.

Mr. Mann, from £350 to £400.

Second Class.

Mr. Townsend, from £300 to £350.

Third Class.

Mr. Hardy, from £250 to £300,

I

I have felt it to be my duty to make this recommendation to avoid losing all the best surveyors in the Department. Several have already left, and as good surveyors are much wanted in this and the neighbouring Colonies, I fear that unless they are more liberally remunerated I shall lose all those whose services are worth retaining.

JOHN WHITTON.

Approved.—J.S., 20/10/74.

My dear Sir,

University of Melbourne, 6 March, 1888.

It gives me very great pleasure to certify that I have had the privilege of your acquaintance for very many years. First of all, in the Victorian Water Supply Department, where we were engaged more than twenty years ago upon the plans of large schemes of water supply, and more recently in Sydney, where I have for several years past constantly met you, and discussed with you many questions connected with engineering practice. On all these occasions I have been greatly struck with the energy, intelligence, and enthusiasm you have always evinced, whether in the carrying out of experiments to settle debatable points in hydraulic science in Melbourne long since, or in devising new and economical forms of girders, and exploring and surveying new lines of Railway in New South Wales in recent years. I must also express the utmost admiration for the perseverance and endurance you displayed in the first exploration of your proposed Colo Valley Railway, and also for the thorough and scientific system of adjusting the grades in accordance with the curvature of the line, so as to minimize the traction resistance that you adopted in the final survey. I regard this proposed railway as of the utmost commercial importance to the Colony of New South Wales, supplying as it will a direct route to the great interior, possessing grades and curves of the most unusually favorable character which will permit of high speeds, and large loads, and will enormously reduce the wear and tear of both rails and rolling stock as compared with the present Blue Mountain line with its almost impracticable grades, and its endless curves of most undesirable severity. I feel sure that this great scheme of yours must sooner or later be carried into execution, and that its completion will be of incalculable value to Sydney, which will thereby be brought into the most direct and effective communication with Central Australia.

With best wishes for your future success, and assuring you of my high appreciation of the energy and talent you have shown in this your last great scheme,

I remain, &c.,

H. C. KERNOT, M.A.C.E.,
Professor of Engineering.

G. W. Townsend, Esq., C.E.

VICTORIAN ENGINEERS' ASSOCIATION.

THIS is to certify that Mr. G. W. Townsend is a member of this Society. Elected, October 6, 1886.
W. C. KERNOT, President,
J. E. SHERRARD, Hon. Sec.

My dear Townsend,

Urana, 6 March, 1888.

I see that opposition is being raised to your Colo Valley project, and I suspect that this opposition is not prompted by purely patriotic motives. The very fact that a man has done distinguished service to the country as you have done in this matter is sufficient to raise up enemies against him, especially among his seniors in the Public Service. I trust, however, that no opposition to your project will affect your appointment to the charge of the railway surveys in the north and north-west of the Colony. From what I know of your experience as an engineer and as an engineering surveyor, I am certain that the Government could not find a better man for the appointment, and I am equally certain that they could not find one whose claims are anything like equal to yours. Your resignation of a fine appointment in Sydney, and your voluntarily undertaking all the hardships of a survey through the Blue Mountains in order to solve one of the most important problems which this Colony has to deal with, should alone ensure your appointment. You were, I believe, the first to place in a clear light the enormous cost of working the present line over the Blue Mountains, and you were certainly the first to bring forward a feasible scheme for providing for the great and growing traffic of the north-west and west of the Colony. In short, I feel confident that your claims cannot be overlooked, no matter what influences are brought to bear against you.

The appointment which I noticed had been promised to you is one in which your long and valuable experience of railway survey work in India and this Colony, as well as your extensive general experience in engineering, and your intimate knowledge of the Colony, will be just the qualifications you require. It must be a matter of great satisfaction to you, especially at a time when you are taking up a new office, to think that you have been so successful in keeping pace with engineering progress as to earn the professional as well as the personal regard of such a man as Professor Kernot.

I hope matters will be so arranged that the railway surveys will be directly under the new Commissioners. That would be another step in decentralization, and I think a good one.

Yours, &c.,

H. G. MCKINNEY,
M.E., M.I.C.E.

I, ARTHUR BEVAN COOPER, Deputy Surveyor-General of the Province of South Australia, having been applied to by George William Townsend, of Adelaide, licensed surveyor under Act No. 13 of 1859, for a special license under Act No. 22 of 1861, intituled "The Real Property Act of 1861," do hereby specially license the said George William Townsend as a surveyor under the provisions of the said "Real Property Act of 1861," to act so long as he the said George William Townsend shall be a licensed surveyor under the said Act No. 13 of 1859, and no longer.

As witness my hand this 16th day of August, 1869.

ARTHUR B. COOPER.

South Australia.

THIS is to certify that George William Townsend, having satisfactorily proved his qualifications as a surveyor, is hereby licensed for the survey of waste lands of the Crown, either for the purpose of the adjustment of the boundaries of runs, or for the survey of new claims, or for the survey of claims for mineral leases.

16 August, 1869.

ARTHUR B. COOPER,

Deputy Surveyor-General.

Railway Department, Office of Engineer for Existing Lines,

Sydney, 18 August, 1884.

Sir,

The Hon. the Acting Minister for Public Works has, on my recommendation, approved of your appointment as District Engineer, Sydney District, at a salary of £500 per annum, to date from the 1st March last.

G. W. Townsend, Esq., Sydney Station.

I am, &c.,

GEORGE COWDERY.

Recommendation of Mr. G. Townsend for the appointment of District Engineer.

7 August, 1884.

MR. G. TOWNSEND having satisfactorily performed the duties of District Engineer in the Sydney District since the resignation of Mr. Hyndman in February last, I have pleasure in recommending to your favourable consideration that he be appointed permanent District Engineer, and that his appointment and its emoluments should date from that of Mr. Hyndman's resignation.

Commissioner.

GEORGE COWDERY.

Department of Public Works, Railway Branch, Engineer-in-Chief's Office,

Sydney, 20 January, 1882.

Sir,

I have the honor to inform you that through the recommendation of the Engineer-in-Chief, the Honorable the Minister for Works has been pleased to reappoint you as surveyor in this Department, at a salary of £350 per annum, with the usual allowance when employed in the field.

I am, &c.,

Mr. Geo. Wm. Townsend, Camp Walli, P.O., Canowindra Road.

W. H. QUODLING.

You will please note that as the appointment is for temporary services only, it will be terminable by this Department at any time on one month's notice.—W.H.Q.

Department of Public Works, Railway Branch, Engineer's Office,

Sydney, 12 July, 1880.

Sir,

I am instructed by the Engineer-in-Chief to inform you that in consequence of the approaching completion of the railway survey upon which you are engaged, the Honorable the Minister for Works has decided to dispense with your services on 31st August next.

I have, &c.,

W. H. QUODLING,

Chief Clerk.

G. W. Townsend, Esq., Canowindra.

Department of Public Works, Railway Branch, Engineer's Office,

Sydney, 9 April, 1874.

Sir,

I am directed by the Engineer-in-Chief to inform you that the Honorable the Minister for Works has been pleased to appoint you a Railway Trial Surveyor in this Department, with salary at the rate of £250 per annum, and the usual allowance of £200 per annum for equipment and travelling expenses when actually engaged in the field.

I am, &c.,

W. H. QUODLING,

Chief Clerk.

Mr. G. W. Townsend, Double Bay.

Dear Sir,

43 King William-street, Adelaide, 3 April, 1871.

On your leaving the Stirling Reef Company, the Board of Directors think it only justice to you to express their satisfaction at the manner in which you have carried on the work in the capacities of manager, contractor for erection of machinery, and tributer for working claim—the whole extending over a period of nine months.

By order of the Board,

JOHN B. MALEY,
JOHN MORPHETT, } Directors.
JOHN LINDSAY, }

HARRY TURNER, Secretary.

G. W. Townsend, Esq., C.E., Stirling East.

Engineer-in-Chief's Office, Adelaide, January 6, 1869.

THE bearer, Mr. George William Townsend, brought letters of introduction to me from two professional friends in Melbourne, in which they speak very highly of his qualifications, and I shall be glad to hear that he has succeeded in obtaining some suitable engagement. His testimonials, which I have seen, will speak for themselves.

H. S. MAIS,

Engineer-in-Chief.

Victorian Water Supply, Resident Engineer's Office,

Melbourne, 26 November, 1868.

Dear Sir,

I have great pleasure in stating that during the period that you have been engaged as draughtsman under my direction in this Department you have given me every satisfaction, and I have reason to believe that you given every satisfaction to your other employers in this Colony, and I hope that you may be successful in obtaining the appointment which you seek in the survey of the Northern Territory. I should judge that you were well suited for such professional engagement.

I am, &c.,

CLERMONT WILKS,

Mr. G. W. Townsend, Licensed Surveyor, Melbourne.

Overseer.

Sir,

Sir,
 I have the honor to inform you, in reply to your letter of the 30th ultimo from Camperdown, that in the performance of the various surveys allotted to you during the present year in this district you have given me perfect satisfaction, and in the event of your returning to the district I will be glad to avail myself of your services.

Survey Office, Hamilton, 1 November, 1867.
 I have, &c.,
LINDSAY CLARKE,
 District Surveyor.

G. W. Townsend, Esq., Contract Surveyor, Melbourne.

My dear Sir,
 I have great pleasure in bearing testimony to the zeal and ability you have shown during your engagement with me, in carrying out my contract work in the Hamilton District. I regret very much parting with you, and trust that you may speedily find a profitable field for the exercise of your high professional qualifications.

Camperdown, 30 October, 1867.
 I remain, &c.,
R. THORNLEY.

G. W. Townsend, Esq.

Dear Sir,
 At your request we have to state that during the time you were employed at the Potosi Mining Company's (Limited) works you gave great satisfaction, and your services were only dispensed with on account of there being not more work for you to do.

Adelaide, 28 June, 1869.
 Yours, &c.,
CHAS. J. BARRY,
 Chairman.
ISAAC ROWLEY,
 Superintendent.

G. W. Townsend, Esq.

Sir,
 I have much pleasure in bearing testimony to the very creditable manner in which you passed as a Contract Surveyor before the Board of Examiners appointed by this department to inquire into the professional qualifications of gentlemen proposing to undertake surveys for the Government under contract.

Lands and Survey Office, Melbourne, 13 November, 1867.

The surveys subsequently executed by you for the department having received the unqualified approval of the Inspecting Surveyor, conclusively prove your thorough acquaintance with the principles and practice of surveying.

I have, &c.,
A. J. SKEUL
 (For Surveyor-General.)

G. W. Townsend, Esq., &c., Contract Surveyor.

Sir,
 In answer to your letter of yesterday I beg to state that I shall have much pleasure in replying to any reference, which may be made to me concerning you.

Roads and Bridges Office, Melbourne, 11 January, 1867.

Mr. Geo. W. Townsend, "Gloucester Hotel,"
 East Collingwood.

I have, &c.,
JOHN STEAVENSO,
 Assistant Commissioner of Roads and Bridges.

Sir,
 I have the honor, in reply to your letter of the 18th instant, to state that I was favourably impressed with the ability displayed by Mr. Overseer Townsend whilst in this district, and I found him attentive to his duties and perfectly reliable in any statements he had occasion to make.

Wangaratta, 20 January, 1864.
 I have, &c.,
F. RYLEY,
 Road Engineer.

The Assistant Commissioner of Roads and Bridges, &c.

Dear Sir,
 I have yours, dated 26th February (I presume it means April), and am sorry at Mr. M'Crae's report. You had better not return to this district, and I will to-day write to Mr. Turnbull to advise and request that he will appoint you to one more healthy.

East Indian Railway, Central Myrumbed Division, 29 April, 1859.

Yours truly,
FRANK DIGHT,
 Resident Engineer.

To G. W. Townsend, Esq.

DATE of service in East Indian Railway Company's employ:—From September, 1858, to March, 1860, as sub-assistant engineer. Date of service in Calcutta and South-eastern Railway Company's employ as assistant engineer, April, 1860, to November, 1861, when my health completely broke down. I then went to England, and was engaged as assistant engineer by Mr. Meldrum for the Canadian Pacific Line, to to whom I gave all papers I had relating to Indian service. I went back to Calcutta for my wife; on reaching Melbourne, *en route* for British Columbia, I found all work had been stopped, so I remained in Melbourne friendless and unknown.

48, York-street, Lumeah Hill, 15 December, 1862.

I TAKE much pleasure in stating that the bearer, Mr. George William Townsend, has been strongly recommended to me by an old friend of mine residing in Calcutta, who informs me that Mr. Townsend was assistant engineer on the Calcutta and South-Eastern Railway, and is every way deserving of respect and confidence. I may mention that my correspondent is cashier on the same railway.

Mr. Townsend, my friend states, left Calcutta on account of ill-health, intending to proceed to British Columbia.

WILLIAM HAIG, M.D.
 Colony

Colony of Victoria.

WE, the Board of Examiners for the Survey Department of Victoria, having duly inquired into Mr. George Wm. Townsend's qualifications as a surveyor, find him to possess all the requisite field experience and mathematical knowledge, with skill in the adjustment and manipulation of the ordinary modern surveying instruments, and proficiency in details of plotting and construction of maps.

We therefore grant Mr. George William Townsend this certificate, and hereby license him to act as a contract surveyor, in the Colony of Victoria.

CLEMENT HODGKINSON, } Members
A. J. SKEUL, } of the Board.
RALPH SOUL, } Secretary.

Department of Lands and Survey,
Melbourne, 9 April, 1867.

No. 4.

Minute by The Secretary for Public Works.

Department of Public Works, Sydney, 27 February, 1888.

I SHOULD like to have a copy of Mr. Firth's history in the Department, and also Mr. Simpson's.

JOHN SUTHERLAND.

For to-morrow (Tuesday) morning. Mr. Quodling.—Urgent. Information herewith.—J.W.,
pro W.H.Q., 28/2/88. Under Secretary. B.C., Railways—J.R., 28/2/88. A.R., 29/2/88.

In answer to Minister's memo. of 27/2/88, Mr. T. R. Firth entered this Department on 3rd March, 1863, as district engineer, at £500 per annum and allowances; on the 1st September, 1872, he was appointed to take charge of the surveys in the Southern District at £500 per annum and 30s. per day expenses; on the 1st December, 1873, he was placed as district engineer on the Goulburn-Yass Extension, at £500 a year and allowances; and on the 1st January, 1875, was appointed resident engineer, at £700 per annum, allowances, and 30s. a day expenses when absent from district. He took charge of the Great Southern Railway No. 2 extension, on 23rd October, 1876, *vice* Mr. M'Kenzie suspended; and on the 30th June, 1878, Mr. Firth resigned; on the 1st September, 1880, he was reappointed district engineer, which position he now holds. Mr. D. C. Simpson entered this Department as a surveyor, at £300 per annum and allowances, on the 1st June, 1881, and on the 24th December, 1881, he resigned; on the 20th February, 1882, he was appointed district engineer, at £500 per annum and allowances, which position he now holds.—JOHN WHITTON.

Career of D. C. Simpson, A.M.I.C.E. (Communicated.)

Education training completed, 1878. Scotland.

FOUR years at the Aberdeen University. Three years with William Boulton, M.I.C.E.,—works in progress, Aberdeen sewerage and waterworks, and Beith railway. Six months assistant engineer to Easton Gibb, A.I.C.E.; contractor for 18 miles of the Callander and Oban railway, and Dundee waterworks. Thirteen months assistant engineer to Messrs. Blyth and Cunningham M.M.I.C.E., Engineers for all new works on the Caledonian railway system. (Glasgow Central and Carlisle Citadel stations were then in hand, besides a number of extensions.)

January, 1875, to January, 1881.

Appointed a resident engineer for the New Zealand Government, during which time he had charge of 74 miles Napier-Wellington railway, 40 which were constructed and 34 surveyed; the Christchurch-Greymouth railway (East and West Coast) three routes were explored and surveyed—about 300 miles; Greymouth to Nelson railway—explored and surveyed 100 miles; Blenheim to Christchurch railway—100 miles surveyed; Wanganui to New Plymouth railway—surveyed 30 miles; Little River to Akaroa railway—explored 60 miles, surveyed 30 miles, and constructed 18 miles; Canterbury interior main line of railway—surveyed 25 miles and constructed 15 miles.

New South Wales. April, 1881. February, 1882.

Appointed a railway surveyor, and laid out 30 miles of the Homebush-Waratah railway. Appointed a district engineer; constructed the Albury to the River Murray extension and the Cootamundra to Gundagai railway; improved the Nyngan to Cobar railway, not yet constructed.

Passed, at the request of the Government of New Zealand, the examination for authorized surveyors—J. T. Thomson, Surveyor-General.

Minute by The Engineer-in-Chief to The Secretary for Public Works.

Department of Public Works, Railway Branch,
Engineer-in-Chief's Office, Sydney, 1 March, 1888.

Subject:—Report on Mr. Townsend.

I OBSERVE from a paragraph in the public press that Mr. Townsend has replied to my remarks on his survey and estimate of the proposed Colo Valley Railway.

The papers in reference to that matter were sent by me to Mr. Townsend, and under the regulations of the Service they should have been returned through me, and not sent direct to the Minister.

I shall feel obliged if the Minister will permit me to see Mr. Townsend's remarks, as, judging from the newspaper paragraphs the Minister is not in possession of all the facts connected with this subject.

JOHN WHITTON.

Railways.—J.R., B.C., 2/3/88. A.R., 3/3/88. For Minister.—CH.A.G., 5/3/88. I have not yet received all papers in this matter.—J.S., 6/3/88. Place all papers with this.—7/3/88.

I have now been supplied with Mr. Townsend's report and particulars in this matter, and will lay papers on the Table in accordance with the resolution of Parliament. Regarding Mr. Whitton's remarks that Mr. Townsend's reply should have come through him, I did not request that it should come through any other channel, but I claim the right of being above all departmental regulations and red-tapeism. I forward the report as requested, and wish it returned by 3 o'clock, so as to enable me to carry out the wish of Parliament.—J.S., 8/3/88. Received 1.15 p.m.—W.H.Q., 8 March, /88.

As the Minister did not forward these papers to me until 1.15 o'clock p.m. to-day, and requested that I should return them at 3 o'clock, it is evident that no reply from me was wanted by him, although the resolution of Parliament asks for the Engineer-in-Chief's report on Mr. Townsend's plan and estimate. I therefore return the papers.—JOHN WHITTON, 8 March, /88, 1.55 p.m.

Minute

Minute by The Secretary for Public Works,

Subject:—Colo Valley Survey, &c.

Department of Public Works, Sydney, 9 March, 1888.

In the press of business I misunderstood the intention of the motion. The Engineer-in-Chief may have the papers; my desire is to have the whole matter in as complete a shape as possible. I return papers, but wish to have them again on Wednesday morning, the 14th instant.

JOHN SUTHERLAND.

Received 10.30 a.m., 10 March, 1888 (Saturday).—W.H.Q. Report herewith, No. 88-219.—
J.W. (p. W.H.Q.), 15/3/88.

Minute by The Engineer-in-Chief to The Secretary for Public Works.

Subject:—Mr. Townsend's Report on the Colo Valley Survey.

Department of Public Works, Railway Branch,

Engineer-in-Chief's Office, Sydney, 13 March, 1888.

As there is nothing in Mr. Townsend's introductory remarks calling for special attention, I will proceed to deal with his estimate of the proposed railway from Emu Plains to Rylstone.

The following is Mr. Townsend's first rough estimate for this line:—

" 6½ miles tunnelling in short lengths	...	...	£600,000
12 miles at £15,000 per mile	...	...	180,000
25 miles at £10,000 "	...	...	250,000
60 miles at £5,000 "	...	...	300,000
Bridges and culverts (including Grose River Bridge)	...	...	100,000

£1,430,000

" Bridges and tunnels estimated for double line; the road for single line; 37 miles formation double line."

It must be remembered that the estimate as detailed above was made after an inspection of the line, and before any plans or sections had been taken.

Any one less imaginative than Mr. Townsend would be struck with astonishment at the marvellous manner in which he could profess, on a mere inspection, to prepare a detailed estimate for a railway through one of the roughest portions of New South Wales.

Had this report and estimate been sent to me by Mr. Townsend, I should have at once recalled him, as the absurdity of it was apparent.

After Mr. Townsend had returned from his survey and plotted the section of this line, he forwarded the following amended estimate:—

Tunnels	...	...	£1,293,409
Bridges	...	...	225,000
Viaducts	...	...	184,555
Culverts and other openings	...	...	25,785
Level crossings	...	...	1,000
Fencing	...	...	8,000
Earthworks	...	...	667,251
Permanent-way	...	...	208,000
Side drains and diversions	...	...	15,000
Tramway	...	...	62,000
Platforms and sheds	...	...	5,000

£2,695,000

Cubic contents, as given, show that single was intended.—J.S., 26/3/88.

In this estimate nothing is mentioned as to any alteration being proposed by Mr. Townsend to make the tunnels for a single line as afterwards stated by him, and my estimate for tunnels was therefore for a double line.

In Mr. Townsend's first estimate provision is made for 6½ miles of tunnels for a double line to cost £600,000. In the second estimate the length of tunnels has been increased to 20½ miles, to cost £1,293,409.

Mr. Townsend has now made three estimates of the cost of this line:—

1.—Including 6½ miles of tunnels	...	...	£1,430,000
2.—20½ miles	...	...	2,695,000
3.— Do. with a rearrangement of other items	...	...	2,695,000

In the first estimate the cost per yard of tunnels was £52.

I learn from Mr. Townsend that his estimate was £52 per yard double line to Mr. Whitton's section, but not bricked throughout.

Estimate

£36 single line to Mr. Whitton's section, which Mr. Townsend considers extravagant, and bricked throughout.

Line to a section proposed by Mr. Townsend, and which he considers adequate for the purpose, and bricked only where required. (See section attached).*—J.S., 26/3/88.

Quantities will show that this was not the case.—J.S., 26/3/88.

It would be well if all engineers were to do this. It would show them whether the gradings of the line which they proposed were the best to meet the exigencies of the traffic. The omission of this important duty in the past has undoubtedly been detrimental.—J.S., 16/3/88.

As the cost of each is given I do not see that this assumption is a fair one.—J.S., 26/3/88.

The advisability of indiscriminate lining may fairly be questioned.—J.S., 26/3/88.

Mr. Townsend informed me that his viaducts are single, not double; that in estimating £9 a foot he is well within the limit of cost. The average height of his viaduct is about 65 feet. The cost of the Nairne viaduct, £27 14s., is abnormal, and is explained by the published correspondence on the subject; but Mr. Whitton does not quote the other instances given by Mr. Townsend. The Kinzua viaduct, which with

Estimate No. 2, 20½ miles, £36.

Estimate No. 3, 20½ miles, £26.

If any other estimates are to follow it will be difficult to imagine to what amount the tunnels will be reduced. No saving has, however, been effected thereby, as the amount taken off the tunnels has been used to increase the cost of other items.

The first and second estimates were intended no doubt for double line tunnels, and it was not until I asked Mr. Townsend whether the line was intended to be a single or double one, principally with regard to earthwork and permanent-way (as the tunnels had been stated as for a double line), that he realized the desirability of making the tunnels for a single line.

I have never before had submitted to me such marvellous reports as those of Mr. Townsend; they are, to say the least, and without being unnecessarily emphatic, very peculiar, and exhibit such a wandering disposition that there is really nothing tangible about them.

Judging from my own experience, which has been considerable, I can say that such inconsequential documents I had never previously seen.

Not content with mystifying in every possible way the things he attempted to explain, he has mixed up with the Colo Valley estimate his ideas of the cost of working the traffic likely to be obtained, and the profit to be derived from it. And, as if this were not sufficient mystification, he introduces an imaginary line from Rylstone to 10 miles beyond Dubbo, being a length of 110 miles for which no surveys have been made, and which he declares can be constructed at £7,000 a mile, and makes an average between the cost of the Colo Valley and this imaginary line, extending over a total length of 214 miles, being £16,192 per mile.

It is obvious why these are averaged. It is simply to make an apparent reduction in the cost of the Colo Valley line; but as one portion is very much under-estimated, and the cost of the other portion is acknowledged as a guess, it is somewhat difficult to say which is the more reliable.

I give below an approximate estimate of the cost of the Colo Valley line on the assumption that the quantities furnished by Mr. Townsend are correct.

20½ miles tunnels, double line, as originally stated by	£
Mr. Townsend, at £90 per yard	3,247,200
6,860 ft. bridges, double line, at £60 per foot	411,600
20,193 ft. viaducts, double line, at £36 per foot	726,948
20 level crossings	1,000
18,824 rods fencing, at 8s. 6d.	8,000
5,338,008 cubic yards earthworks, at 3s.	800,701
104 miles permanent-way, at £2,500	260,000
180,000 side-drains and diversions, at 1s. 8d.	15,000
Station arrangements, and sidings, &c.	40,000
	<hr/>
	5,589,449
Contingent and engineering expenses, 10 per cent. ...	558,944
	<hr/>
	£6,148,393

I believe the prices I have given above are fair and reasonable; and I have assumed that the tunnels will have to be lined throughout, as this has been done to all tunnels carried out under my direction in the Colony.

In Mr. Townsend's report (after survey), he states that "the whole of the viaducts proposed will be under £9 per foot, in position. The heights, as will be seen from the list, vary from 10 feet to 243 feet." These viaducts are for double line.

From Mr. Townsend's report, dated 22nd February, 1888, I extract the following:—"The Nairne Viaduct (South Australia), for single line, carries consolidation engines on 5-ft. 3-in. gauge; maximum height, 100 feet; average height, 53 feet; cost, about £27 14s. per lineal foot." In the face of this statement of the actual cost of the Nairne Viaduct (which I know to be about correct), Mr. Townsend states that the viaduct on the Colo Valley Line can be erected for £9 a foot for double line, while the Nairne Viaduct, for a single line, has actually cost £27 14s. per foot. Mr.

* See Appendix.

an average height nearly three times in excess of the average height of his viaduct cost only £25 per foot. If they could build (with iron at £29 per ton) at £25 per foot, with an average height of 178 feet, Mr. Townsend is quite sure that with iron at £20 a ton in position he could build viaducts at £9 per foot, with an average height not exceeding 65 feet. As I have said the quantities given by Mr. Townsend in his two last estimates show that in both he estimated for single viaducts.—J.S., 16/3/88.

This may be all very well as a contrast between Mr. Whitton's estimate and Mr. Townsend's estimate; but this is not what the Government require. If Mr. Whitton can show that single line viaducts and single line tunnels are inadequate, then of course we must have them both doubled, but for the mere purpose of swelling Mr. Townsend's figures such calculations are useless not to say mischievous.—J.S., 26/3/88.

As a pure piece of official doctrine, this announcement of what should be the controlling principles is absolutely unanswerable, but it has no application to the present case. Indeed, the safety of the inferior officer, and not the superior officer, is in question. Mr. Whitton has branded Mr. Townsend as an incompetent officer, and I have permitted Mr. Townsend, under the peculiar circumstances of the case, to show cause, if he could, against such assumption. The safety of the superior officer is not in question, and even if it were I must take occasion to say that in a matter of this kind, affecting as it does the general interests of the country, the safety of either superior or inferior officer is comparatively unimportant.—J.S., 26/3/88.

In the copy of the document which Mr. Whitton sends me with this report, I see that Mr. Townsend says in paragraph 9, referring to the documents and plans forwarded, "also section of tunnel showing thickness of lining, &c." It is therefore clear that the design was forwarded to Mr. Whitton, and his statement, that Mr. Townsend is trusting to his imagination, falls to the ground.—J.S., 26/3/88.

Mr. Townsend is so reckless that no dependence can be placed upon his statements. His first estimate was for double line tunnels, bridges, and viaducts. Nothing is said in his second estimate to disturb this arrangement, except an increased cost in the total estimate. In his third estimate the total amount is the same as the second with a considerable shuffling of the various items, and an alteration from double line tunnels to single line, with bridges for double line and viaducts for single line. I am not disposed to permit him to wander about in this manner. I have therefore made my estimate of the cost of this line on his previous statements, of double line tunnels, bridges, and viaducts.

With reference to Mr. Townsend's remarks about my refusing to see any subordinate officers, and "that no subordinate officer in Mr. Whitton's branch dares to think of going to see Mr. Whitton," I may be permitted to say that if all the surveyors I have had interviews with had so misrepresented what I said, as Mr. Townsend has done, I consider that I would have exercised sound judgment in refusing to see them. If Mr. Townsend means that I have never encouraged a subordinate officer to make complaints against his superior officer, he is quite right. I have never promoted or fostered insubordination, and I never will; but I have never refused to entertain a complaint from any subordinate officer if brought before me in a proper way. The most certain way to destroy a department is to encourage insubordination, and no superior officer is safe if such a vicious system be permitted.

Mr. Townsend says, in his report of 22nd February to the Minister: "My first idea was to make the tunnels for double line, but on mature consideration of the fact that by the design for single line tunnel, submitted by me to Mr. Whitton, &c." I am not in the least surprised at this statement, but I merely wish to remark that no such design was ever submitted to me; but, as I have previously stated, there is no limit to Mr. Townsend's . . . imagination.

Mr. Townsend says the Engineer-in-Chief has been in possession of all information for making an estimate of this line since December. In his report of February 17th he acknowledges that the cross sections are not ready, and without them no earthwork quantities in such rough ground can be correctly estimated, nor without the disposal sheet, which was asked for from Mr. Townsend but not supplied, can it be seen whether the banks will be made up with excavations from cuttings or tunnels, or whether the leads will not be so long as to demand a higher price for the excavation.

With

Copy has not been attached as stated, but it is not important.—
J.S., 26/3/88.

In no way attributable to Mr. Townsend.—J.S., 26/3/88.

This is new matter introduced by Mr. Whitton, and cannot be dealt with here. He is wrong in the figures he gives, and I understand that the real expenditure was swelled by several items which were not included in the original estimate.—J.S., 26/3/88.

I do not see how Mr. Whitton reconciles this statement of what Mr. Townsend would have preferred with Mr. Townsend's actual report, which Mr. Whitton had before him when he was writing this paragraph. Mr. Townsend says:—"I have been careful to adopt solid piers wherever they are liable to be exposed to drift from floods, and have only used the light open trestle work in country on which the trestles cannot possibly be exposed to floods."—J.S., 26/3/88.

The present Western line will have quite sufficient to do in a few years if its traffic is confined to that developed between Penrith and Orange.—J.S., 26/3/88.

With reference to Mr. Townsend's statement about an interview he had with me as to his proposal to construct a floating jetty at Sydney Cove, I can merely repeat that the imaginative faculty, which never deserts him, has been at work again, but fortunately I have the correspondence on the subject, and append a copy of it. This hardly bears out Mr. Townsend's detailed account of our interview.

Mr. Townsend has called my attention to some iron bridges which, he says, were designed by him for the duplication of the Western line between Parramatta and Penrith.

I have been told that these bridges have not been erected in accordance with Mr. Townsend's design, but were considerably strengthened, and even now they are not considered satisfactory.

The abutments also to some of these bridges have shown signs of weakness, and additions and repairs are being made to them.

Mr. Townsend, I understand, made the estimate for duplicating the line from Parramatta to Penrith, which was about £75,000, and the actual cost was about £160,000.

Full particulars of these matters can be obtained from the Existing Lines Branch.

In comparing the cost of bridges erected by me on the railway from Glen Innes to Tenterfield with the iron bridges said to have been designed by him on the line between Parramatta and Penrith, Mr. Townsend is not only insubordinate but impertinent, and he would have found himself more usefully employed in defending his estimate of the Colo Valley survey.

With his usual want of perception he suggests that iron bridges, supported on iron trestles, would have been better and cheaper. But as the bridges he refers to as built by me are over rivers in which very heavy floods occur, carrying large trees and brushwood at great velocities, it is certain that the first flood would have carried away the skeleton-like supports of the iron bridge recommended by him.

The iron bridges referred to by Mr. Townsend have no doubt been erected under very different circumstances and conditions.

I think I have now wasted sufficient time over Mr. Townsend, and will only give one more quotation from his report.

He says, "That it is very unlikely that the traffic on this light grade line will be sufficiently heavy for many years to need a double line of rails being laid; I think it will be better to make single-line tunnels," &c. So that the original and second estimates for double tunnels having been found to be absurdly insufficient, Mr. Townsend suggests that, as the traffic will be small for many years, single line tunnels only will be required.

But it was to relieve the heavy traffic over the Western line that this work was suggested and insisted upon, and to avoid what are considered the heavy grades between Rylstone and Mudgee it was proposed by him to make a new line of railway in connection with this Colo Valley route from Rylstone to 10 miles beyond Dubbo, which would of course provide two lines for the traffic of the far West, but would not relieve the Western line of the local traffic between Dubbo and Sydney, and instead of providing for the alleged congestion of traffic between Penrith and Bathurst, this line would, if constructed, simply be used for the comparatively small amount of traffic beyond Dubbo.

I have had so little time given me to reply to Mr. Townsend's report to the Minister that I may have overlooked some important matters which require explanation, but if the Minister will kindly point out any omission on my part, I shall have pleasure in supplying any further information on the subject.

JOHN WHITTON.

[Schedule of papers attached to Mr. Whitton's minute laid on Table of Legislative Assembly on 26 March—See Further Return.]

No. 7.

Minute by The Secretary for Public Works.

Alleged incompetency of the Officers nominated by the Secretary for Public Works to superintend and conduct, under the Engineer-in-Chief, the future Railway Trial Surveys—Minute of the Engineer-in-Chief of 14th February, 1888.

HAVING before me now the reply of Mr. Townsend to Mr. Whitton's minute, charging him with incompetency, based upon the ascertained discrepancy between Mr. Townsend's rough estimate before survey of the Colo Valley Railway, and his detailed estimates after actual survey, I am in a position to deal with Mr. Whitton's representations.

And first with reference to my decision that two high-class surveyors were to be entrusted with the surveys of trial lines, instead of one as proposed by Mr. Whitton, and to that gentleman's statement that an extra expenditure is involved by my proposal, of £700 a year. We

We have expended on the railways of this Colony some thirty millions of money in a period of as many years. It will not be denied that in the location of the lines many mistakes have been made; it is probably unnecessary to particularize them, but I may mention one notable error, and that is the line between Picton and Mittagong: The maximum grade on the route chosen is 1 in 30 for nearly 3 miles, limiting the train load to some 70 or 80 tons, while recent surveys have shown that in a less distance, and at a less cost, a route was in existence with grades not exceeding in severity 1 in 60, and admitting of the haulage of a train load of 160 tons. Instances of this kind can be multiplied, they are known to many, and while such errors in a large system of railways, admirably carried out in many respects, may be inevitable, it must be admitted that, if by an expenditure of £700 a year, or even a larger sum, in strengthening the capacity of the staff entrusted with the trial surveys, such errors may be removed or even mitigated, the outlay would be not only a justifiable one but the refusal to incur it would be indefensible.

It was with the conviction that better located lines could have been secured for our railways if the talent employed to make the trial surveys had been of a higher order, that I suggested a new departure in this respect. I, of course, make no reference in this remark to the individual abilities of the Engineer-in-Chief. That portion of his duties he has entrusted to others, and I believe I am right in saying that, with almost immaterial exception, Mr. Whitton has supervised the survey of trial lines in no other way than by an examination and revision, in the office, of the surveys and plans submitted to him by his subordinates. Mr. Palmer, was the engineer for trial surveys, and to him was entrusted the duty of supervising the surveyors in the field, but, owing to the number of miles of country under exploration and survey, it was impossible that one officer could give that individual supervision of the surveyor's work which was indispensable to the obtaining of the best results, and carry on at the same time the supervision of a large office staff in Sydney, in which latter service he was engaged nine months out of the twelve. If Mr. Palmer was unable to do this I am quite sure that Mr. Firth, whom Mr. Whitton recommended for the post, would be unable to accomplish it. Mr. Palmer was comparatively a young, active man, possessing energy and perseverance and with physical power to resist fatigue very much greater than that possessed by Mr. Firth, who, from age, and from the indulgence of late years in a life of ease and comparative leisure, is unfitted to undertake the active duties appertaining to the exploration and survey of new country—often inaccessible, except to those possessing untiring energy and indomitable perseverance, and who can endure the exposure and hardships inseparable from such a calling.

Mr. Townsend has given evidence, by his successful survey of the Colo Valley (previously unexplored because it was deemed to be impenetrable), that he possesses in a high degree these qualifications. It was at his own instance that this arduous undertaking was carried out. That he possesses constructive ability is evidenced by the fact that he is the designer of girders for bridges, which are admitted by competent authority (Professor Kernott, of the Melbourne University, and Professor Warren, of our own University) to be in every sense admirable for lightness and strength and economy in cost. I am satisfied that his able reply to the charges of incompetency preferred against him by Mr. Whitton will be accepted as convincing proof of his ability to faithfully carry out the duties which I have proposed to entrust to him, and he has vindicated his claim to be recognized as a competent and valuable officer of the Government.

Mr. Whitton asks me to brand Mr. Townsend as an incompetent and unreliable officer, because his first rough estimate of the cost of the Colo Valley Railway has, after actual and detail survey, been exceeded. He infers that this survey would not have been authorized by Mr. Secretary Wright but for Mr. Townsend's representation that the line could be constructed for £1,500,000. Mr. Townsend explains the circumstances under which the estimate was made, and also the reasons why it has been exceeded; but, as a matter of fact, it was not Mr. Secretary Wright who authorized the survey. I find that it was authorized by Mr. G. R. Dibbs, who was acting for Mr. Wright during that Minister's absence on account of ill-health extending over several months, and in the minute which authorized the survey Mr. Dibbs gives very good reasons for his action, and makes no reference whatever to the estimated cost of the line. The minute is as follows:—

“Now that the railway proposals of the Government contain a proposed line to Wilcannia, and as heavy extensions will no doubt be sanctioned out westward, it becomes more than ever desirable that a trial survey of the route indicated herein should be made. This survey will of course be made in Mr. Whitton's Department, but Mr. Townsend is to be placed in charge of it under the Engineer-in-Chief.—G.R.D., 15/8/84.”

Mr. Townsend explains that his rough estimate has been exceeded chiefly because he has found it necessary to provide for 21 miles of single tunnel instead of $6\frac{1}{2}$ miles of double tunnel, as originally contemplated by him. He says that the substitution of tunnelling for open cutting has been proposed for the purpose of escaping from the risks of slips from a treacherous formation, which have proved so disastrous through a disregard of this precaution on the Mudgee line of railway. If I am to condemn Mr. Townsend for this alteration in his plans, and for the discrepancy between his two estimates, amounting to 87 per cent., what am I to do in the case of the North Shore Railway? Estimates for both these works were given under like circumstances—that is, without previous survey. £140,000 was placed on the Estimates, and voted as the cost, at all events, the part cost, and presumably the approximate cost of this line of railway, but after survey and detailed plans had been prepared, Mr. Whitton's estimate was over £700,000, not 87 per cent. in excess, as Mr. Townsend matured estimate of the Colo Valley Railway turns out to be, but 400 per cent. in excess. Mr. Whitton's explanation of this discrepancy has been made, but I think his first estimate must have been deemed by the Government of the day to have been approximately correct, or the amount would not have been placed upon the Estimates in the shape it was. It was subsequently voted by Parliament without any explanation or correction by Mr. Whitton at the time.

If I am to accept at Mr. Whitton's instance the discrepancy between Mr. Townsend's rough and matured estimates as evidence of his incompetency, how am I to justify my consistency if I ignore such evidence in other cases? I have before me now Schedules of quantities of some of the Railway contracts, which

which have been completed, not approximately estimated before survey, but after detailed survey, and subsequent to the staking out of the line for contract, and I find such discrepancies as the following :—

Estimated quantities.		Quantity for which Contractor was paid.	
Ironbark timber	150,000 cubic feet	83,925 cubic feet.	
Hardwood in piles	78,000 lineal "	37,486 lineal "	
Do. do.	20,000 " "	5,117 " "	
Wrought-iron work in bolts	435,000 lb.	273,389 lb.	
Painting bridges	80,000 sup. yards	57,579 sup. yards.	
Ballasting permanent way	62,000 lineal "	114,041 lineal "	
Laying permanent way	68,000 " "	121,611 " "	
Excavations	2,040,000 cubic yards	2,480,000 cubic yards.	
Do. diverting watercourse	5,000 " "	13,458 " "	
Brickwork to culvert	14,000 " "	6,270 " "	
Ironbark timber	41,000 " feet	59,674 " feet.	
Hardwood planking	12,000 " "	27,916 " "	
Ironwork	132,000 lb.	238,352 lb.	

Mr. Whitton draws attention to the expenditure incurred on the Colo Valley survey, which he says is nearly £8,000. £3,000 of this amount has, however, to be debited to the track made to enable provisions, tools, and materials to be conveyed, leaving a balance of £5,000 for the actual survey and the preparation of plans, &c. Mr. Whitton considers this money thrown away. But by this expenditure we have the existence of a practicable route demonstrated. It would be interesting to know how much money was expended in trying, unsuccessfully, to find a route by the Grose Valley. The surveyors were beaten back by the difficulties they met with. Whether they possessed the indomitable energy, the continuity of effort and determination displayed by Mr. Townsend, who almost single-handed has accomplished that which they failed to accomplish, I do not know, but I know their labours bore no fruit, and that they cost the country over three times the sum which Mr. Townsend's surveys have cost, with such a different result.

It is not necessary that I should dwell further upon this aspect of the case, except to express my belief that when Mr. Whitton completes his investigation of the survey and works of construction proposed for the Colo Valley line, he will see reason to modify the opinion he expresses of its probable cost. Such a difference as there is between £2,695,000, estimated by Mr. Townsend, and £5,000,000, estimated by Mr. Whitton, is unexplainable, except on the assumption that there is a misapprehension of the character and cost of the works proposed. Even if Mr. Townsend's figures should swell from £2,695,000 to over £3,000,000, the saving that would be effected on the *present* costly running over the severe grades of the Blue Mountains, would represent a sum in excess of the sum to be paid for interest on the larger amount, and especially so if to meet the growing traffic the line from Penrith to Bathurst has to be doubled. I would remind Mr. Whitton that, owing to the limited load that can be taken over the Blue Mountains, we have to run for present traffic fifty-two trains daily. I see by Mr. Townsend's report on his survey of the Colo Valley line that while thirteen loaded trucks is the maximum load over the mountains, by the grades and curves which he has secured for the Colo Valley routes sixty trucks will be the load. If twelve trains would do the present work instead of fifty-two, as would seem by this calculation to be the case, the saving in working expenses would be enormous, and in ten years from this, when we may reasonably expect the present traffic to be doubled, the necessity for this Colo Valley line will be imperative. The interest upon the capital, even if the line cost £5,000,000 (an estimate which there is reason to believe is excessive), would be under £200,000 a year, and the saving effected on working expenses by the adoption of the easier graded line would annually exceed that amount.

I have now to deal with my nomination of Mr. Simpson for one of the positions referred to: I selected this gentleman because of his proved capacity, as evidenced by his resurvey of the line from Nyngan to Cobar, and the improvements he effected therein. It will be in Mr. Whitton's recollection that his first estimate for this line was £263,500 without land, and that amount was voted. Subsequently he made an estimate by which the cost was shown to be £241,661. It was understood that every exertion had been made to make this a cheap line. To this end Mr. Secretary Lyne insisted upon a modified specification, and when that Minister pointed out discrepancies in the specification submitted, Mr. Whitton had to explain that it had been prepared hurriedly, and had since been remodelled to a great extent. The line as finally submitted had gradients of 1 in 40, and there were 60,000 cubic yards of excavation, exclusive of side cutting. After an interval of some months, during which tenders were invited and received, and the question of the reproductive character of the line discussed, it was determined to resurvey and cross level portions of the line to get the best possible section with lighter gradients. After there had been expended upon this line the engineering talent of the Department to secure the most economical route, it was rather surprising to find that Mr. Simpson, who was detached for this service, managed to get a line with improved gradients, the maximum of which did not exceed 1 in 50, and this without any increase in the cost of the line, but actually with a small reduction on that cost. The importance of this improvement can best be estimated by the reply which the Assistant Locomotive Engineer has given to the inquiry made by the Commissioner for Railways, as under:—

"Send copy of original grade of this line and the grades as now submitted to Mr. Scott, and ask him to say what difference in the load in tons the improved grades will admit of being hauled?"

The reply of the Assistant Locomotive Engineer is as follows:—

"It will increase the hauling capacity of the engine fully 60 per cent.—that is, if an engine can haul 100 tons on original grade, it can haul 160 tons on proposed reduced grades."

It was for this reason, and because I had received very favourable testimony of Mr. Simpson's general ability, and of his willingness to give effect in every way in his power to the desire of the Government for cheap railways—in connection with which light as opposed to heavy grades, are such an important factor, that I recommended him for the position of Engineer of Trial Surveys for one of the two subdivisions—to take charge of the surveyors in the field, and to actively superintend their work.

I cannot admit that Mr. Whitton's minute of 14th February has weakened my conviction that in selecting Messrs. Townsend and Simpson for this special service I was utilising to the best purpose the resources of the Department, and I am convinced that I have obtained the services of the best men available.

3rd March, 1888.

JOHN SUTHERLAND.

SINCE writing the above I have read Mr. Whitton's reply to Mr. Townsend's report. I may say that a good deal of Mr. Whitton's paper is simply repetition of what he has said in previous reports. Where it has been necessary to comment upon any new matter which he has introduced, I have annotated my remarks in the margin. It is unnecessary to extend the correspondence, and if Mr. Townsend suffers thereby, he must be content to know that he has already been allowed a good deal of latitude which is not usually given to subordinate officers.

16th March, 1888.

JOHN SUTHERLAND.

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

COLO VALLEY RAILWAY SURVEY.

(FURTHER PAPERS CONNECTED WITH.)

Ordered by the Legislative Assembly to be printed, 27 March, 1888.

FURTHER RETURN (*in part*) to an Order of the Honorable the Legislative Assembly of New South Wales, dated 28th February, 1888, That there be laid upon the Table of this House,—

“Copies of all reports, papers, &c., connected with the Colo Valley Survey, including Mr. Surveyor G. W. Townsend’s final report and the Engineer-in-Chief’s report on the plan and estimate.”

(*Mr. Frank Farnell.*)

SCHEDULE.

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No. 1.

Memo. from The Engineer-in-Chief to Mr. E. R. Thomas.

Department of Public Works, Railway Branch,
Engineer-in-Chief’s Office, Sydney, 24 October, 1887.

I RECEIVED from Mr. Townsend, on the 21st instant, an extraordinary document, which he calls a report upon the cost and works of the proposed Colo Valley Railway, which he has surveyed from Emu Plains to Rylstone, and of a railway, *which he has not surveyed*, from Rylstone to 10 miles beyond Dubbo.

I also received the section of the Colo Valley line, which is only in pencil, and affords little information which can in any way justify the conclusions arrived at by Mr. Townsend as to its probable cost.

I desire to have the section properly finished, showing gradients, cuttings, with cross sections, tunnels, bridges, and viaducts, so that something like an approximate estimate can be made.

Mr. Townsend should confine his remarks to facts, which are alone wanted, and the imaginative portion of his report might, with obvious advantage, be struck out.

625—A

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The

The section, when finished, should have the quantities carefully taken out of all cuttings, viaducts, tunnels, bridges, and culverts, so that I can have them checked, and satisfy myself, not only as to Mr. Townsend's calculations, but also of the sufficiency of the prices he has adopted for each separate work, and be in a position to give my own report to the Minister as to the probable cost of this line before its submission to Parliament.

The report is now forwarded to Mr. Townsend for revision, to be returned when the information asked for has been prepared and can be furnished.

Mr. Townsend's report in its present state is of no value whatever.

JOHN WHITTON.

An amended report has been furnished by Mr. Townsend, which appears from your memo. of the 11th instant to be still very incomplete.—E.R.T., 12/1/88. Engineer-in-Chief.

No. 2.

Mr. G. W. Townsend to The Engineer-in-Chief.

Sir,

Railway Survey Office, Sydney.

I have the honor herewith to forward my report on the Colo Valley survey, and exploration of extension therefrom westward.

The plan and section are finished, and will, I presume, be sent over by the officer in charge of this office.

I have, &c.,

GEO. WM. TOWNSEND.

Received, 3/1/88, 1 o'clock p.m.—W.H.Q. Additional information asked for by memo. 87, 11/1/88. Plan and section returned to Branch Office.

[Enclosure.]

The Engineer-in-Chief,—
Sir,

Sydney, 8th October, 1887.

I have the honor to forward herewith report on the Colo Valley Railway survey.

Length of Line.—The survey of the above line leaves the Western Line at 36 miles 2,564 links, and, as at present staked, touches the Mudgee line near Rylstone at 140 miles 25 chains by the Colo Valley line, against 156 miles 5,230 links by the Mudgee line,—both distances being reckoned from Sydney. The length of line to be constructed being 103 miles 7,936 links.



Tunnelling (see p. 5, &c.)—To ensure safety from landslips, which are dangerously prevalent on some portions of the Colo River, I have increased the aggregate length of tunnels from 12 miles (as I first estimated it) to 20 miles 5,714 links; thus largely, but, I am sure, judiciously adding to the first cost of the line. (See further remarks on pages 5 and 6.)

Grades (and on p. 9, &c.)—Summit Level.—The ruling gradient is 1 in 100, and the highest point on the line, which occurs at the Rylstone end of the tunnel through the dividing range, is 2,228 06 feet above high water-mark, Sydney.

Radius of Curves.—The sharpest curve adopted is 20 chains radius, which I consider is the smallest radius admissible on a light grade line on which high speed will be obtainable.

Survey.—In many places the survey is merely a traverse along the only foothold obtainable, and the proposed line is put on the plan and section in such parts in blue, the levels being deduced from cross sections, which have been carefully taken at every traverse station. The traverse is well staked and marked, bench marks at each $\frac{1}{2}$ -mile.

Bridges and viaducts.—The cost of bridges and viaducts is prepared from designs that I have from time to time made for the work, the limit strain on any portion of these structures in no case exceeding 4 tons in tension and 3 tons in compression, with the heaviest working load that can be brought upon them in practice added to the fixed load. The viaducts are composed of light iron and steel girders, carried on trestles formed of rectangular columns well braced together, each column

being formed of four parts  of shallow trough section iron rivetted together through the flanges, similar to the manner in which the Phoenix columns are formed of  segmental section iron. No column will be exposed to a working strain exceeding 2 tons per square inch of sectional area (see p. 6).

Culverts.—There are no expensive culverts; but I have allowed ample water-way in every gully or depression in which water can collect to the possible injury to the line; in spans exceeding 3 feet where the banks are shallow I propose using rolled girders for superstructure, carried on brick or concrete abutments. Where openings of considerable width occur in high banks, in which expensive retaining walls would be needed to carry the superstructure, or in which very long culverts would be needed by reason of the great extent of the slopes, I propose to put in viaducts of sufficient length to keep the toe of the bank clear of the highest flood level in the creek or water-course in question. Estimated cost, 50s. a cubic yard.

Earthwork.—There will be a large amount of earthwork—viz., 5,338,008 cubic yards from cuttings, and 1,486,700 cubic yards—including outlets from gallery tunnels—from tunnels. The slopes of cuttings, I have in every case taken at 1 to 1 (one to one), excepting where there is a certainty of solid rock, and have put the price at 2s. 6d. per cubic yard. I see the Mudgee line was let at from 2s. 8d. to 2s. 7½d. per cubic yard; and in this case, owing to the facilities given for carrying on work by the proposed tramway, there is no doubt that the earthwork will be taken for 2s. 6d. per cubic yard, or under that amount, for the sandstone worked on a face in heavy cuttings can be worked just as cheaply as earth. The stuff excavated from the tunnels will, in many instances, be available for filling when required. I estimate tunnel excavation at 8s. 6d. per cubic yard.


Tramway.—For the purpose of transporting contractors' plant and material along the rough portion of the line, it will be necessary to make a narrow-gauge tramway (say) 2-foot gauge from the wharf at the deep water on the Colo River, to which ocean steamers can come, to about the Old Main Camp at the running stream on the Capertee River, a distance of 62 miles, at a cost of £1,000 a mile, including rolling stock (say) £62,000. By this means, all difficulty of transport will be eliminated, and the rough portions of this supposed inaccessible country will be more easily reached than are many apparently more accessible places. The crossings of the various creeks will be by inexpensive temporary structures, and the distance given (62 miles) allows for running round all bends of the river, while the narrow gauge proposed allows the use of curves of 50 links radius, by which means the sharpest points on the river can be easily and cheaply worked round. A maximum grade of 1 in 20 may safely be adopted on a temporary line of this sort by using suitable engines, thus allowing an easy, inexpensive track to be obtained, the survey for which can be carried on by the contractor simultaneously with the works, for no plans or sections will be needed for such a work, which will follow closely the traverse along the river.

Tunnelling.—To ensure safety from landslips, which are dangerously prevalent on some portions of the Colo River, I have deemed it judicious to increase the aggregate length of tunnelling from 12 miles, as I first estimated it, to 20 miles 5,714 links, thus largely, but I am sure, in view of future saving in maintenance, judiciously increasing the first cost; wherever I have noticed during two years close observation a tendency to landslips, I have, though in some cases in positions in which a good section could be shown at a moderate cost, thrust the line back into tunnel regardless of the necessity of considerably

considerably exceeding my first rough approximation to an estimate given after my first examination of the Colo River. Many places that, at a first glance, looked safe have proved, on further examination, to be liable to heavy landslips, owing to heavy masses of rock embedded in a red cloggy soil having the appearance of solid rock; again, in some parts of the river, what at first appeared to be solid cliffs of sandstone to the water's edge, proved, on closer examination, to be in their lower parts composed of the upper portions of the coal measures which fret away with the weather, and allow the superincumbent rocks to fall in sometimes enormous masses, but having during two years carefully examined this part of the line, I feel confident that if I have erred it is on the side of safety in putting too much tunnelling. In many parts of the tunnels the rock will be found solid and sound enough to stand without lining as is the case with one short length of tunnel used as an over-bridge on the Blue Mountains, in which the pick-marks are as clean and sharp to-day as when they were first made in dressing the surface.

In some cases the tunnels will require lining throughout, but I do not think inverts will in any portion be needed. I have estimated the cost of tunnelling at £62,485 a mile, lining and facing 50s. a cubic yard.

Viaducts (continued from page 2).—The total length of viaducts will be 20,390 feet, built of iron and steel, somewhat on the pattern of the Ringera Viaduct on the New York and Erie line in the United States of America. Each trestle will be

formed of four columns of a rectangular section,  thoroughly well braced together. The greatest strain upon any

column will be 2 tons per square inch of sectional area. These viaducts are easily and cheaply constructed, can be carried to a great height (the maximum height of the Ringera structure being 301 feet), are very strong in proportion to their weight and cost, and, from the low unit strain adopted, will be very durable. I have paid great attention in these designs to lateral bracing, both as regards rigidity against swaying and wind pressure. I have been careful to adopt solid piers wherever they are liable to be exposed to drift from floods, and have only used the light open trestle work in country in which the trestles cannot possibly be exposed to floods. The average cost per lineal foot of the whole of the viaducts proposed will be under £9 per foot in position. The height (as will be seen from the list) varies from 10 feet to 243 feet, and the length from 40 feet to 2,240 feet, which last occurs at the crossing of the Bogie River, in the Capertee Valley, the average height of this structure being 70 feet. The columns forming the trestles will be set in concrete beds.

Bridges.—The bridges on this line will be as follows:—

At 46 miles 15 chains, a bridge over the Grose River, consisting of one 300 feet and four 100 feet spans. The foundation for this bridge will be inexpensive, as the river on both sides is near the surface. The long span will be clear across the river, and the four short spans are flood openings.

At 64 miles 150 links, a high-level bridge over fully 220 feet span. In this the abutments will consist of merely a small amount of retaining wall on each side, and the girders will be underneath the roadway.

At 67 miles 6,240 links, a bridge over Blacksmith Creek, consisting of three spans of 150 feet, one 60 feet, and two 40 feet spans. The foundations of the piers and abutments of this bridge will be inexpensive and of no great height.

At 70 miles 5,300 links, a bridge over the Wollangambe River, consisting of one 300 feet span and two 60 feet. In this, as in the foregoing, the piers and abutments will be small and inexpensive.

At 72 miles 6,350 links, a bridge over the Colo River, consisting of one 300 feet span and two 150 feet. The above remark applies to abutments and piers.

At 75 miles 26 chains, a bridge over the Colo River, consisting of one 300 feet span; low abutments.

At 79 miles 20 chains, a bridge over the Colo River, consisting of one 300 feet span, three 150 feet spans, one 100 feet span. Good rock foundation; low abutments; piers 60 feet high.

At 81 miles 4,040 links, a bridge of one 150 feet span.

At 83 miles 26 chains, a bridge consisting of seven 100 feet spans; piers and abutments about 60 feet high.

At 85 miles 8 chains, a bridge over the Walgon River, consisting of three 150 feet spans.

At 87 miles 18 chains, a bridge over the Capertee River, consisting of one 300 feet span, one 150, one 100; low piers and abutments.

At 87 miles 36 chains, one 300 feet span and two 60 feet spans; low abutments.

At 98 miles a bridge over the Capertee River, consisting of three 100 feet spans. In this bridge the foundations will not be deep, probably 25 feet from surface to rock, but they will be wet and difficult to secure while sinking; piers and abutments estimated at 50s. per cubic yard.

Gradients.—The ruling grade adopted is 1—100 or 52·8 feet rise per mile. In the face of the very much heavier grades that have been used on most of our lines hitherto, some explanation appears necessary as to why so light a grade has been adopted in this instance at the cost of at least 1½ million cubic yards of earth-work that could be saved by introducing heavier grades, besides a large saving that could be effected in the cost of viaducts by the same means, certainly £80,000, equal altogether to over a quarter a million of money.

The object in view of which this line with easy grades has been proposed, is to do away with the necessity of breaking up the long goods trains that one engine can draw from Sydney to Penrith, and from Narromine to Bourke, an easy grade could have been obtained from Dubbo to Narromine, but it has been deemed advisable to carry the line over the point of a range instead of going round it, which could have been done without greatly increasing the length or cost of the line. So also between Wellington and Dubbo by keeping along the Macquarie River an easy grade could have been obtained throughout the whole length without greatly increasing the distance or cost, but as it is useless now reverting to what might have been done, I will confine myself to what can be done.

I am informed that the maximum loads that one engine of the "Mogul" class will take on different sections of the Western Line are as follows:—

	Loaded trucks.	Limiting grade.	
Sydney to Penrith	50	1—80	There is a down grade of 1—66 from 33 miles to 34 miles; but that cannot limit the load from Sydney to Penrith.
Penrith to Mount Victoria	13	1—30	
Mount Victoria to Lithgow	13	1—33	
Lithgow to Bathurst	17	1—33	
Bathurst to Orange	17	1—40	
Orange to Wellington	17	1—40	
Wellington to Dubbo	17	1—40	
Dubbo to Narromine	28	1—50	Heavy grade to 292 miles.
Narromine to Bourke	60	1—80	
Penrith to Bourke, by Colo Valley route, may safely be estimated	60	1—100	Excepting a short length of 1—80 at 406 miles, and several of 1—88 up to 424 miles.

From the above table it would appear useless to connect the proposed light grade line at any point east of the heavy grades between Dubbo and Narromine—say about 14 miles west of Dubbo, or 292 miles from Sydney; by the Colo Valley line, 250 miles from Sydney, will reach the same point, showing a saving of 42 miles. The bridge at Dubbo can be made use of; then a detour made, following more nearly the course of the river than is done by the present line, to the proposed point of junction, viz., 292 miles from Sydney. From a fair knowledge of the intervening country, I have no hesitation in saying that I can obtain a line with no grade heavier than 1—100, with no curve sharper than 20 links radius, from near the terminus of my present survey to 292 miles from Sydney by present line, within the distance above given, viz., 250 miles from Sydney, at a cost not exceeding seven thousand pounds (£7,000) a mile, equal to £770,000 (seven hundred and seventy thousand pounds) for 110 miles, making in all £3,465,000. From Emu Plains (36 miles) to beyond Dubbo (292 miles), a total length of line to make of 214 miles, at a cost of £16,192 a mile. The advantages to be gained by this somewhat large outlay are, first, a saving of distance of 42 miles, equal to 17 per cent. of the distance by present line from Penrith to Dubbo. This, together with the saving effected in haulage, in maintenance of road and rolling stock, in saving in traffic expenses by avoiding the necessity for the number of men at present employed in making up trains at points where change of ruling grade occurs, in interest on extensive running sheds, only a small proportion of which will be fairly chargeable to the light-grade line, in releasing a large quantity of rolling stock from what will then be needless but is now unavoidable detention, will in the aggregate amount to at least half the present working expenses.

I find, by referring to the Railway Report for 1886, the gross receipts for all traffic between that portion of the Western Line from Wellington westwards and Sydney amounted to £360,474. I also find in the same report the gross receipts from Rylstone to Mudgee (inclusive) amount to £48,102. Total gross receipts for 1886 from the abovenamed places, £408,576. Of this sum the report gives 72 per cent. for working expenses, leaving 28 per cent. to pay interest on capital, &c. The traffic from Wellington will certainly be carried over the Colo Valley Line, as by that route it will be 12 miles nearer to Sydney than by the present line. I therefore allow 28 per cent. of the gross receipts from Wellington to Murrumbidgee, as at present goes to pay share of interest on the whole line made use of, to pay interest on the 30 miles in question. Following is a sheet showing how working expenses and interest can be paid.

Sheet showing how interest and cost of construction of existing and new lines will be paid from gross receipts for traffic from those portions of the Western Line, between Wellington to Bourke and Rylstone to Mudgee, taking the receipts for 1886 as a basis for calculation:—

Cost of line, Dubbo to Bourke, including Dubbo bridge, less cost of 14 miles of line to be reconstructed	£1,196,600
Purchase of land	20,000
	<hr/>
Interest at 4 per cent on above	£1,216,600
28 per cent interest on gross receipts, Wellington to Murrumbidgee	48,664
Share of interest on existing line, Penrith to Sydney, running sheds and other works chargeable to new line	6,353
4 per cent interest on 3½ millions	10,000
	140,000
	<hr/>
Total interest on construction chargeable against gross receipts from Wellington to Bourke and from Rylstone to Mudgee inclusive—gross receipts for 1886	£205,017
	408,576
	<hr/>
Available balance ..	£203,559
Working expenses for the above amount of traffic when carried on new line with easy grade and reduced length.....	151,500
	<hr/>
Showing a profit of ..	£52,059
Equal to 12·975 per cent. of gross receipts.	
This capitalized at 4 per cent in forty years gives £4,945,605.	

GEO. WM. TOWNSEND.

Working expenses on the Colo Valley Line under such of the present traffic as may be considered available, viz., that which is at present paid for between Wellington and Bourke and between Rylstone and Mudgee, amounting in gross receipts to £408,576:—

Twenty-four engines, including running expenses, repairs, and allowance for depreciation ..	£28,800
Maintenance of road ..	67,200
Maintenance of rolling stock, including interest and allowance for depreciation ..	10,000
Traffic charges.....	40,000
General expenses.....	5,500

Total working expenses for present traffic that may be reckoned as available £151,500

Working Expenses.—The working expenses on this line will necessarily be small, and I arrive at an approximation to the amount in the following manner. Allowing six engine-stations from Penrith to Bourke, one goods train and one passenger train each way each day will occupy twenty-four engines on this length of line, so that running shed accommodation for four engines will be needed at each station of which there are already four on the existing line, two requiring to be built. I find that a fair allowance per annum for each engine, including running expenses, repairs, and allowance for depreciation is £1,200, amounting as shown to £28,800. The maintenance of road, allowing three men to 4 miles, and a fair amount for material, painting bridges, repairs to stations, fences, and other works, amount to £67,000; maintenance of rolling stock other than engines, £10,000. Traffic charges, including stationmasters and all other traffic officials. General expenses include share of salaries of the higher officials of the Department. That further extensions will be carried on from Dubbo, and that the traffic will largely increase on the present line beyond Dubbo as well as east of Dubbo cannot be reasonably doubted, there is therefore contained in the above figures strong evidence in favour of the immediate construction of the Colo Valley Railway. A fertile country will be passed through between Mudgee and Dubbo which will furnish a large amount of traffic. Many thousands of acres of the Capertee and Cudgegong Valleys will be put to agricultural purposes when this line is commenced. Coal-mining will be opened on the Capertee and Cudgegong Rivers, and in the range between Mudgee and Rylstone, and large quantities of kerosene will be made available for market, all of which may be safely taken to largely increase the present traffic, so that the Colo Valley Line may be considered as likely to be the best paying railway in New South Wales.

Appended hereto please find lists of bridges, culverts, viaducts, and tunnels, also general estimate.

I have, &c.,

GEO. WM. TOWNSEND.

TOTAL cost of Colo Valley Line, from 36 miles 2,564 links, Western Line, to 140 miles 28 chains on Mudgee Line, near Rylstone; length to be constructed, 103 miles 7,936 links—say 104 miles.

Tunnels	£1,293,409
Bridges	225,000
Viaducts	184,555
Culverts and other openings	25,785
Level crossings ..	1,000
Fencing ..	8,000
Earthwork ..	667,251
Permanent-way ..	208,000
Side drains and diversions ..	15,000
Tramway	62,000
Platform and sheds.....	5,000
	<hr/>
Total ..	£2,695,000—£25,914 per mile from Emu to 140 miles.
Extension from Rylstone to 292 miles, 14 miles beyond Dubbo	770,000
	<hr/>
Total to 292 miles.....	£3,465,000—£16,192 per mile from Emu to 292
Purchase of land	15,000 miles—total distance to construct,
Contingencies.....	20,000 214 miles.
	<hr/>
	£3,500,000

GEO. WM. TOWNSEND.

Tunnels

Tunnels.

No	Length of Tunnel.		Miles.	Chains.	No.	Length of Tunnel.		Miles.	Chains.	
	Miles.	Chains.				Miles.	Chains.			
1		440	48	5,755	22	5,410	gallery	73	7,660	
2		816	48	7,335	23	5,170		74	5,070	
3		870	50	2,730	24	3,827		75	3,180	
4		3,860	52	745	25	1	986	gallery	75	6,995
5		962	55	4,400	26	5,105		77	1,860	
6		908	55	6,092	27	3,930		79	2,705	
7		2,850	57	1,380	28	1	910		80	2,940
7½		476	57	5,985	29	6,490		81	4,175	
8		2,210	58	2,575	30	4,052		84	2,170	
9		646	59	3,780	31	1,435		86	2,315	
10		2,480	59	4,810	32	680		87	4,290	
11		6,480	60	2,295	33	2,855		87	6,575	
12	1	720	61	2,305	34	3,513		88	2,540	
13		1,150	62	5,185	35	2,762		89	340	
14		1,635	gallery	64	250	36	1	3,968	89	6,470
15		1,982	64	6,250	37	855		93	6,270	
16		4,550	66	2,120	38	1,768		115	2,250	
17		2,665	67	2,590	39	2,168		118	5,260	
18	1	2,745	gallery	69	2,100	40	1	1,255	128	3,025
19 & 20	1	5,330	71	2,465						
21	1	800	72	6,870				20	5714	

Lining and facing estimated at 50s. a cube yard.

Bridges.

Feet.	No	Span.	Miles.	Chains.	Height of abutment.	Average Height of Piers.	Probable depth of Foundation.
700	30	1-300, 4-100, Grose River	46	1,500	53ft. on rock and 16ft.	40ft.	30ft.
220	76	1-220	64	150	Low retaining wall forming abutments.	...	...
590	81	3-150, 1-60, 2-40 Blacksmith's Creek.	67	6,240	Retaining wall 3ft. high and 7ft.	45ft.	...
420	87	1-300, 2-60, Wollangambi River	70	5,300	Retaining walls 5ft. high	30ft.	12ft.
600	88	1-300, 2-150, Colo River	72	6,350	Retaining walls 4ft. high	50ft.	8ft.
300	89	1-300, Colo River	75	2,600	20ft. ....	...	...
850	92	1-300, 3-150, 1-100, Colo River	79	2,000	17ft. and retaining wall 8ft. high.	40ft.	10ft.
610	93	1-300, 1-150, 1-100, 1-63, Colo River.	79	6,600	Retaining wall 7ft. high and 8ft.	43ft.	7ft.
150	94	1-150	81	4,040	Low retaining wall forming abutments.	...	...
700	95	7-100	83	2,600	24ft. and 48ft.	55ft.	5ft.
450	96	3-150, Wolgan River	85	800	10ft. and 17ft.	35ft.	17ft.
550	98	1-300, 1-150, 1-100, Capertee River.	87	1,800	17ft. and 20ft.	32ft.	9ft.
420	99	1-300, 2-60, Capertee River ...	87	3,600	11ft. & retaining wall 3ft. high	22ft.	8ft.
300	128	3-100, Capertee River	93	...	16ft. and 15ft.	16ft.	25ft.

6,860

Masonry in piers and abutments estimated at 50s. a cubic yard.

Viaducts.

No.	Length.	Average height.	Miles.	Chains.	No.	Length.	Average height.	Miles.	Chains.
3	120 feet	20 feet—	37	3,200	57	540	70	55	3,800
5	140	24	38	1,300	58	670	60	55	7,600
10	380	40	39	400	59	440	42	56	1,400
13	100	10	40	1,250	62	800	52	56	5,600
14	320	50	40	4,650	67	540	50	58	1,600
18	640	50	41	5,000	69	940	180	59	2,900
20	840	50	42	2,300	73	300	45	61	1,000
21	740	60	42	6,750	75	700	200	62	7,800
22	1,340	50	43	4,700	77	540	70	65	1,000
27	140	18	45	100	149	140	20	104	6,000
29	1,040	45	45	4,400	151	540	20	106	5,700
31	280	30	46	7,700	166	440	40	116	2,800
42	220	38	50	1,300	180	340	37	123	6,600
43	340	42	50	5,700	181	2,240	70	125	3,600
44	340	55	51	450	182	440	43	125	6,300
45	340	53	51	1,900	184	640	50	127	150
51	340	51	53	5,900	201	540	30	135	6,000
54	440	50	54	3,700	206	140	25	140	850
55	440	66	54	6,600					
56	913	90	55	2,200					
					20,193				

In all instances where rolled girders are noted, 20 feet spans will be used.

Culverts.

No.	Span.	Miles.	Chains.	Height of bank.	No.	Span.	Miles.	Chains.	Height of bank.
1	2-20 feet rolled girders	36	4760	8 feet	17	2 feet	41	2310	27
2	3-20 feet rolled girders	36	6470	13	19	4	41	7535	32-20
4	2 feet	37	7250	41	23	2	44	730	23
6	2	38	2250	31	24	4	44	2810	16-40
7	2	38	3170	38	25	2	44	3620	17
8	2	38	4660	26	26	4	44	5700	13-50
9	2	38	5460	25	28	3	45	1815	10-80
10½	2	39	3455	43-50	32	6' 6"	47	3520	49
11	2	39	4570	34	33	6' 6"	47	5640	59
12	2	39	7260	52	34	4	48	445	12-60
15	2	40	6070	56	35	6' 6"	48	2350	48-50
16	2	41	050	29	36	3	48	3940	23

No.	Span.	Miles.	Chains.	Height of bank.	No.	Span.	Miles.	Chains.	Height of bank.
37	2	48	6800	4.50	133	3	100	380	3
38	2	49	890	42	134	3	100	2470	7
39	2	49	2700	35	135	3	100	5090	2
40	2	49	5700	40	136	3	101	590	12
41	2	49	7000	30	137	4	101	1800	6
46	4	51	4870	40.50	138	3	101	4280	Surface.
47	4	51	6310	27	139	3	101	7410	7
48	4	52	6630	13.50	140	3	102	3070	13
49	4	53	550	34	141	3	102	4000	15
50	4	53	2125	18.50	142	3	102	4910	7
50½	4	53	3620	34	143	3	102	5120	4
52	4	53	7740	53.50	144	4	102	6720	Surface.
53	4	54	1140	7.50	145	3	103	1660	14
60	2	56	2745	34	146	3	103	4820	4
61	2	56	3770	38.50	147	3	104	1700	4
63	2	56	7895	35	148	4	104	3700	17.50
64	2	57	4930	33	150	4	106	2285	7.50
65	2	57	6900	46	152	3	107	000	3
66	2	58	240	38	154	3-20 rolled girders	107	6700	21
68	4	58	5390	23 divert.	155	3-20 rolled girders	108	2940	11.50
70	3	59	4610	4	155½	3	109	4270	3
71	6	59	7720	19 divert.	156	3	110	150	10
72	6	60	305	13	157	4	110	1650	17
74	3	62	3920	23	158	3	110	5250	2
78	3	65	3460	22.50	159	3	111	1450	9.50
79	3	65	6365	37.50	160	3	111	7250	19
80	12 rolled girders	67	150	Surface.	161	3	112	2900	16
82	3	68	1310	35	162	3	112	5300	14
83	3	68	2770	20	163	3	112	7120	13.50
84	3	68	3950	4	164	3	115	6810	3
85	4	68	7140	6	165	8	116	000	4 divert.
86	4	69	1935	7	167	3	116	5409	7
90	12 rolled girders	77	1030	Surface.	168	4	116	7750	4
91	4	77	7120	5	169	3	117	1600	14
97	6' 6"	85	5770	15 divert.	170	3	117	2800	20.50
100	12 rolled girders	88	1720	6	171	4	117	5595	33
101	4	88	6820	23	172	3	117	7470	31
101½	4	89	3670	10	173	3	118	1400	26
102	6	89	5245	9	174	3	118	3350	15
103	20 rolled girders	91	2850	7.50	175	3	119	4700	11
104	3	91	5390	17.50	176	3	119	7000	14
105	3	91	7615	3	177	4 feet	120	1100	21
106	3	92	1960	19.50	178	3	120	5030	17
107	3 feet	92	4425	8.50	179	3	121	1460	22.50
108	3	92	5660	10	180½	3	122	1950	5
109	3	92	7180	12.50	183	3	126	4970	6
110	3	93	2090	7	185	3	127	2670	32
111	4	93	5100	13	186	3	127	4850	14
112	3-20 rolled girders	93	7600	11	187	3	127	4800	6
113	3	94	895	9	188	3	127	6910	9
115	4	94	5350	15	189	3	127	7310	10
116	3	94	6910	7	190	3	128	310	27
117	4	95	060	17	191	3	128	2090	15
118	20 rolled girders	95	2730	Surface.	192	3	128	2780	15.50
119	3	95	7075	22	193	4	130	3740	29
120	3-20 rolled girders	96	960	12	194	3	131	810	26.50
121	3	96	3370	6.50	195	4	131	4500	17
122	3	96	3725	2.50	196	4	132	950	13
124	3	97	670	14	197	4	132	7400	7
125	3	97	2230	12.50	198	3	133	7810	14
126	3	97	4570	12	199	3-20' rolled girders	134	900	15
127	3	97	5070	4	200	3	134	3900	11
129	3	98	4725	3	202	4	136	4430	8.50
130	3	99	000	Surface.	203	3-20' rolled girders	137	5428	12.50
131	3	99	2800	10	204	4	138	7980	5
132	3	99	4515	6	205	4	139	1850	9.50

All masonry, whether brick, concrete, or rubble set in cement, estimated at 50s. a cube yard, which prices, considering the facilities for transport of material afforded by the proposed tramway, are ample.

JNO. WM. TOWNSEND.

No. 3.

Memo. from The Engineer-in-Chief to Mr. Thomas.

Department of Public Works, Railway Branch, Engineer-in-Chief's Office, Sydney, 11 January, 1888.
Colo Valley Survey.

THE report received from Mr. Townsend is incomplete in many respects, and he should furnish without delay information on the following points:—

1. Whether estimate is for double or single line.
2. Width of formation and gauge.
3. Weight of rails.
4. Slopes of cuttings.
5. Quantities in embankments.
6. Cross sections to be furnished.
7. Disposed sheets to be furnished.
8. Proper estimate of quantities and prices to be prepared.
9. Also, sections of tunnels, showing thickness of lining and length proposed to be lined in each tunnel.

The

The report gives little or no information on the above subjects, and still includes the guessed estimate of the cost of an imaginary line from Rylstone to beyond Dubbo, which has nothing whatever to do with the estimate of the Colo Valley line from Emu Plains to Rylstone, which was all Mr. Townsend was asked for or expected to give.

JOHN WHITTON.

The plan and section are returned herewith.

Mr. Townsend instructed to furnish the information required.—E.R.T., 12/1/88. Engineer-in-Chief.

No. 4.

Mr. G. W. Townsend to The Engineer-in-Chief.

Sir,

Railway Survey Office, Sydney, 15 February, 1888.

Herewith, in accordance with a memo. shown to me by Mr. Thomas, purporting to be from you, I supply information on the various points mentioned in the memo. in question.

1. Whether estimate is for double or single line? Single; except bridges which are designed for double line.
2. Width of formation and gauge? Cuttings 15 feet; banks 17 feet; gauge 4 ft. 8½ in.
3. Weight of rails? Steel rails 70-lb. per lineal yard.
4. Slopes of cuttings? 1 in 1, excepting when the cutting is certain to be in solid rock, when ½ to 1 is adopted.
5. Quantities in embankments? 4,887,785 cubic yards.
6. Cross sections to be furnished? These are written on plan, but sheets of cross sections are being plotted.
7. Disposal sheets? Will be ready shortly.
8. Proper estimate of quantities and prices to be furnished? Sent herewith.
9. Also section of tunnel, showing thickness of lining and length proposed to be lined in each tunnel? Section herewith, also list of tunnels with length of portions lined and unlined.

I have, &c.,

GEO. WM. TOWNSEND.

No. 5.

Mr. G. W. Townsend to The Engineer-in-Chief.

Sir,

Railway Survey Office, Sydney, 17 February, 1888.

I have the honor to forward herewith plan, section, and supplementary report, giving information on various points that I am informed you have asked for. The quantities of bank are now written on the section as well as mentioned in estimate. The cross-section sheets I will forward as soon as ready, also disposal sheets in preparation, of which I have the honor to request that you will allow me the assistance of two draughtsmen, so that I may get this work out of hand, and I am in bad health, and the medical man who is attending me informs me that the complaint from which I am suffering may become chronic unless I am able to get away for a change.

I have, &c.,

GEO. WM. TOWNSEND.

[Enclosure.]

COLO VALLEY LINE.

List of Tunnels on first 104 miles.

No. of Tunnel.	Length in Yards.	Lineal Yards, Lined.	Lineal Yards, Unlined.	No. of Tunnel.	Length in Yards.	Lineal Yards, Lined.	Lineal Yards, Unlined.
1	96·80	96·8	.....	22	1,190·20	1,190·20	.....
2	179·52	179·52	.....	23	1,137·40	537·40	600
3	191·40	191·4	.....	24	841·94	441·94	400
4	849·20	649·2	200	25	1,977·92	977·92	1,000
5	211·64	211·64	.....	26	1,123·60	523·60	600
6	199·76	99·76	100	27	767·80	267·80	500
7	627·00	427·00	200	28	1,960·20	960·20	1,000
7½	104·72	104·72	.....	29	1,427·80	527·80	900
8	486·20	486·20	.....	30	891·40	591·40	300
9	142·12	142·12	.....	31	315·70	315·70	.....
10	545·60	245·60	300	32	149·60	149·60	.....
11	1,425·60	425·60	1,000	33	628·00	628·00	.....
12	1,818·40	618·40	1,200	34	772·86	772·86	.....
13	253·00	253·00	.....	35	607·64	607·64	.....
14	359·70	359·70	.....	36	2,632·96	1,132·96	1,500
15	436·04	236·04	200	37	188·10	188·10	.....
16	1,001·00	201·00	800	38	388·30	388·30	.....
17	630·30	230·30	400	39	476·96	276·96	200
18	2,363·70	2,363·70	.....	40	2,036·10	2,036·10	.....
19, 20	2,932·60	1,432·60	1,500				
21	1,936·00	936·00	1,000				
					36,304·78	22,404·78	13,900

The unlined portions are in position, in which there is strong evidence in favour of heavy beds of solid sandstone being met with, as such are shown in the faces on rocks sides of the spurs in question.

GEO. WM. TOWNSEND.

ESTIMATE

ESTIMATE for first 104 miles of Colo Valley Line :—		£	s.	d.
5,338,008 cubic yards	Excavation—cutting, 15 feet ; bank, 17 feet.	667,251	0	0
250,000 "	Cutting—4,637,785 embankment ; 700,223 to spoil, at 2/6.....	18,750	0	0
384,752 "	Side cutting, at 1/6	192,376	0	0
759,642·3 "	Tunnels unlined 27·28 cubic yards, per 2 yards, at 10/-	322,848	0	0
149,440 "	" lined 33·95 cubic yards, per cubic yard, at 8/6	373,600	0	0
16,000 "	Lining tunnels, 14-inch walls, 6·67 cubic yards, per lineal yard, at 50/-	40,000	0	0
37,000 lineal yards	Facing tunnels, 40 tunnels, at 50/.....	12,334	0	0
	Drains in tunnels, and allowance for clearing, at 6/8			
	Bridges (see list of)—			
8,417·2 tons	Ironwork delivered on work, at £20	168,344	0	0
	Erection, at £4	33,669	0	0
48,178 square yards	Painting, at 2/6	6,029	10	0
	Pins and abutments	116,330	0	0
	Viaducts (see list of)—			
8,971·6 tons	20,390 lineal feet of viaduct delivered on work, at £18	161,488	0	0
	Erection, at £3	26,914	16	0
144,768 square yards	Painting, at 2/6	18,096	0	0
	Pedestals for legs of trestles.....	24,480	0	0
	Culverts—			
10,314 cubic yards	Brickwork in cement, at 50/-	25,785	0	0
20 "	Level crossings (occupation), at £50	1,000	0	0
18,824 rods	Fencing at per rod, at 8/6	8,000	16	0
	104 miles Permanent Way—			
Per mile	2,000 sleepers, at 4/-.....	£400		
	2,640 cubic yards ballast, at 5/-	660		
	110 tons 70 lb. sheet rails, at £6	660		
	Fastenings.....	60		
	Laying to 4 8½ in. gauge	220	£2,000	
181,000 cubic yards	Side drains and creek diversions, at 1/8.....	208,000	0	0
	Platforms and sheds—	15,000	0	0
62 miles	Tramway along Colo River, at £1,000	62,000	0	0
20 "	Tramway along Nepean and Wheeny Creek, at £1,000	20,000	0	0
	Purchase of land for depôt at Colo Junction	1,000	0	0
3 "	Sidings, including Permanent Way, at £3,000	24,000	0	0
	Contingencies and Engineer's expenses	£2,552,296	2	0
		142,703	18	0
	Total.....	£2,695,000	0	0

No. 6.

Mr. H. Palmer to The Engineer-in-Chief for Railways.

Sir,

7 August, 1886.

I have the honor to inform you that I have visited the Colo Valley and have examined some of the most important portions of the Trial Survey now being made by Mr. Townsend. There is still a considerable length to be surveyed, but I see no reason why it should not be completed about the end of the present year, and I recommend that Mr. Townsend be allowed to employ two additional chainmen, as he can work a double party with advantage.

The survey from the Penrith end has been carried into the Colo Valley, and must now follow the course of that valley till it joins the surveyed line from Rylstone, which has been completed for a distance of 50 miles. The operations of the remaining length of survey are entirely dependent on the track which has been cut at great expense from Upper Colo along the precipitous slopes above the southern bank of the Colo River, and it is positively necessary that this track should be properly maintained while the survey is in hand. The work of packing all supplies along this track is a most arduous one, and the difficulties of this kind will increase as the survey progresses, and the distance to travel is thereby lengthened.

There are at present nine men in Mr. Townsend's employ, two engaged in packing, one cook, one man constantly engaged in repairing the track, leaving five for work on the survey, two out of which number have often to be despatched to assist on the track. Two additional men, as before stated, may be usefully employed.

At the commencement of this survey seven horses were purchased, four of this number have died, two are mares in foal, and will not be fit for work till near the end of the survey, leaving one only of the original number now on the work. Mr. Townsend has at various times purchased nine more horses, at a cost of £66, and has now ten horses in constant work. Barring accidents, this number should be sufficient to complete the work, but they will require great care and constant feeding.

I have, &c.,

HERBERT PALMER.

No. 7.

The Engineer-in-Chief to Mr. H. Palmer.

WHAT I wanted to know was the probability of a practicable line being found up the Colo Valley, which is in no way touched upon by Mr. Palmer. Mr. Townsend should be severely censured for making the surveys of the two ends of this line, about which there was no question as to their practicability, and leaving the difficult portion until the last.

If the middle length should turn out either impracticable or absurdly expensive, the time employed in surveying the two ends will have been lost and the money expended thrown away. Mr. Palmer must make another inspection of this work, and I desire to have from him an expression of opinion as to the practicability of this route for railway purposes, and the desirability of continuing this survey.

J.W.,

10/8/86.

I

I made a most careful inspection of this surveyed line as far as the junction of the Wallargambie River with the Colo, having walked over all the roughest portions of this length; but I purposely abstained in this report from making any comments as to its practicability, as I have been under the impression from the time this survey was commenced that Mr. Townsend was authorized by the Minister or Commissioner to complete a survey throughout from Penrith to Rylstone, in accordance with his report on his first exploration, and quite regardless of its cost. With reference to the survey of the two ends having been made first, and the centre and most difficult length being left to the last, I think under the circumstances this arrangement of the work was necessary. When Mr. Townsend first reported that he could survey a practicable line with no grade steeper than 1 in 100 throughout, I was very doubtful whether he would succeed in showing a descent from Rylstone through the main dividing range into the Colo Valley with that grade, and I think previous papers will show that the commencement of the survey at that end was authorized. Another reason why the middle length could not be commenced first was that no work could be done on that portion until a track had been cut, and this was not completed till the commencement of this year, about 60 miles, I think, having been made at a cost of over £2,000. When the survey was completed for 50 miles from Rylstone down the Colo, Mr. Townsend was instructed to commence the survey from Emu Plains, so that there could be no doubt about the correctness of the through levels, and it was uncertain how he would succeed in surveying a line from that end into the Colo Valley. The practicability of getting into the Colo Valley at either end, with a grade of 1 in 100, was, I think doubtful, and if the Engineer-in-Chief considers that censure is due to Mr. Townsend I must accept it instead, as I think his instructions were to make the survey as it has been done.

As to my opinion as to the practicability of the route for railway purposes, I have, from the time the subject was first mooted, considered that a survey was a waste of money only. A reference to maps then in the possession of this Department, showed, as I pointed out at the time, that there must be at least a dozen miles of tunnelling, and since I have inspected the country, I think the amount of tunnelling will be nearer 14 miles. Added to this, there will be many miles of railway to be constructed along extremely steep sidings, similar, but on a larger scale, to the descent from the Peat's Ferry Road to the Hawkesbury, on the Homebush and Waratah line, where, until a final survey is made, it will be impossible to say what the quantity of excavations or expense of retaining walls and viaducts will be. The practicability (leaving out cost) of this route can hardly be condemned, for at most of the worst parts of the proposed line the formation is sound sandstone; but, as far as I can judge, the cost of its construction must be so great that the chances of its being seriously entertained are most remote, while an approximate estimate of its cost might have been arrived at when the route was first spoken of almost as well as it will be when this survey (a trial one only) has been completed. I assume that if this line were made it would be constructed as a double line of railway, for, if made a single line, it would be impossible at any future time to duplicate it. Granting that it could be a double line, 14 miles of tunnelling at £80 a yard, is in round numbers two millions; and say 100 miles of railway at £15,000 a mile (a very low estimate in such country for a double line), including all bridges, &c., would give a total of 3½ millions, which could only be submitted with a proviso that a final survey only would show whether such an estimate would be greatly exceeded or not.

Whether such an expense for an alternative line of railway will ever be entertained, it is not for me to say, or even whether this survey should be completed, as it was undertaken without reference to this Department, and almost, I think I may say, in opposition to it.

Engineer-in-Chief.

H.P., 10/8/86.

This survey was undertaken on the suggestion of the Commissioner, and by order of the Minister, Mr. Secretary Wright, in direct opposition to my views. I always looked upon the survey as an absurdity, and waste of public money; but it will, no doubt, be desirable to finish it as quickly as possible. The extra men required may be employed.—J.W., 11/8/86. Mr. Palmer.

Mr. Townsend informed.—H.P., 12/8/86. Engineer-in-Chief.

No. 8.

Mr. H. Palmer to The Engineer-in-Chief for Railways.

Sir,

10 December, 1886.

In compliance with your instructions dated the 1st instant, I have the honor to report that I left Sydney on the 4th to make a further inspection of the trial survey now being made *via* the Colo Valley, from Emu Plains to Rylstone. Mr. Townsend has now completed his survey throughout, from Emu Plains to the Colo River, and thence to the junction of the Wolgan with the Colo. The length from this point to the open country on the Capertee River will be completed by the end of the present month, after which Mr. Townsend will be employed for a further period of about two months in working up portions of what he had merely made a preliminary survey, through the Capertee Valley, to the proposed tunnel through the main dividing range. When this trial survey was commenced it was considered advisable to prove the practicability of obtaining the ruling grade of 1 in 100, from the Capertee Valley through the main range to Rylstone, before undertaking the more expensive portions of the survey on the Lower Colo; and, as this was merely a preliminary survey, it is now necessary to carry forward from the Colo the turnings, traverse, and levels.

Mr. Townsend having been without assistants in this work, the plotting of the through plan and section is not in a forward state, and on completing the field work he should, I think, return to this office, and finish his plan and section.

Until this has been done, nothing further can be said than is supplied in previous reports as to the practicability or otherwise (taking into consideration the probable cost of construction) of this route for railway purposes.

I have, &c.,

HERBERT PALMER.

Mr. Townsend must not return to Sydney to plot out any portion of this work until the whole of the field work is completed.—J.W. Mr. Palmer. This is as it has been already arranged.—H.P., 22/12/86. Enc., 23/12/86. Mr. Palmer.—W.H.Q., 1/2/87.

625—B

My

My report mentioned that Mr. Townsend would not complete his field work until the end of February, and from his January report I gather that it may be further delayed for a short period, owing to the great amount of wet weather.—H.P., 8/2/87.

End of March.—9/2/87. Memo. 87. Mr. G. W. Townsend, 31/3/87. Copy forwarded to Minister with memo. 88, of 14/3/88.

No. 9.

Mr. G. W. Townsend to The Engineer-in-Chief.

Sir,

Sydney, 13 July, 1875.

While making the City surveys on which I have lately been engaged, a scheme for a pier at Circular Quay suggested itself to my mind. I worked, ignorant of the fact that such a work, when used for railway purposes, was beyond the duties of this Department. Having gone so far with the matter, I am unable to let it drop, so if you have no objection I purpose putting it into the hands of one or two people in Sydney to make what they can of, my share in the concern being simply the credit, or the reverse, of initiating the scheme.

I have, &c.,

GEO. WM. TOWNSEND.

I have seen Mr. Townsend on this matter, and have instructed him to go no further with the scheme. It forms part of my proposal for extension of the railway into Sydney, but it is a direct interference with the work of another Department.—J.W., 13/7/75.

1887.

(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

RAILWAYS.

(OSRIC-STREET, GUNNEDAH—CORRESPONDENCE RESPECTING FLOODING OF.)

Ordered by the Legislative Assembly to be printed, 4 November, 1887.

RETURN to an *Order* of the Honorable the Legislative Assembly of New South Wales, dated 27th September, 1887,—That there be laid upon the Table of this House,—

“ Copies of all correspondence between the Mayor of Gunnedah and the
“ Commissioner for Railways or the Under-Secretary for Works, in
“ reference to the flooding of Osric-street, in the town of Gunnedah, by a
“ railway drain; together with copies of all reports, communications,
“ plans, and other papers relating to the same.”

(Mr. Goodwin.)

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4.	Letter from Mr. T. E. Nash, offering to accept £20 as compensation. 2 August, 1883	4
5.	Letter from Crown Solicitor, stating that £20 had been paid in full satisfaction of all claims, and release obtained. 21 August, 1883	4
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[817 copies—Approximate Cost of Printing (labour and material), £33 2s. 8d.]

RAILWAYS.

No. 1.

Mr. T. McPhillips to The Secretary for Mines.

Dear Sir,

Gunnedah, 20 April, 1883.

I am the owner of a couple of houses situated in Conadilly-street, and I suffer great damage from a drain that is cut down from the railway line almost in contact with my houses. This drain extends for some 10 or 12 chains from the line, and crosses the main road coming from Breeza to Gunnedah. It is, of course, the drain is, only troublesome to me in wet weather, and has put me to great expense the last rain we had. I would feel extremely grateful to you if you could manage to have this drain inspected to see the damage I sustain through it in wet times. I do not know if I have done right in asking you, but you being our Member I thought it best.

The drain comes through Osric-street, facing Conadilly-street, and passes through allotment 7, which my houses are built on.

Hoping you will advise me of the matter,

I remain, &c.,

T. MCPHILLIPS.

Will the Commissioner for Railways be good enough to have this complaint attended to.—J. P. ABBOTT, 23/4/83. The Under Secretary for Public Works.—B.C., 23/4/83. H.W. Railways.—B.C., 26/4/83. J.R. Mr. Cowdery.—B.C., 30/4/83. G.B. Mr. Bewick for report.—G.C., 2/5/83.

Railway Department, Office of Engineer for Existing Lines,

Memorandum to Mr. G. Barrack,—

Newcastle, 3 May, 1883.

SEE enclosed letter from Mr. McPhillips and report particulars early as practicable.

G. BEWICK,

Superintendent of Way and Works,—

Sir,

Gunnedah, 5 May, 1883.

I beg to report that this drain will be a rather difficult matter to deal with. I could alter the course of it, but some one else must suffer even much more than Mr. McPhillips suffers now in regard to damaging his property. He has thrown up a small embankment, and I do not think that it will do much more damage. This drain comes from a 4-foot culvert under the railway line and runs in a straight line for the main road, which is about 10 chains distant from railway. It is about 3 feet deep at commencement, and just runs itself out at main road. The damage done is very trifling, and with the precaution he is taking in forming a small embankment I do not think he will suffer much more. The drain must remain. There is no way of stopping it or diverting it that I can see without doing serious injury to some one else.

I remain, &c.,

G. BARRACK.

I may state I have not seen Mr. McPhillips. He is not at home; but I found the two houses, his property.—G.B.

From the Inspector's report herewith it will be seen that this drain has caused some little injury to McPhillips' property, but that there is no practical remedy without injuring other property to a greater extent. I suggest that some little compensation be offered to McPhillips for the damage done and expense incurred. Probably £10 will satisfy him.—G.B., 11/5/83. Engineer for Existing Lines.

Can nothing be done to permanently abate the nuisance complained of.—G.C., 17/5/83. Mr. Bewick. I don't think so.—G.B., 23/5/83. Engineer for Existing Lines. Commissioner.—G.C., 29/5/83.

Offer him £10 in satisfaction of all claims past and future.—CH.A.G., 31/5/83.

Sir,

Department of Railways, Sydney, 4 June, 1883.

In reply to your letter of the 20th April last, respecting a drain which you allege caused damage to your property in Conadilly-street, I have the honor to inform you that from inquiries made, I find that the drain in question cannot be diverted conveniently, and I learn that such steps have been taken as will minimise the inconvenience complained of. I understand that some little damage has been or may be done, and in consideration of this, I am prepared to sanction to you the payment of £10 sterling, without prejudice, in full settlement of all claims past and future.

I have, &c.,

C. A. GOODCHAP,

Commissioner for Railways.

T. McPhillips, Esq., Gunnedah.

No. 2.

Memo. from Mr. G. Barrack to Superintendent of Way and Works.

Sir,

Gunnedah Station, 12 May, 1883.

It may be advisable to send Mr. Manly up here about the drain complained of in Mr. McPhillip's letter to Mr. Abbott. I have seen Mr. McPhillips since reporting on the matter; he, like myself, allows that if I turn the water's course, some one else must suffer, and he seems determined, if something is not done, he will sue the Commissioner for damages.

Yours obediently,

G. BARRACK.

At

At present I do not see any necessity for sending Mr. Manly up. From your report there can be no doubt McPhillips has sustained some damage, and perhaps has incurred some expense for which I have no doubt the Commissioner will allow him compensation.

Do you think £10 would satisfy him? Do not put the question to him in direct terms.—G.B., 15/5/83. Mr. Barrack.

I have seen Mr. McPhillips to-day. He has put his case into the hands of his solicitor, and unless he receives £40 compensation, he intends to let the case take its course at law.—G. BARRACK, 2/6/83. Mr. Bewick.

Government Railways, Office of Engineer for Existing Lines,
Newcastle, 4 June, 1883.

Memo. to Engineer for Existing Lines,—

FROM the attached paper it will be seen that Mr. McPhillips intends to ask for £40 as compensation for damages to his property, alleged to be caused by a railway drain.

Under these circumstances, I have decided to send Mr. Manly to make a survey of the place, and will then forward you full particulars.

GEO. BEWICK.

Government Railways, Office of Engineer for Existing Lines,
Newcastle, 13 June, 1883.

Memo. to Engineer for Existing Lines,—

HEREWITH I beg to hand you a plan* showing the culvert and drain at Gunnedah, which has been com- *Appendix A.
plained of, as having caused damage to private property, and from what I can learn, it is the intention of several owners of these properties to claim compensation from the Commissioner for the alleged damages.

As will be seen from the plan an open drain has been made nearly in the centre of a street for a distance of about 12 chains to form an outlet from the culvert.

From the end of this drain the water flows over the surface of the land, and of course finds its way to the lowest ground which happens to be in the direction of McPhillip's property. It is therefore clear to me, and I may say I have made a personal examination of the place, that this must have been the natural course of the water before the railway existed. Hence, although the cutting of the drain may have injured the public street (which has not been formed), I cannot see that it has damaged private property in any way.

GEO. BEWICK.

No. 3

Mr. T. E. Nash to The Commissioner for Railways.

Sir,

Gunnedah, 7 June, 1883.

With reference to yours of the 4th instant, numbered 83-8,058, Mr. McPhillips has instructed me to state that the lowest he could dream of taking would be £40. As you are doubtless well aware, property is greatly improving in value, where not interfered with, throughout the Colony. Mr. McPhillips' land was in one of the best positions in the town for a small homestead until the drain you refer to was made. He has since sustained considerable damage, and from my own knowledge of the matter the sum he asks is not unreasonable. If you will not accede to his demands, please let me know the name of a solicitor who will accept service on your behalf.

Yours, &c.,
T. E. NASH.

Mr. Cowdery, is not this an excessive amount?—CH. A. G., 16/6/83. Mr. Bewick for report.—G.C., 19/6/83.

In my opinion the amount asked is very excessive. I learnt at Gunnedah the other day that this was a kind of test case, and if successful, several other claims of a similar kind would be made. I have already sent you a plan and report, showing exactly how the matter stands, from which I think it will be seen that, although damage has been sustained, it has not been caused by construction of the railway.—G.B., 21/6/83. Engineer for Existing Lines.

I consider the amount excessive. Plan and report herewith.—G.C., 21/7/83. Commissioner. Inform cannot pay the amount demanded.—CH. A. G., 24/7/83.

Sir,

Department of Railways, Sydney, 30 July, 1883.

Referring to your letter of the 7th ultimo, claiming the sum of £40 as compensation in respect of damage alleged to have been sustained by Mr. McPhillips, through a drain being constructed near his property at Gunnedah, I have the honor to inform you that I cannot authorise the payment of the amount claimed, and the Crown Solicitor will accept service on my behalf.

I have, &c.,
CH. A. GOODCHAP,
Commissioner for Railways.

T. E. Nash, Esq., Solicitor, Gunnedah.

Crown Solicitor, B.C., 31/7/83.—G.B. (*pro Comr.*)

No. 4.

Mr. T. E. Nash to The Commissioner for Railways.

Sir,

Gunnedah, 2 August, 1883.

I am in receipt of yours of the 30th ultimo, and have seen my client upon the subject. "Without prejudice," as my client is a poor man, and does not wish to rush into unequal struggles as far "as money is concerned," I will accept, on his behalf, the sum of £20.

I have, &c.,
T. E. NASH.

We offered £10 in full of all demands past, present, and prospective. I think we might pay £20 rather than go to law. Will Crown Solicitor, who has the papers, do what is necessary, B.C., 8/8/83.—C.A.G.

No. 5.

The Crown Solicitor to The Commissioner for Railways.

Crown Solicitor's Office, Sydney, 21 August, 1883.

Sir,

T. McPhillips to you.

I have the honor to return herewith the papers you sent me in this matter, and to state that, in accordance with your instructions, I informed Mr. Nash, of Gunnedah, solicitor, that you accepted his client's terms of settlements of all claims. At the same time, I forwarded a release and voucher for execution by Mr. McPhillips. These documents have been returned to me, duly completed, and I send herewith the voucher for £20, which directs the payment of the money to the Commercial Bank, Sydney, for transmission to their Gunnedah Branch. The money may, of course, be now paid, as directed.

I have, &c.,
JOHN WILLIAMS,
Crown Solicitor.

Pay £20.—Ch.A.G., 29/8/83. Accountant. Voucher at Treasury, Mr. Nash advised.—F.J.W., 7/9/83. Secretary.

No. 6.

Mr. A. Treacher to The Commissioner for Railways.

Sir,

Gunnedah, 30 January, 1886.

On behalf of my client, G. C. Richardson, of this town, the owner of allotment No. 10 of section No. 49, township of Gunnedah, and situate in the vicinity of the railway line, near Marquis-street, in the said town, I beg to state that, in consequence of a culvert having been placed at a point on the railway line, opposite the allotment aforesaid, very considerable and serious damage has ensued, cutting up and rendering useless the land in question.

On every occasion of rain falling, the water from the culvert, owing to want of proper drainage, rushes in considerable force over the land, guttering it, and has rendered it unfit for building purposes, and has prevented my client fencing. In some places gutters have been made to a depth of 3 feet, and on Monday last 8 inches of water were standing on the ground. Owing to the delay and the damage caused, my client has sustained a loss of certainly not less than £40, and, on his behalf, I must now request that the Department will recoup him this sum.

I have, &c.,
JOHN A. TREACHER.

Mr. Cowdery, B.C., 4/2/86.—G.B. Mr. Bewick for report.—G.C., 6/2/86.

Herewith I beg to hand you a tracing, showing the position of Mr. Richardson's land and of the culvert complained of. The natural course of the water has not been diverted in any way, but it is, necessarily, concentrated at the culvert. I, therefore, cannot see that he is entitled to compensation, even if his property had sustained damage, which it certainly has not. There is no building of any kind on the land; it is not even fenced in.—G.B., 24/2/86. Engineer for Existing Lines.

Report and tracing,* herewith.—G.C., 25/2/86. Commissioner. Reply accordingly.—D.V., 27/2/86.

Sir,

Department of Railways, 2 March, 1886.

Referring to your letter of the 30th January last, claiming, on behalf of Mr. G. C. Richardson, of Gunnedah, compensation for damage said to have been done to his land by the action of this Department, in placing a culvert under the railway line, opposite Mr. Richardson's property, I have the honor to inform you that inquiry has been made, and I find that the natural course of the water has not been diverted in any way, neither has Mr. Richardson's land sustained any injury.

I am unable, therefore, to entertain any claim for compensation.

I have, &c.,
C. A. GOODCHAP,
Commissioner for Railways.

John A. Treacher, Esq., Gunnedah.

No. 7.

Mr. T. E. Nash to The Commissioner for Railways.

Sir,

Gunnedah, 1 February, 1886.

I am directed by Mr. Thomas McPhillips, of this town, to call your attention to the damage done to his property in this town during a late storm, in consequence of the diversion by the Railway works of the natural flow of the water, and, in the event of your not feeling inclined to make amends, must ask you to make known to me your solicitor's name so that I may cause service to be made on him. I shall do nothing for a week to enable you to obtain a report.

I have, &c.,

T. E. NASH.

Please furnish particulars.—D.C.McL., 2/2/86. Mr. Cowdery. Mr. Bewick for report.—G.C., 3/2/86.

Some three years ago Mr. Thos. McPhillips made a claim, similar to this, for damage done to the same property. I forwarded a plan and reported on the matter at the time and recommended that the claim should be resisted. I did so under the impression that the Commissioner was not liable, and that other claims would be certain to follow. Plan herewith will, I think, shows clearly how the matter stands. The water has not been diverted from its natural course further than it has been necessarily concentrated by the culvert beneath the railway. After leaving the culvert it has cut a channel for itself nearly in the centre of Osric-street for a distance of about 10 chains, when it commences to spread as shown, and flows in the direction of Mr. Thomas McPhillips' property, and it is clear to me that the water would have taken the same course if the culvert had never existed, I therefore strongly recommend that the claim be resisted. Besides, now that the town is incorporated, it seems to me that the question is one for the consideration of the Municipal authorities.—G.B., 16/2/86. Engineer for Existing Lines.

Report and plan herewith which clearly show that the Commissioner is not liable.—G.C., 17/2/86. Commissioner.

We paid £20 in 1883 for similar damage, and a release was taken which is probably in possession of Crown Solicitor. I do not know whether it was stated that the amount was in payment of past and any future damage which might be done, but even if no mention was made of any prospective damage it would seem from Mr. Bewick's report and plan* that the Department is not liable. Will Crown Solicitor please advise.—C.A.G., 18/2/86. *Appendix C.

The Commissioner for Railways,—

Gunnedah, 17 May, 1886.

Re McPhillips.

Sir

Referring to yours of the 3rd February last, I have to point out you stated therein that the matter would receive due attention. Since then I have received no offer of any sort, and it seems to me that ample time has elapsed.

I trust, therefore, that you will let me have some offer, and may inform you "without prejudice" that my client is willing to accept any reasonable amount, so as to repair the damage done, although the injury to the property is one of a permanent nature.

I have, &c.,

T. E. NASH.

Write to Crown Solicitor.—G.B., 20/5/86. Crown Solicitor, 22/5/86. Inform Mr. Nash how matter stands.—D.C.M'L., 25/5/86.

Letter from Commissioner to Mr. Nash, dated 27th May, 1886.

Sir,

In reply to your letter of the 17th instant again applying on behalf of Mr. McPhillips for compensation in respect of damage done to his property at Gunnedah during a late storm, in consequence it is alleged, of the natural flow of the water being diverted by the railway works, I have the honor to inform you that the matter has been referred to the Crown Solicitor, on receipt of whose reply a further communication will be sent to you.

I have, &c.,

CH. A. GOODCHAP,

Commissioner for Railways.

T. E. Nash, Esq., Gunnedah.

Sir,

Crown Solicitor's Office, Sydney, 12 August, 1886.

I have the honor to return herewith the papers relating to Mr. Nash's application on behalf of Mr. Thomas McPhillips for compensation in respect to injury said to have been occasioned by the construction of a drain in connection with the railway works, and to state that if the construction of the sewer has had the effect of concentrating the water, or diverting its course, and thus causing it to flow upon Mr. McPhillips' land, you are liable for any injury so occasioned.

I have no doubt that the £20 paid to Mr. McPhillips in 1883, and the release obtained was in satisfaction of all past and future damage, and as this claim was also made by Mr. Nash, as Mr. McPhillips' attorney, he should be reminded of this.

I have, &c.,

JOHN WILLIAMS,

Crown Solicitor.

The Commissioner for Railways, Sydney.

Claims for damages alleged to have been sustained through flood waters from the Railway Line, near Gunnedah.

Will Mr. Badham please have a *précis* made of the several papers enclosed.—D.C.M'L., 19/8/86. Urgent.

Précis herewith.—C.A.B., 21/8/86.

Claims

Claims for damage alleged to have been caused by flood-waters from the Railway at Gunnedah.

THERE are here three distinct allegations of damage, and as they are quite independent of each other, although assignable to the same cause, I propose to deal with them separately. There is—

(1.) *Mr. McPhillips' claim.*

Under date of 20th April, 1883, Mr. McPhillips wrote that considerable damage was done to his property in Conadilly-street, Gunnedah, by a drain brought down from the railway almost in contact with his houses.

Mr. Bewick reported that the drain had caused some little injury to McPhillip's property, but there was no remedy without doing greater injury to other property. Some little compensation (say £10) might be offered him.

Commissioner accordingly, by letter of 4/6/83, offered McPhillips the sum of £10.

On the 7th July, 1887, Mr. T. E. Nash, solicitor, replied that £40 was the smallest amount McPhillips would accept.

Commissioner asked if this was not an excessive claim.

Mr. Bewick reported that the claim *was* excessive, that the drain which had been cut followed the natural course of the water, and although it might have injured the street, down the centre of which it ran, it could have done no more damage to private property than the latter had always been liable to.

Commissioner thereupon (30/7/83) informed Mr. Nash that if he intended to sue, the Crown Solicitor would accept service.

Mr. Nash replied (2/8/83) that rather than go to law his client would accept the sum of £20.

Commissioner minuted (8/8/83) that we had offered £10 in full of all demands "*past, present, and prospective,*" and that we had better pay £20. This to Crown Solicitor.

Per letter of 21/8/83, Crown Solicitor advised that he had taken a release from McPhillips, and the £20 was paid.

Per letter of 1st February, 1886, Mr. Nash again claimed compensation for damage done to McPhillips' property by flood-water as before.

*This is not quite in accordance with the facts.—C.A.B.

Mr. Bewick minuted that in 1883 he reported on this matter, and recommended* that the claim should be resisted, under the impression that the Commissioner was not liable. The water "had not been diverted from its natural course further than it had been necessarily concentrated by the culvert beneath the railway." Beyond this it had cut a channel for itself nearly in the centre of Osric-street, for about 10 chains, and then commenced to spread, and flowed in the direction of McPhillips' property, as it would have done if the culvert had never existed. Besides, the town was now incorporated, and the question was for the consideration of the municipal authorities.

Commissioner minuted (18/2/86) that we had paid £20 for similar damage in 1883, when a release was taken. Did not know if the release covered past and future damage, but even if prospective damage was *not* included, it would be seen by Mr. Bewick's report that the Department was not liable. Would Crown Solicitor advise.

Crown Solicitor now (12th August, 1886), advises that if the construction of the drain had had the effect of concentrating the water and causing it to flow on to Mr. McPhillips' land, Commissioner was liable for any injury thereby caused. Had no doubt the £20 and the release were in satisfaction of past and future damage, and Mr. Nash should be reminded of this.

(2)—*Mr. Richardson's claim.*

Under date of 30th January, 1886, Mr. Treacher wrote to Commissioner, stating that much damage was done to Mr. G. C. Richardson's land by a culvert under the railway, which, in consequence of the want of proper drainage, caused the water during rain to rush with much force over the land, guttering it, and rendering it unfit for building purposes; and that Richardson had sustained damage to the extent of £40, which amount he claimed as compensation.

Mr. Bewick reported that the natural course of the water had not been diverted, although it had been concentrated by the culverts, that Mr. Richardson's land was not even fenced, and had not been damaged, and that he was not entitled to compensation.

Presumably Mr. Richardson was so informed.

(3)—*The Borough Council.*

Under date of 25th June, 1886, the Mayor of Gunnedah wrote drawing attention to the damage and inconvenience caused by the flow of water from the railway culvert through Osric-street. A dangerous excavation had been formed, and the nuisance should be abated. On the same day the Council Clerk communicated on the subject with the Roads Department, and asked why the water could not be carried along Osric-street into a lagoon in the locality. (This suggestion does not appear to have been noticed.)

Mr. Bewick referred to, and repeated the substance of his former reports.

Commissioner minuted that he was not at all sure that we were not liable. No more water might flow on to the land than would have spread over it if the culvert had not been constructed, but it might not flow in the same even manner. Being concentrated by the culvert it might be poured, as it were, on to the land and street, causing a dangerous obstruction, and possibly injury to the land.

C.A.B., 21/8/86.

(1.)—As regards McPhillips' claim, that has been settled by the release of 1883, and Mr. Nash should be informed, if not informed already.

(2.)—As regards Richardson's claim,—under the report of Mr. Bewick it cannot be admitted. He should be so informed—if no action has been taken.

(3.)—The complaint of the Council about the ploughing of Osric-street. The suggestion about taking the water to the lagoon should be inquired into—cost ascertainable.

CH.A.G., 26/8/86.

Sir,

Sir,

Department of Railways Sydney, 30 August, 1886.

With reference to your letter, dated the 1st February last, claiming compensation for Mr. McPhillips, for damage alleged to have been done to his property by flood-water from the railway culvert, I have the honor to remind you that Mr. McPhillips has already received compensation for present and prospective injury from the cause referred to, and that he has executed a full release in that respect.

I have, &c.,

CHAS. A. GOODCHAP,
Commissioner for Railways.

T. E. Nash, Esq., Solicitor, Gunnedah.

Mr. Badham, 26/8/86. Mr. Cowdery. Will you please obtain a report with reference to the proposal to carry the water into the lagoon, cost, &c.—D.C.M.L., B.C., 28/8/86. Mr. Bewick for report and cost.—G.C., 31/8/86.

The distance between the railway and the lagoon is about 700 yards, and the only means I can see of carrying the water from one point to the other—without damaging the street—will be to construct an underground culvert, and, as the railway culvert is 5 feet, this should be the same,—the cost of this will be about £3,000. I am under the impression that the Council would be glad to take the matter into their own hands and relieve the Commissioner from all liability for less than a fourth of that sum. I think this idea is deserving of consideration.—G.B., 7/9/86.
Engineer for Existing Lines.

Report from Mr. Bewick herewith.—G.C., 8/6/86. Commissioner. To construct the culvert at a cost of £3,000 is out of the question. The papers should be put by for the present.—CH.A.G., 11/9/86.

No. 8.

Report by Mr. G. Bewick.

Railway Department, Existing Lines Branch,
Office of Superintendent of Way and Works, Newcastle, 3 February, 1886.

Re Flooding of Station yard, Gunnedah.

Memorandum to Engineer for Existing Lines.

ON two or three occasions lately the station yard at Gunnedah has been flooded to a very serious extent, the rails throughout the yard having, on one occasion, been covered with water to a depth of 4 inches.

I instructed Mr. Manly to proceed to the place to ascertain the cause of this, and herewith enclose his report together with tracing,* from which it would appear that Marquis-street has recently been raised a foot or more by metalling, which has had the effect of blocking the water from pursuing its natural course and throwing it into the railway at a level crossing, from whence the bulk of it flows through the station yard, and a portion into private property, the proprietors of which may, some time or other, make a claim on the Commissioner for damages. *Appendix D.

I believe the improvements of Marquis-street are being carried out by the Roads Department.

I therefore suggest that the officer in charge of the work be requested to make adequate provision for carrying away the water and preventing it flowing on to the line. If something is not done in the matter, the traffic may be interrupted.

GEO. BEWICK.

North Western Railway—Gunnedah Station yard.

THE flooding of the station yard is caused by the Roads Department having put about one foot of metal at an average of 20 feet wide on the centre of Marquis-street and Wondobah Road, previous to this the rain water distributed itself as it fell, but now the metal on the road acts as a dam, and causes the water to make for the level crossing and thence down the railway, which is in cutting. There are two 18-inch drain pipes under the newly metallated portion, which are quite inadequate to carry off any sudden rainfall. Except some precaution is made, this station yard will always be subject to flood in the case of a heavy downpour.

I would suggest that the road be lowered, at the place shown on plan, about 1 chain wide, and pitched with an easy slope on both sides from the centre, and an open ditch to be cut close to the south boundary fence of Wondobah Road (say 10 feet wide and from 2 to 3 feet deep), through the racecourse paddock, and to lead thence when clear of the station yard into the Namoi River. Plan herewith furnished.

WM. M. MANLY,

Resident Engineer, G.N.R.,
3/2/86.

Forwarded to Commissioner. I recommend the attention of the Commissioner for Roads be called to this matter.—G.C., 4/2/86. Under Secretary for Works, B.C., 8/2/86.—CH.A.G. Roads, B.C., 9/7/86.—J.R.

Mr. Laurensen for inquiry and report. Was the station yard flooded before making of Marquis-street; does this water flow under railway; if so, what provision is made for it? It is stated there are two 18-inch pipes under the road; is it meant that they are together—a double pipe in fact? if so, Mr. Laurensen must be aware it is contrary to regulations.—W.C.B.

Report herewith.—R.R.L., 23/2/86.

Flooding

Flooding of Railway yard, Gunnedah.

Tamworth, 23 February, 1886.

IN reply to the Commissioner for Road's memo. attached, I may state that I am informed that long before I metalled this part of Marquis-street, as well as I remember three years last December, the railway line was flooded to an equal extent to the flooding that has taken place since this work was done, which is stated as the cause of the flooding. When making this road I was reminded by the trustees of the racecourse, that if I brought any extra water on to the racecourse they would object, so I took particular care to let the water have its natural course. The water at A flows under the railway, and in its natural course through Gunnedah does not again touch the railway yards, so in place of this work flooding the railway it has actually done the opposite, as the raised road would naturally throw more water to the point A, where it would be harmless as far as hurting the station is concerned. The pipes are not double, but a single line at C and D. The railway yards will be flooded until the proper course suggested by Mr. Manly is adopted, that is, during heavy storms. There is a good large water-shed. And this drain will, as well as protecting the railway, intercept the water from having any possible chance of hurting the town for some length. I really cannot see that our work has thrown any more water on to the line.

ROBERT R. LAURENSEN,
Superintendent of Roads and Bridges.

The Commissioner and Engineer for Roads.

P.S.—I might also state that, before putting in the pipe at D, I had an interview on the ground with Mr. Barrack, Permanent Way Inspector. The pipe of same size at C was put in by Mr. Stilwell, I think.—R.R.L.

Mr. Laurenson, while stating that road bank does not cause flooding, concurs in recommendation that it be lowered, and a channel made through racecourse. By what Department should this be done, what will it cost; what will the trustees of the racecourse say to it?—W.C.B., 24/2/86. Mr. Laurenson.

I think the road should be lowered where etched in red, in case the pipes would not carry a heavy storm water; besides it will relieve the railway culvert at A, and keep water off the middle of the town. We have nothing to do with the channel through the racecourse. It is entirely a Railway drain, and that Department must deal with the trustees. I am not exactly sure of length of drain required, but think it would cost £55.—R. R. LAURENSEN, 27/2/86. The Commissioner for Roads.

Before sending this on I wish to be sure that the proper course is recommended. Should not the pipe at D be enlarged? Was B plate culvert substituted for it?—W.C.B., 1/3/86. Mr. Laurenson.

The pipe at D is, in my opinion, quite sufficient. It was put in substantially in December, 1884, at the small price of £5. It has a proper fall, and does not silt up. An iron buckle-plate culvert would cost £150, while there is neither traffic nor heavy flow of water to warrant it. The only work necessary is the work shown in red on tracing.—R. R. LAURENSEN, 13/3/86. The Commissioner for Roads.

Do the work shown in red.—W.C.B., 16/3/86. Mr. Laurenson.

Mr. Cox will please have this causeway done with gentle inclines as proposed, but the drain through the racecourse is entirely the work of the Railway Department. Note these papers and send on to head office at once, and they will have to go on to Railways.—R. R. LAURENSEN, 19/3/86.

Noted and forwarded to head office.—A.D.C., 23/3/86. Under-Secretary, for transmission.—W.C.B., 24/3/86. Railways.—J.R., 26/3/86. Mr. Cowdery.—CH.A.G., 31/3/86. Mr. Bewick, for further report.—G.C., 1/4/86.

Railway Department, Existing Lines Branch,
Office of Superintendent of Way and Works, Newcastle, 2 April, 1886.

Memorandum to Mr. G. Barrack,—

I ENCLOSE a tracing prepared by Mr. Manly, showing the proposed alteration to roads near Gunnedah Station, for preventing water flooding the line.

It is proposed to make a depression in the road at the point marked red, which work is probably now in hand. This will unquestionably relieve the railway at the point, but Mr. Manly thinks it will be necessary to construct a drain parallel with the road on the racecourse which will cost perhaps £50.

Could not this drain be dispensed with either by making the depression in the street at the point marked B or a second depression in the road at the point C, and thus throw the water within the railway fences. The question then is, can this water then be conveyed to the creek without interfering with the racecourse or private property without much expense?

Let me have your report on this matter as early as practicable.

GEO. BEWICK.

In order that you may clearly understand this matter, I enclose herewith the whole of the papers in connection therewith, and wish for your reply to the first paragraph in Mr. Laurenson's report.—G.B.

Sir,

Gunnedah, 5 April, 1886.

In compliance with your request, I now try to answer your memo. 86-714. The depression in Marquis-street is not yet in hand. It will, if carried out well, no doubt relieve the level crossing of a good quantity of water. I should suggest to let drain in racecourse stand over until we see how the depression will answer. Undoubtedly the drain would be the greatest advantage, but it would most likely be always a source of trouble, as it would keep increasing in size after storms.

The depression at C, as suggested by you, is unnecessary, I think, as we get the water inside our fences a few chains further north where we have a large drain to convey it away.

We have a drain large enough to convey the water away when the depression at point marked B is completed, but I still think a much larger opening is required at D opposite hospital than an 18-inch pipe. My impression is this: if means are taken to give the water a passage either under or over the metalling on Marquis-street it would do the railway no harm; as it is at present the water must make for the level crossing.

District Engineer.

Yours, &c.,

G. BARRACK.

From

From this report, and my own personal knowledge of the locality, I am of opinion that when the alteration suggested by Mr. Laurenson is carried out there will be no necessity for making a drain within the racecourse, as one already exists within the railway fences, which, I think, will be sufficient to take all the water away.—G.B., 7/4/86. Engineer for Existing Lines.

Full report from Mr. Barrack herewith.—G.C., 8/4/86. Commissioner. Approved.—CHAS.A.G., 12/4/86.

Reply to first paragraph of Mr. Laurenson's report.

I beg to state that, from the best information I can obtain, the station-yard was never known to be flooded to the same extent as it was last January: In November and December, 1882, I was here, and we had two very heavy storms; but they did no damage nor brought any silt down into yard. They certainly moved a few ashes, that was all. After this last storm I took twenty waggons of silt and muck out of grips deposited there by storm water.

I cannot better describe this than this way, I think. Imagine a dam or tank at level crossing, and you wished to get it filled; the plan would be to raise a mound of earth just in the same position as the metalling on Marquis-street is at present, and about the same length of it, and the first good storm you would have your dam filled.

Mr. Laurenson may remember that when starting this job I informed him we had all the water we could manage in storms, and to try and relieve us if possible in laying out his work.

Yours, &c.,

G. BARRACK,

5/4/86.

District Engineer.

No. 9.

The Mayor of Gunnedah to The Commissioner for Railways.

Sir, The Municipal District of Gunnedah, Council Chambers, Gunnedah, 25 June, 1886.

I have the honor to draw your attention to the damage and inconvenience caused by the flow of water through the railway culvert along Osric-street, Gunnedah. Quite a dangerous excavation is now being formed in the centre of that street, and I would respectfully draw your attention to the fact, with a view of having the nuisance abated.

I have, &c.,

ALFRED BACON,

Mayor.

Mr. Cowdery for report.—D.C.McL., 19/7/86. Mr. Bewick for report.—G.C., 21/7/86.

I beg to refer you to your 83/4,220, 83/4,302, 86/724, and 86/801, from which you will be able to see exactly how this matter stands. It will be seen that no additional water has been thrown on the street by the construction of the line; but the water has been necessarily concentrated by the construction of the culvert, and has caused a gully to be formed in the centre of the street for a distance of some 5 or 6 chains, from which point the water spreads and takes precisely the same course as it must have done before the construction of the railway. As the railway has not been improperly constructed in any way, it does not appear to me that the Commissioner is liable.—G.B., 30/7/86. Engineer for Existing Lines.

Report herewith.—G.C., 31/7/86. Commissioner.

I see that some of the papers are with Crown Solicitor. Is any action threatened on the part of Mr. Richardson, a claimant for compensation for injury done by the culvert?—CH.A.G., 4/8/86. Mr. Cowdery.

Mr. Richardson's solicitor claims £40 compensation, but has not yet, so far as I am aware, threatened legal proceedings.—G.C., 6/8/86. Commissioner.

There are two claims,—1. Mr. Richardson for injury to land, 2. Municipal Council, Gunnedah, for injury to street. I am not at all sure that the Department is not liable, for though no more water may flow over the land than would have spread over it if the culvert had not been constructed, it does not flow in the same even manner; but being concentrated by the culvert is, as it were, poured upon the land and street, and has formed a course which is an obstruction to the street, and perhaps an injury to the land. The papers in Richardson's case, which are said to be with Crown Solicitor, should be obtained.—CH.A.G., 7/8/86. Herewith.

The Secretary, Department of Public Works, Railway Branch, Sydney.

Sir, Council Chambers, Gunnedah, 22 October, 1886.

Referring to my letter of June 25th, to the Commissioner for Railways, and acknowledged by you on July 20th, I shall be glad to hear what decision you have come to in regard to the railway culvert, running along Osric-street, Gunnedah, and which in time of rain proves such a fruitful source of annoyance and injury to a large number of our townspeople.

Hoping for an early and favourable reply,

I have, &c.,

ALFRED BACON,

Mayor.

Inform that the Department is not prepared to admit any liability; it has not interfered with the natural flow of the water, and no more water flows upon the street than was the case prior to the construction of the railway.—CH.A.G., 28/10/86.

NOTE.—Although I give this answer, which is the substance of the Engineer's report, I am bound to say that if the Council press the matter, it will be difficult to resist the claim.—CH.A.G., 28/10/86.

Sir, Department of Railways, 2 November, 1886.

With reference to your letter of the 22nd ultimo, inquiring what decision had been arrived at in respect of your Council's claim for damage alleged to have been caused by flood-water from the railway at Gunnedah, I have the honor to inform you that I am not prepared to admit any liability.

The Department has not interfered with the natural flow of the water, and no more water flows upon the street than was the case prior to the construction of the railway.

I have, &c.,

CH. A. GOODCHAP,

Commissioner for Railways.

The Council Clerk, Gunnedah.

No. 10.

Mr. Road-Superintendent Cox to The Commissioner for Roads.

Gunnedah, 5 July, 1886.

Report *re* water running from Railway culvert, Gunnedah.

I ATTACH herewith letter from the Gunnedah Municipal Council in *re* water running from railway culvert at about junction of Baker and Osric Streets; the water from same runs through town, as marked in red on plan under separate cover. Before the railway embankment was made there was never any trouble caused by this water, and I think that as that Department has made the trouble they should deal with it and not this.

HARLEY D. COX,
Road Superintendent.

This is a question which should be dealt with by the Railway Department, to which this paper should be sent.—W.C.B., B.C., 10/7/86. Under Secretary. Railways.—B.C., 13/7/86.

Municipal District of Gunnedah.

H. Cox, Esq., Road Superintendent, Gunnedah,—

Sir,

Council Chambers, Gunnedah, 25 June, 1886.

I have the honor, by request of the Council, to respectfully inquire from you if the water coming through the railway culvert, and running along part of Osric-street, could not be run right along that street into a lagoon situated in the locality.

I have also the honor to inform you that the said water which now runs down Conadilly-street, causes considerable damage and inconvenience to a great many householders.

I have, &c.,

R. R. PRITCHARD,
Council Clerk.

Mr. Cowdery.—D.C.M'L., 14/7/86. Mr. Bewick for report.—G.C., 17/7/86. Please see report on another paper herewith.—30/7/86. Engineer for Existing Lines.

No. 11.

Memo. to The District Engineer.

Sir,

Gunnedah, 16 December, 1886.

I beg to report a thunder shower of about thirty minutes duration, occurred here last Tuesday, the 14th instant; as near as I can get information, about an inch and a quarter of rain fell in this thirty minutes. Gunnedah station-yard again got a quantity of silt brought down and deposited on ballast, caused by the formation of road leading to hospital. I have not been able to see Mr. Cox, Road Superintendent yet. He is not about here at present. I am waiting anxiously to see him, to see whether he can do anything to assist us, as something must be done, as every heavy shower that falls helps to spoil our ballast—and yard has to be examined. Debris moved away from switches.

I remain, &c.,

G. BARRACK.

This is caused through the action of the Roads Department in raising a street, which throws a considerable quantity of water on to the line which previously went in a different direction. I believe the Commissioner for Roads promised to remedy the evil, but nothing has yet been done in the matter. Please see the Commissioner's M.P., 86-2,024.—G.B., 17/12/86. Engineer for Existing Lines.

Commissioner to see. I recommend the attention of the Commissioner for Roads be drawn to this matter.—G.C., 18/12/86. Under Secretary for Public Works.—B.C., 22/12/86. A.R. Roads, B.C., 23/12/86.—J.R. Let me have the papers in this case. I think Mr. Nardin dealt with it in a recent report.—W.C.B., 24/12/86.

Government Railways, Gunnedah Station, 18 December, 1886.

Telegram to District Engineer.

ROAD Superintendent has promised to put depressions in hospital road at once to relieve Gunnedah Station yard of storm-water.

G. BARRACK,
Gunnedah.

For your information this refers to my 86-2,730, *re* flooding of Gunnedah yard, sent to you on 7/12/86.—GEO. BEWICK, 20/12/86. Engineer for Existing Lines. For Commissioner's information previous papers were forwarded 18/12/86.—G. C., 22/12/86. Commissioner. Attach when returned.—A.R., 3/1/87. This work has been satisfactorily carried out by the Roads Department.—J.B., 1/3/87. Engineer for Existing Lines.

I append copy of last report of Mr. Nardin on this. The streets of the town are now in charge of the Municipal Council, so that this Department has nothing whatever to do with the question.—W.C.B., 7/1/87. The complaint should be directed against the Council, it seems.—A.R., 13/1/87. Engineer for Existing Lines. Mr. Bewick to see.—G.C., 14/1/87. Mr. Nardin's report has no connection whatever with the subject of these papers.—G.B., 15/1/87. Engineer for Existing Lines.

Extract from Mr. Nardin's Report on Road District of Gunnedah, dated 4th October, 1886, No. 86-6,750.

Main Road through Gunnedah.

THIS is in exceptionally good order, but the open causeways at the intersections of the streets are much complained of, as it is impossible to cross them on foot during heavy rains.

It is suggested that pipe-drains or iron-topped culverts should be substituted; but, apart from the question of cost, it is doubtful if there is depth enough or sufficient fall for the purpose. The evil is caused through the water from the higher ground on the south side of the railway embankment being collected

collected and forced through two brick railway culverts. It is possible that a remedy for this may be found by means of contour drains being cut to intercept and more evenly distribute the water from this catchment area. This should form the subject of further inquiry by Mr. Cox, who will ascertain whether it can be done without interfering with suburban allotments, or whether the desired effect cannot be produced by making use of some of the back roads or streets. It seems to me, however, that the ultimate settlement of the question more properly rests with the Railway Department, to whose action the mischief is certainly attributable. The damage done by the late rain through this cause was considerable at the intersection of Osric and Conadilly Streets, the metalling was torn up for a considerable distance and water-tables cut into deep gullies, involving a somewhat heavy expense in their restoration; until a remedy is applied the same thing will occur during every heavy rain.

Destruction was only done to several private properties, and I am given to understand that in one case compensation was awarded by the Railway Department, with the promise that some steps should be taken to prevent a recurrence.

Gunnedah has been formed into a Municipality; it is, therefore, desirable to settle whether the Roads Department is still to maintain the numerous lengths which it has constructed within the Borough boundaries; in other cases the Government has refused to do so, and I think that Mr. Cox should be definitely instructed on the matter.

E. A. NARDIN,
Assistant Engineer.

Sir,

Department of Railways, Sydney, 27 January, 1887.

I have the honor to inform you that it has been reported to me that, consequent upon the defective formation of Marquis-street, within the Municipality of Gunnedah, the Station yard is flooded on the occasion of every heavy rainfall to a very serious extent, the rails having frequently been covered with water, and the ballast washed away. It would seem that the raising of the street during the time it was under the control of the Roads Department, has had the effect of blocking surface drainage from its natural course, throwing it on to the railway line at the level crossing. I have, therefore, to request that you will be good enough to bring the matter before your Council, with the view of making adequate provision for carrying away the water, and preventing the recurrence of an evil which may cause interruption to traffic.

I have, &c.,

CHAS. A. GOODCHAP,
Commissioner for Railways.

The Council Clerk, Gunnedah.

Sir,

Department of Railways, Sydney, 23 March, 1887.

I have the honor, by direction of the Commissioner for Railways, to draw your attention to his letter of the 27th January last, respecting the flooding of the Station Yard at Gunnedah, and to ask that a reply thereto may be given at your very earliest convenience.

I have, &c.,

A. RICHARDSON,
For the Commissioner for Railways.

The Council Clerk, Gunnedah.

The Municipal District of Gunnedah,
Council Chambers, Gunnedah, 30 March, 1887.

Chas. A. Goodchap, Esq., Commissioner for Railways, Department of Railways, Sydney.

Sir,

I have the honor, on behalf of this Council, to acknowledge the receipt of your communication of the 27th January last, No. 86-23,360, and 23rd instant, No. 87-23,360, and have been instructed to inform you the Works Committee of this Council report that the flooding of the station yard is caused by your drain between South-street and the railway line having silted up. Cleaning out, and attention to the drain will remedy the evil complained of.

I have, &c.,

R. R. PRITCHARD,
Council Clerk.

Paper to Mr. Cowdery, for further report.—A.R., 4/4/87. If this is a railway drain, have it cleaned out and attended to.—G.C., 6/4/87. Mr. Bewick. If this refers to my memo. of 3rd February, 1886, the evil has been remedied in a very satisfactory manner.—G.B., 7/4/87.

I saw the Mayor of Gunnedah this morning, and he informed me that this matter referred to the same subject as reported in your memo. of 3rd February, 1886. Please say when the evil was remedied, and in what way.—G.C., 12/4/87. Mr. Bewick. This work was satisfactorily carried out by the Roads Department, as reported in my minute of 1/3/87. Please see report from Sub-Inspector Pickin herewith, who has seen four of the Aldermen, and they assure him that they are not aware of any complaint being made.—G. BEWICK. This matter has been satisfactorily attended to by the Roads Department.—G.C.

Railway Department, Existing Lines Branch,
Office of District Engineer, Newcastle, 13 April, 1887.

Memorandum to W. Picken,—

SOME time ago the Gunnedah yard was occasionally flooded through water flowing into the line at the Marquis-street crossing, during heavy rainfall.

This was found to have been caused by the street having been raised, throwing the water, which had previously found its way along the drain on the southern side of the line, on to the railway. The remedy proposed was to make a depression in the road near the line of the railway fence, in order that the water might take its natural course.

Mr. Barrack reported a few weeks ago that this work had been carried out by the Roads Department in a satisfactory manner, and that the water would give us no further trouble. I presume Mr. Barrack has made no mistake in the matter.

The Council are now making some complaint about this place, which I cannot clearly understand. See some of the Municipal authorities, and let me know exactly what it is they complain of.

G. BEWICK.

District

Boggabri, 16 April, 1887.

District Engineer,—
Sir,

I had an interview with four of the members of the Gunnedah Municipal Council concerning Marquis-street. These members assure me that they have no knowledge of any complaint being made.

The depression in the road has been carried out as reported to you by Mr. Barrack.

W. PICKIN.

Engineer for Existing Lines.—G.B., 18/4/87.

No. 12.

Report by Mr. A. P. Wood.

Gunnedah Streets—Flood waters.

Sydney, 8 February, 1887.

On the 26th ultimo, in company with Mr. Cox, I examined the streets in Gunnedah, which are injured by flood-waters crossing the railway line.

* Appendix E.

By reference to the sketch attached* it will be seen that the railway culvert through which the waters complained of are discharged is situated at the intersection of Barrier and Osric Streets. The water flows through a deep defined channel for some chains down Osric-street, and near the intersection of Conadilly-street. When this channel runs out the main body of the water spreads and turns down that street, gutting out the water-tables, scouring the gravelled road, and breaking across, damages properties on the lower side.

To remedy this a pitched and covered channel should be made down Osric-street, as shown, to discharge the water into the lagoon; but I do not think that this Department is in any way called upon to interfere in regard to this work, as, after a careful examination of the locality, it appears to me that the damage done is due to concentration of water by the Railway Department.

The existing works have not increased in any way the area of the catchment from which the water complained of is gathered; but there can be no doubt that the rainfall which used to be discharged over a scattered area is now concentrated at one point, hence the damage. For this, as I have stated, the Railway Department is responsible, and I do not consider this Department is called on to take any action.

ARTHUR P. WOOD.

I forwarded this report from Mr. Wood, which is conclusive that this Department is not in any way responsible for the flooding here.—W.C.B., 8/2/87. Mr. Cowdery, for report.—D.C.M'L., 15/2/87. Mr. Bewick.—G.C., 17/2/87.

I do not clearly understand what is meant by a pitched and covered drain, but it must mean a culvert of some kind which will be very costly. It is a very difficult matter to deal with, and as the Commissioner is clearly liable, I am of opinion that the best course to pursue will be to make an offer of a certain sum (say £500) to the Council, and let them carry out the work in their own way.—G.B., 18/2/87.

The papers show that several recommendations and suggestions have been made to remedy the flooding; the last one, to hand over £500 to the Corporation, is rather startling. Do we not complain that our ballast is injured and our yard damaged by the water, &c., which is sent on to them through the raising of street. Is it by any means certain that we should provide a remedy for this, and would the handing over of £500 to the Corporation affect it if we should? Please make a clear statement of the case.—CH.A.G., 26/2/87. Mr. Cowdery. Mr. Bewick for full reply to Commissioner's minute. 28/2/87.

My minute of 18/2/87 has no reference to the flooding of the Gunnedah yard, but to damage done in Osric-street. The papers have got mixed, which I have separated. My reason for suggesting that £500 be offered to the Council was that the Crown Solicitor had decided that the Commissioner was liable, and to put in a culvert, as suggested, the cost would be near £3,000.—G.B., 1/3/87. Engineer for Existing Lines.

Report from Mr. Bewick herewith.—G.C., 2/3/87. Commissioner.'

Seen.—I am not satisfied that the Department is liable, and if it be so I do not see how the Council would be satisfied with £500 if it will cost £3,000 to effectually deal with the drainage, unless indeed they have a means of draining the land which has not occurred to our engineer; if not, the existence of the evil will not be removed, and future claims will be made, if not by the Council, by other persons interested, *i.e.*, the owners of private property in the neighbourhood.—CH.A.G., 5/3/87.

No. 13.

T. H. H. Goodwin, Esq., M.P., to The Secretary for Public Works.

Sir,

"Imperial Hotel," Wynyard Square, Sydney, — March, 1887.

The Worshipful the Mayor of Gunnedah forwarded the accompanying letter to me on the 1st instant. Upon perusal it will be seen that he complains of the water discharged through one of the railway culverts being allowed to flood the town, thus doing incalculable damage to properties fronting the main street.

From personal observation I know that all the flood-waters are concentrated by a system of drainage on the south-west side of the railway line, and discharged through a culvert (the approximate position of which is shown on tracing herewith down Osric-street. They flow down this street to its intersection with Conadilly-street) thence down that street, flooding all the properties in six sections of the town, and doing great damage to them and the road generally.

By

By the judicious expenditure of a reasonable sum of money the flood-waters could be diverted from Conadilly-street, carried down Osric-street, and discharged into a natural swamp between Bloomfield and Maitland Streets, which would convey thence to the river without injury to any property.

May I suggest that this necessary and very urgent work be proceeded with at once.

I have, &c.,

THOMAS H. H. GOODWIN.

For inquiry.—J.S., 11/3/87. Railways.—J.R., 14/3/87. Engineer for Existing Lines.—A.R. From previous reports on this matter it will be seen that the only remedy for this nuisance is to construct a culvert along Osric-street, the cost of which will be about £3,000.—G.C., 19/3/87. Secretary. See Commissioner's minute of the 5th instant.—A.R., 22/3/87. For Minister's information.—D.V. (*pro* Commissioner), 24/3/87.

[Enclosure.]

Council Chambers, Gunnedah, 1 March, 1887.

T. H. H. Goodwin, Esq., M.L.A., Sydney,—
Sir,

You may recollect when here I pointed out to you the volume of water that swept through the town after every fall of rain, caused by construction of a railway culvert at the top of Osric-street, and which you were of opinion should receive immediate attention by the Railway Department.

The matter under complaint has been referred to the Roads Department, who replied that the Railway Department should deal with the matter. The latter Department in reply stated they could not entertain the complaint, not having diverted the natural flow of the water.

I enclose tracing,* showing the position of the culvert, also, by red lines, the flow of the water. The culvert is 5 feet by 5 feet opening, and the drainage of hundreds of acres pour through it with such force that a gully has been cut across Barber-street, averaging 12 feet wide, 6 feet deep, and increasing in size, blocking the traffic at that street, from Breeza to the town, to bridge which would cost £100 or more. The drain continues, as shown, down Osric to its junction with Conadilly-street. At this point provision should be made for flow of water across Conadilly-street and down Osric-street. As the red lines show, the water sweeps down the principal street to the heart of the town, carrying away road-metal, &c., increasing size of gully, and flooding properties situate on sections 30, 31, 32, and the Police Barracks, and Wesleyan Church and Parsonage properties. Considerable damage to the road has been done at the corner of Henry and Conadilly Streets, and at the intersection of Conadilly-street and Poe-street, a causeway has been considerably damaged, and a deep drain cut near the Court-house in Poe-street. At this point you cannot get along Conadilly-street in ordinary wet weather without walking knee-deep in water. Heavy storm-waters continue in their course to Elgin-street.

When it is understood that the main body of the water referred to comes through this culvert named, destroying our streets, cutting a deep channel down Osric-street, and opening a large chasm across Barber-street, and flooding our town, the Council is justified in demanding the attention of the Railway Department, who has caused the nuisance and damage. I may also state that an owner on section 32 received compensation from the Railway Department, for damage caused by the flow of water from the culvert. Irrespective of the damage sustained between the culvert and Conadilly-street in Osric-street, the flow of water has damaged the main street of the town to such an extent that the Council will be placed to considerable expense repairing, &c. I was informed a few weeks since by a railway official here, that the Department would probably construct a brick covered drain from the culvert to Conadilly-street, and that the work had been estimated. Such a drain is the only remedy, and I hope to hear of the work being started shortly.

The Council is very desirous of avoiding litigation, but we feel in duty bound to demand attention to the matter herein, otherwise action will be taken for damages to a considerable amount.

Trusting you will be able to place this matter before the proper authorities sufficiently clear that the work will be undertaken at once.

I have, &c.,

JOHN J. SMYTH,
Mayor.

No. 14.

Minute by The Commissioner for Railways.

LET me have papers respecting the damage done to Osric-street, Gunnedah, by Railway culvert.—CH.A.G., 27/3/87

Now herewith.—A.R., 29/3/87.

There can be no question that the Railway Department is liable for concentrating the water at one particular place; the damage done to Osric-street, and in less degree to the streets beyond, is most serious. The Municipal Council, however, if the railway had never come there, would have had the same volume of water to deal with, and to have kept it off their streets, would have had to construct large and expensive water tables, but they would have had perhaps a dozen such water-courses, whereas the railway embankment and the solitary culvert gives only one. It would seem that, to take the water right away to the lagoon by means of pipes, would cost some £3,000. Mr. Cowdery obtained from the Officer of the Roads Department at Gunnedah a litho. of the towns. I should like to see him with it.—CH.A.G., 29/3/87.

I have gone carefully into this matter, and do not see my way clear to conduct this water through the town except by continuing the culvert the whole way, which is estimated to cost £3,000. However, as the 5 feet culvert under the railway was put in when the line was constructed over the outlet, cut down through near the centre of the street, I would recommend that Mr. Whitton be asked to suggest a remedy. Another alternative would be to construct a wide pitched water-table on each side of the street, but I am afraid this would not be acceptable to the Council, at the same time it would cost some £2,000.—G.C., 5/4/87. Commissioner.

This means a very serious outlay.—CH.A.G., 8/4/87. Forward to the Engineer-in-Chief, B.C., 4/5/87.—CH.A.G.

The Engineer-in-Chief advises that no responsibility be admitted, but if they think that the water is too much concentrated by the culvert, he considers that there would be no objection to put in a few extra openings under the railway.—H.D., 12/5/87.

What would extra culverts cost—sufficient in number to admit of the water flowing as it used to flow prior to the making of the embankment, or as near thereto as possible, it would require the railway to be built on piles at this place to restore the natural flow; I am afraid that to refuse to admit liability, and then to put in culverts would be construed as our admission of liability.—CH.A.G., 14/5/87. Engineer for Existing Lines, B.C.

Mr. Bewick for reply to Commissioner's minute.—G.C., 16/5/87.

I am afraid it will be impossible to put in openings that will carry the water in exactly the same direction that it went before the construction of the line, except by making a bridge nearly the length of the embankment. I enclose a tracing herewith showing the levels at different points, from which it will be seen that the point marked A is in about the same level as the culvert, and therefore, if openings were put in at that point, they would certainly take a great portion of the water from the culvert. I suggest that a timber structure be erected at this point, say 50 feet in length, the cost of which I estimate at £400. The cost of filling up the gully in the street will be about £100, but whatever we may do, even if we move the embankment, I am of opinion that the water will still take the course it now does after getting a few chains from the railway.—G. BEWICK, 26/5/87. Engineer for Existing Lines.

Report and tracing herewith.—G.C., 27/5/87. Secretary. I should like to see Mr. Cowdery about this.—CH.A.G., 29/5/87.

I see no good in making fresh openings through the embankment, as the present culvert is capable of carrying all the water; were the whole length of the embankment to be bridged, it would not remedy the evil, as the water would concentrate a few chains below the line in consequence of the forming of the water tables in the streets. The great difficulty is that the bottom of the culvert is about 4 feet 6 inches below the roadway or street, and the outlet of the culvert has been cut down the street which (outlet) has very much increased in size. I see no way of conducting the water through the town other than by extending the culvert, which is very expensive.—G.C., 1/6/87. Commissioner.

If the evil will not be remedied by the construction of additional waterways, I see nothing but wasteful extravagance in the proposal to make them. It is impossible to deny that the streets of Gunnedah have been greatly injured by the concentration of the water. The Engineer-in-Chief advises that responsibility be not admitted. The preferable course will be to spending £500 uselessly as proposed, to offer that amount to the Municipal Council to aid them in getting rid of the water.—CH.A.G., 4/6/87.

Approved.—J.S., 4/7/87. Engineer for Existing Lines.—A.R., B.C., 4/7/87. Secn. I presume the Council will be informed, and will carry out work.—G.C., 5/7/87.

Sir,

Department of Railways, Sydney, 7 July, 1887.

Referring to correspondence which has passed, relative to damage done to streets in the township of Gunnedah, through storm-water being collected and discharged thereon through a railway culvert, I have the honor, by direction of Mr. Secretary Sutherland, to inform you that the Government is willing to contribute the sum of £500 to assist the Municipal Council in getting rid of the water.

I have, &c.,

CHAS. A. GOODCHAP,
Commissioner for Railways.

T. H. Goodwin, Esq., M.P., Legislative Assembly, Sydney.

No. 15.

Mr. T. H. H. Goodwin, to The Secretary for Public Works.

Sir,

Sydney, 9 May, 1887.

I beg to enclose herewith a letter from the Mayor of Gunnedah *re* damage done to streets in that town through storm-waters being collected and discharged through a railway culvert.

I wrote to you on this subject last March, and may I now ask to be informed what action you purpose taking to remedy the subject complained of.

I have, &c.,

THOMAS H. H. GOODWIN.

The Municipal District of Gunnedah.

T. H. H. Goodwin, Esq., M.L.A., Sydney,—

Sir,

Council Chambers, Gunnedah, 5 May, 1887.

Referring to our letter of the 25th February last, *re* the dangerous drain in Osric-street, will you kindly ascertain from the Commissioner for Railways what steps are being taken to have the damage repaired and remedied.

I have, &c.,

JOHN J. SMITH,
Mayor.

For attention.—10/5/87. Perhaps Mr. Quodling can expedite papers.—A.R., B.C., 11/5/87. Report was furnished on 12th instant.—W.H.Q., 14/5/87. Mr. Richardson.

No. 16.

J. P. Abbott, Esq., M.P., to The Under Secretary for Public Works.

Dear Mr. Rae,

Wentworth Court, Sydney, 4 August, 1887.

Will you let me know when the Minister can receive a deputation from the Borough Council of Gunnedah, in reference to the overflow of water from the railway line into Osric-street. It would not be convenient for the deputation to attend this week, but any day after would suit.

Yours truly,

J. P. ABBOTT.

Inform that Mr. Sutherland cannot, at present fix a day for receiving deputation. Might not a letter from Mr. Abbott, or the Council, explaining the matter, suffice.—J.R., 5/8/87.

Sir,

Sir,

Department of Public Works, Sydney, 5 August, 1887.

In reply to your letter of the 4th instant, requesting an interview for a deputation from the Municipal Council of Gunnedah, in reference to the overflow of water from the railway line into Osric-street, I am directed to inform you that the Secretary for Public Works regrets that he is unable, at present, to appoint a day upon which to receive the proposed deputation; but, if the Council will clearly state, in writing, the circumstances of the case, the matter will receive every consideration, and a reply will be furnished to the Council.

I have, &c.,

JOHN RAE.

J. P. Abbott, Esq., M.P.

Sir,

Department of Public Works, Sydney, 25 August, 1887.

Referring to my letter to you, of the 5th instant, with respect to alleged flooding of Osric-street, Gunnedah, I am directed to inform you that the Municipal Council has not yet given the particulars of the case, as requested in the communication referred to above.

I have, &c.,

JOHN RAE.

J. P. Abbott, Esq., M.P., Sydney.

6 and 7, Wentworth Court, Sydney, 31 August, 1887.

John Rae, Esq., Under Secretary, Department of Works,—

Sir,

Referring to your letter of the 25th instant, 20,87/7,147, I am desired by the Municipal Council of Gunnedah to inform you that a reference to the papers in the case will show that the Council long since gave all the information now asked for in reference to Osric-street.

I have, &c.,

J. P. ABBOTT.

Roads, 2/9/87.—J.R. Might be informed that this is with the Railway Department. Most likely last action is based on their report.—W.C.B., 5/9/87.

Sir,

Department of Public Works, Sydney, 8 September, 1887.

In reply to your letter of the 31st ultimo, with respect to the flooding of Osric-street, Gunnedah, I am directed to inform you that the papers referred to in your communication are with the Railway Department, but as soon as a report shall be received from the Commissioner for Railways a further communication will be made to you.

I have, &c.,

JOHN RAE.

J. P. Abbott, Esq., M.P., Sydney.

The Commissioner will doubtless remember, and the papers show, that £500 was offered to the Gunnedah Council to aid them in getting rid of the drainage water from the Railway into Osric-street. They are, it is assumed, dissatisfied with this, and request the Minister, through Mr. Abbott, M.P., to receive a deputation on the subject.—A.R., 13/9/87.

For Minister's decision.—CHAS. A.G., 15/9/87. Better arrange deputation.—J.S., 24/9/87. Friday, 30th instant, at 11:30.—J.R., 24/9/87. The deputation has been postponed.—D.C.M'L., 29/9/87. The papers have been called for by the House, I think. Please let me have the resolution.—D.C.M'L., 29/8/87.

Sir,

Department of Public Works, Sydney, 26 September, 1887.

Referring to the correspondence which has taken place respecting the flooding of Osric-street, Gunnedah, I am directed to inform you that in compliance with the request contained in your letter of the 4th ultimo, the Secretary for Public Works will receive the deputation from the Municipal Council of Gunnedah on Friday, the 30th instant, at 11:30 o'clock a.m.

I have, &c.,

JOHN RAE.

J. P. Abbott, Esq., M.P.

Sir,

Legislative Assembly, Sydney, 28 September, 1887.

In reply to the accompanying letter, which was handed to me last night by Mr. J. P. Abbott, I respectfully beg to inform you that sufficient time has not been allowed to permit a deputation from the Municipal Council of Gunnedah to wait upon the Secretary for Works on the date specified *re* the flooding of Osric-street.

Gunnedah is situated some 300 miles north of Sydney, and most of the gentlemen connected with the Municipal Council are actively engaged in business pursuits, therefore four days notice is not nearly sufficient to enable them to make arrangements for leaving their business with a view of waiting upon the Minister in connection with the above matter.

I have adopted another course with a view of bringing the case under reference to a close speedily; but should the residents of Gunnedah still desire an interview with the Minister, I will communicate with you, and in the event of my doing so may I request that at least fourteen days notice be given as to the date upon which the deputation will be received.

I have, &c.,

THOS. H. GOODWIN.

John Rae, Esq., Sydney.

[Six Plans.]

APPENDIX A.
No 1.

— C. N. R. —
— NORTH WESTERN EXTENSION —
PLAN & SECTIONS
— SHEWING OPEN DITCH AT ^{M C} 195 10 —



Nº2
N. W. R.

APPENDIX B.

PLAN

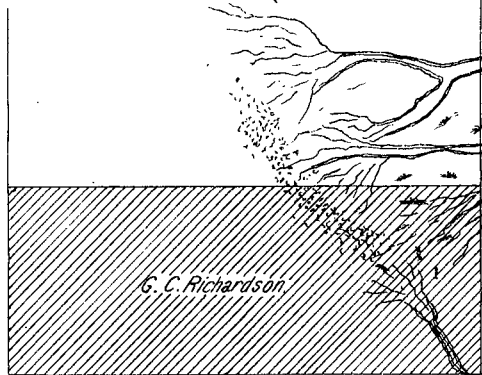
SHOWING M^R RICHARDSON'S PROPERTY

AT GUNNEDAH, NEAR 195M.50C.

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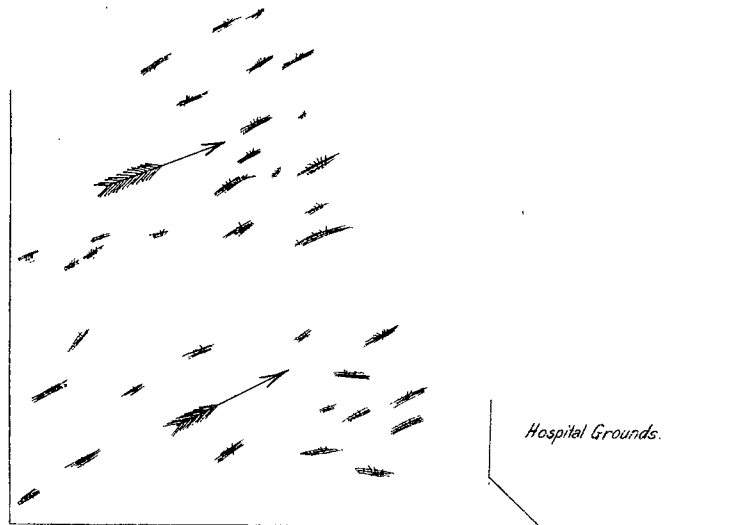


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195M.50C

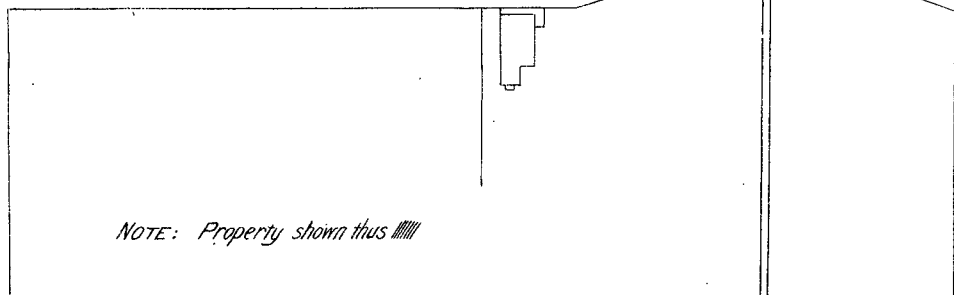
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Hospital Grounds.

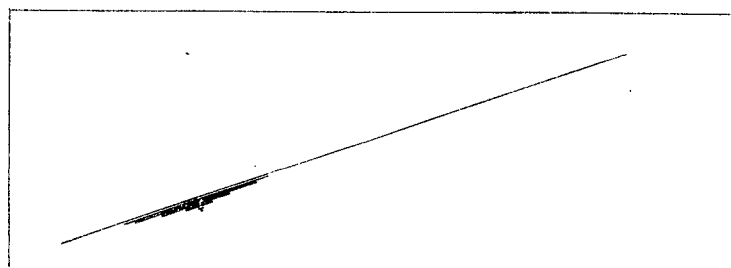
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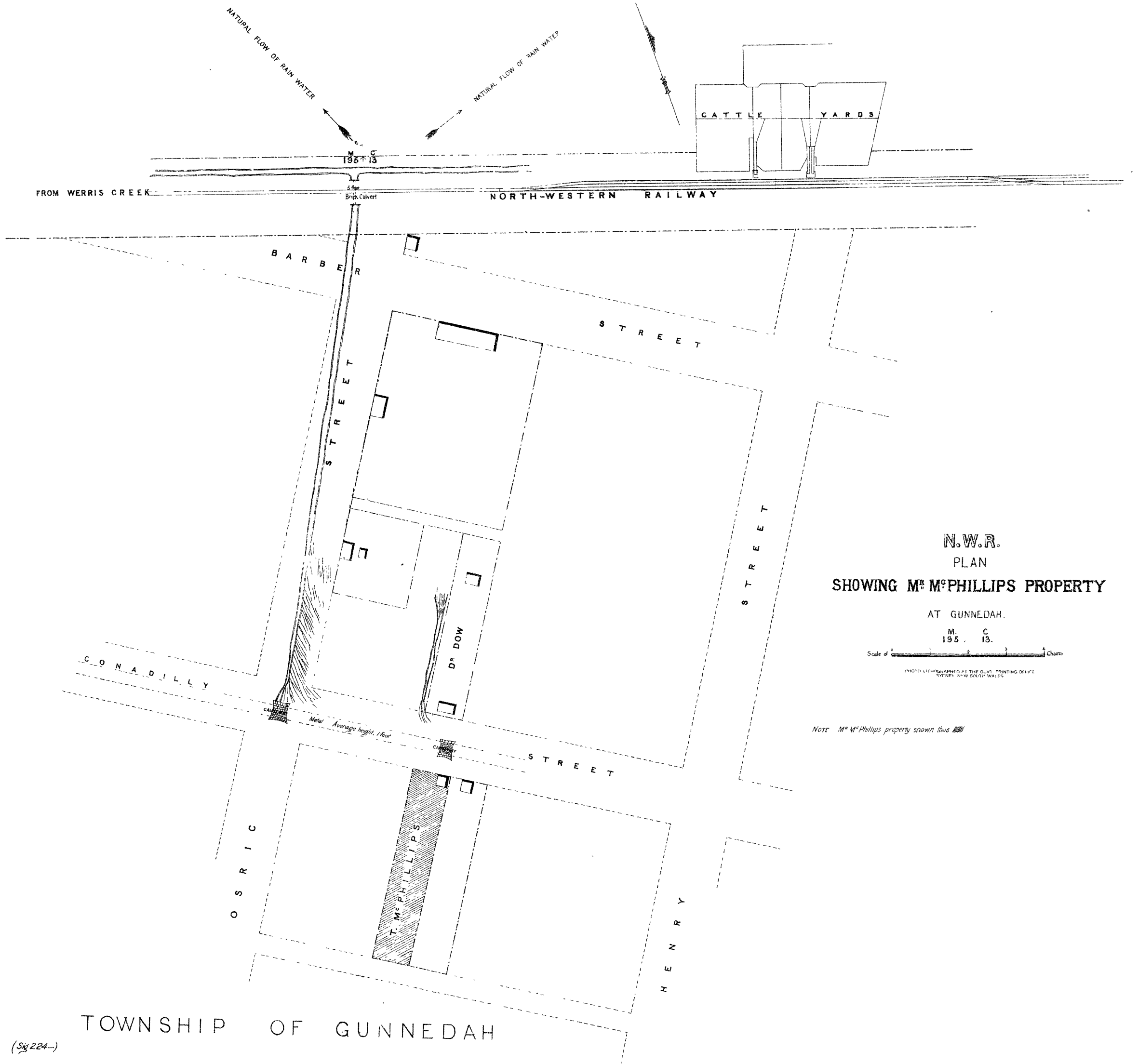


NOTE: Property shown thus 

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(Sig 224-)



N.W.R.
 PLAN
 SHOWING M^r M^c PHILLIPS PROPERTY
 AT GUNNEDAH.

M. C.
 195 . 13.
 Scale of 0 to 130 Chans

PHOTO LITHOGRAPHED AT THE GOVT. PRINTING OFFICE
 SYDNEY BY W. BENTLEY WALKER

NOTE: M^r M^c Phillips property shown thus

APPENDIX D.
No 6.

TOWNSHIP
OF
CUNNEDAH

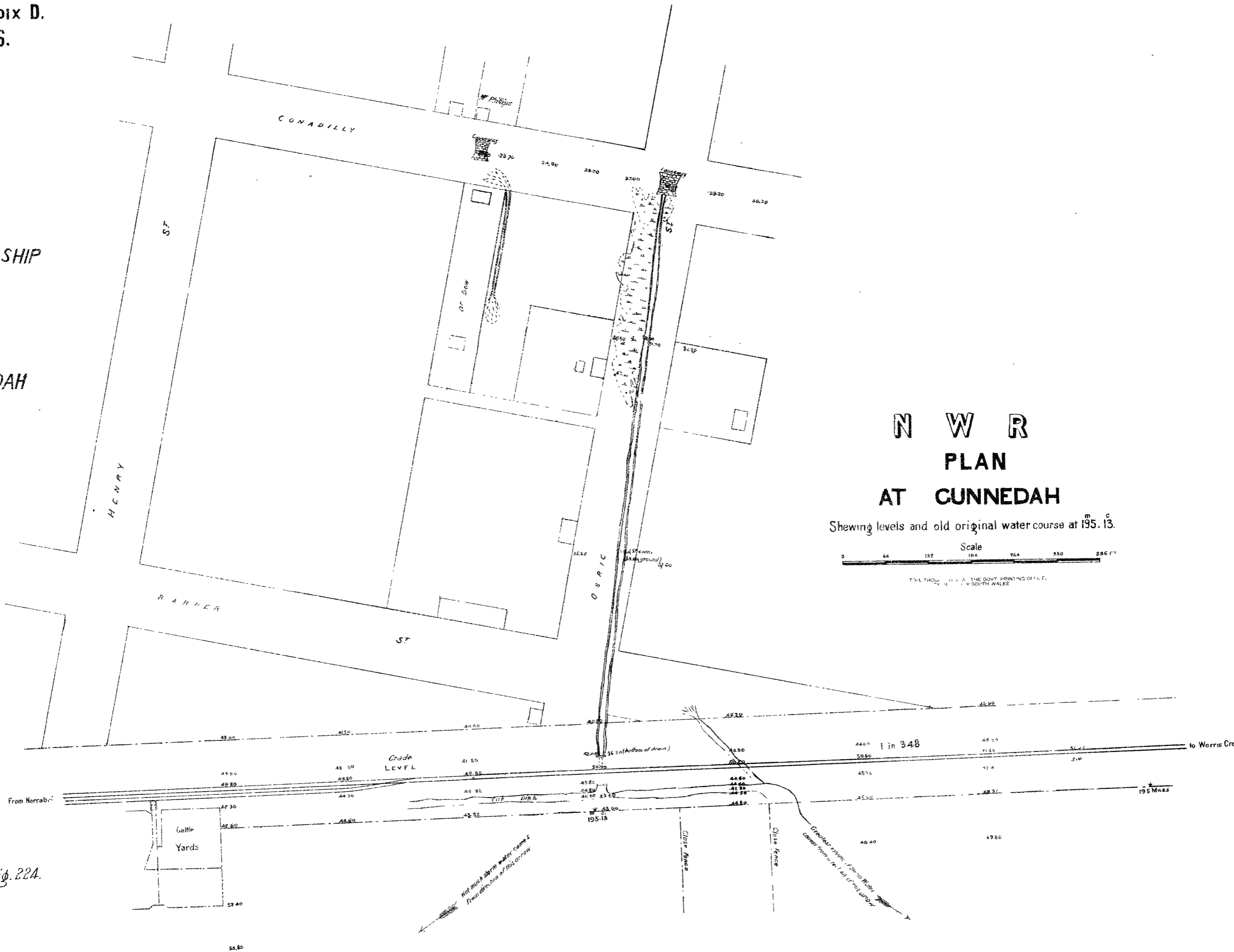


Fig. 224.

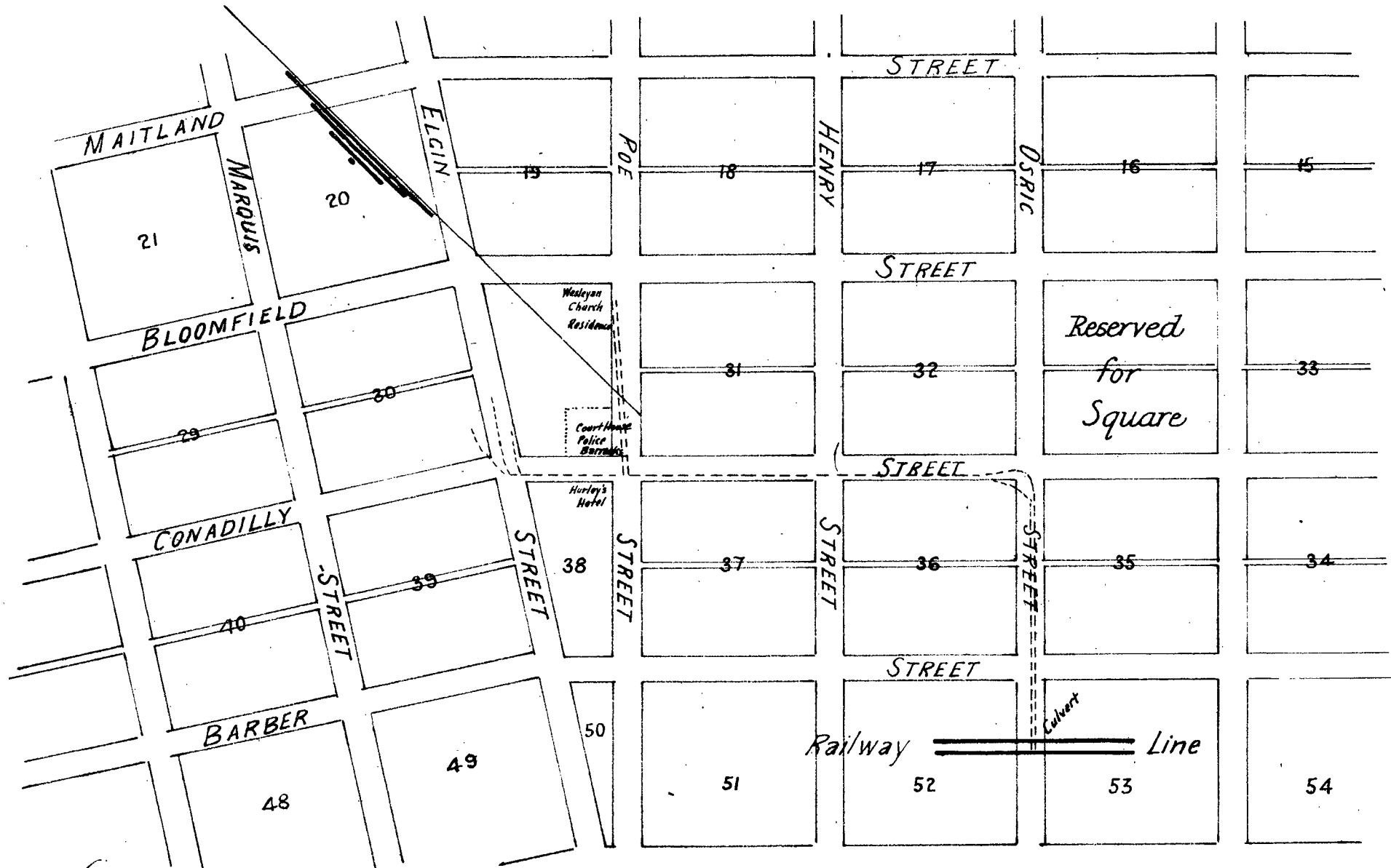
N W R
PLAN
AT CUNNEDAH

Showing levels and old original water course at 195.13.

THE GOVT. PRINTING OFFICE,
NEW SOUTH WALES

N^o 5

APPENDIX E



(sig 224)

Nº 4

G.N.R.

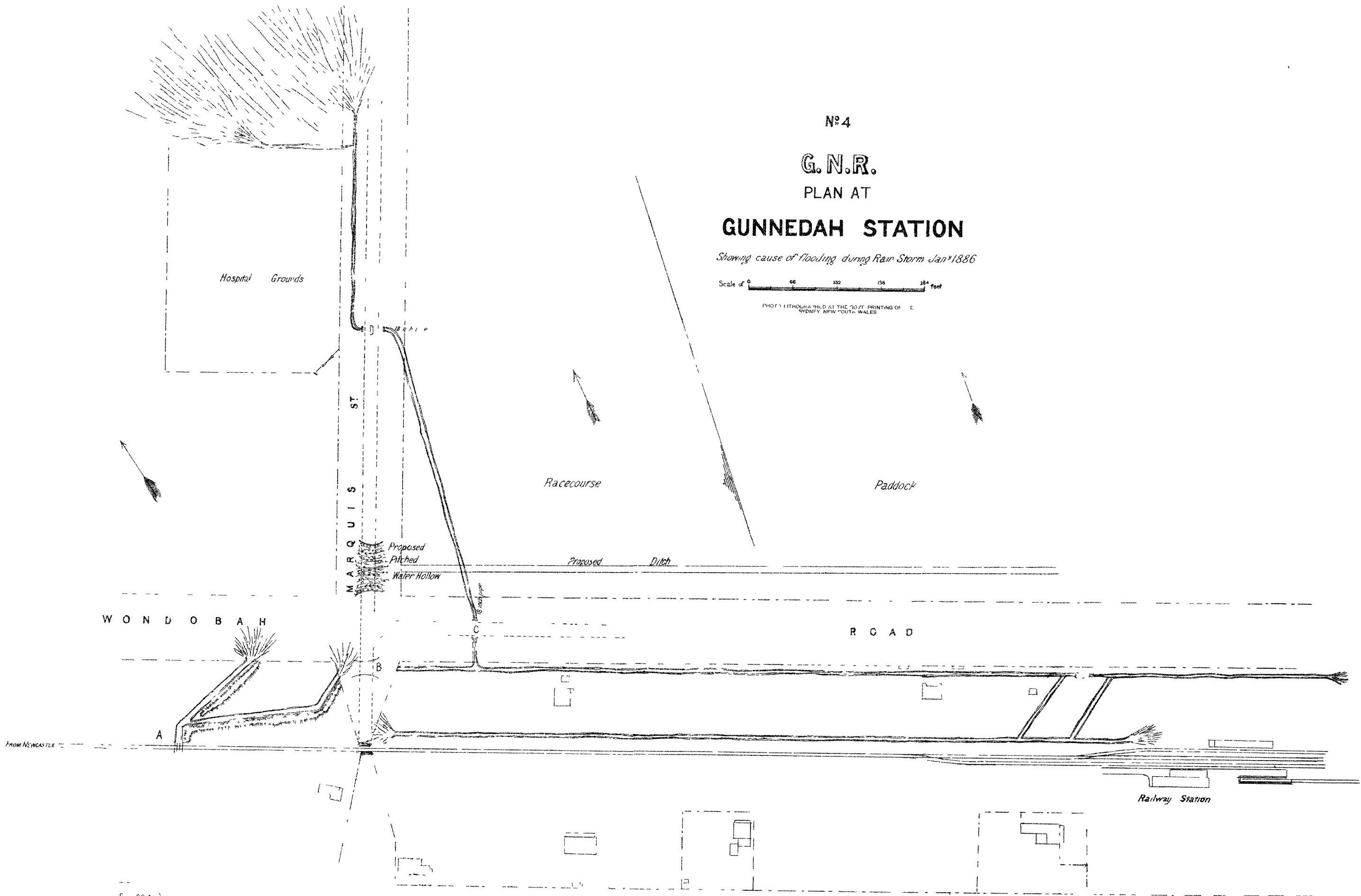
PLAN AT

GUNNEDAH STATION

Showing cause of flooding during Rain Storm Jan^r 1886

Scale of 0 66 132 198 264 feet

PHOTO LITHOGRAPHED AT THE GOVERNMENT PRINTING OFFICE, SYDNEY, NEW SOUTH WALES



1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(ADDITIONAL ACCOMMODATION, WHITTINGHAM PLATFORM—CORRESPONDENCE.)

Ordered by the Legislative Assembly to be printed, 7 February, 1888.

RETURN to an *Order* of the Honorable the Legislative Assembly of New South Wales, dated 17th November, 1887, That there be laid upon the Table of this House,—

“Copies of all correspondence, petitions, minutes, and other documents
“having reference to desired additional accommodation at Whittingham
“Platform, on the Great Northern Railway, since the year 1882.”

(Mr. Gould.)

NO.	SCHEDULE.	PAGE.
1.	Letter from Mr. A. J. Gould, M.P., to Minister for Works, asking that a Porter be placed in charge, and trucking yards erected at Whittingham Platform, with Traffic Manager's report and minute of Commissioner. 22 March, 1883	2
2.	Letter from Mr. Gould, M.P., to Commissioner for Railways, respecting above matter; Traffic Manager's report and decision of Commissioner to have yards erected; Mr. Gould informed. 25 April, 1883	2
3.	Letter from Mr. Gould, M.P., to Commissioner for Railways, requesting that increased accommodation for trucking stock be provided; approved, and Mr. Gould informed. 23 October, 1883	3
4.	Letters from Mr. Gould, M.P., to Minister for Works, urging the erection of a goods-shed at platform, with traffic reports and decision; Mr. Gould informed. 10 and 24 November, 1883	4
5.	Letter from Mr. D. F. Mackay to the Hon. F. A. Wright, with further reference to above work being carried out; minutes thereon. 16 January, 1884	5
6.	Letter from Mr. Gould, M.P. (enclosing communication from Mr. D. F. Mackay) to Commissioner for Railways, urging that above work be carried out; report of Traffic; Mr. Gould informed. 15 January, 1885	5
7.	Letters from Mr. D. F. Mackay to Minister for Works, <i>re</i> above, with Minister's reply. 29 April and 4 May, 1885	6
8.	Letter from Mr. D. F. Mackay to Commissioner for Railways, <i>re</i> above, with Commissioner's minute. 24 June, 1885	7
9.	Letter from Mr. Gould, M.P., to Commissioner for Railways, for crane and shed to be erected, with Commissioner's reply. 17 September, 1885	7
10.	Letter from Mr. Gould, M.P. (enclosing one from Mr. Faulkner) to Commissioner for Railways, again urging work to be carried out; Traffic Manager's report; Commissioner's minute thereon; Mr. Gould informed. 30 August, 1886	7
11.	Letters from Mr. Gould, M.P. (with enclosures from Mr. Mackay) to Minister for Works, <i>re</i> above; Commissioner's minute; Traffic Manager's report; Mr. Gould informed. 28 February and 30 March, 1887	8
12.	Letter from Mr. Gould, M.P., to Minister for Works, asking that a return of traffic be obtained before final decision is given with regard to the work; minutes by Commissioner, and Minister's decision; Departmental minutes, &c. 21 April, 1887	10
13.	Letter from Mr. Gould, M.P., to Commissioner for Railways, <i>re</i> erection of loading stage, &c., at platform; Minister's minute; Mr. Gould informed. 25 October, 1887	11

RAILWAYS.

No. 1.

A. J. Gould, Esq., M.P., to The Secretary for Public Works.

Sir,

Legislative Assembly, Sydney, 22 March, 1883.

I am desired by a number of my constituents, resident at Whittingham, Vere, Bourke, and neighbourhood, to call your attention to the desirability of making better provision for the accommodation of passenger, and especially goods and cattle, traffic, at the Whittingham platform, south of Singleton, and at the intersection of the railway with the road to Vere and Bourke, and to ask that you will be pleased to place a porter in charge, and cause to be erected yards for trucking stock. With reference to this latter convenience, I enclose you a letter I am in receipt of from Mr. D. F. Mackay, of Dulcahmah, showing the desirability thereof. In addition to this gentleman, I may remind you there are the Messrs. Dangar, Faulkner, Blaxland, and many others, who all have extensive transactions with stock, and to whom these yards would doubtless be of great convenience. In support of my request that a porter may be placed in charge at this platform, I learn that during the year 1882 the coaching traffic represented £266, while the goods traffic, exclusive of wool, represented £75 in and £12 out, in all £341, and this in the face of the great drawback to the platform not having any person in charge, and the unavoidable departmental regulations in respect thereof, which are not calculated to ensure anything like the traffic obtainable if a porter were placed in charge. I may remind you that there is a siding at this platform, and the locality has been considered of sufficient importance to warrant the establishment of a post office, with a daily despatch and receipt of mails. Upon referring to returns showing the traffic at Doughboy Hollow, for the year 1882, at which place there is a porter in charge, I find that the coaching traffic represented £274, and the goods, exclusive of wool, £178, thus showing return of Whittingham, without a porter in charge, against those of Doughboy Hollow, with a porter in charge, exclusive of wool, to be—

	Coaching.	Goods.	Total.
Whittingham	266	75	341
Doughboy Hollow	274	171	445

I trust you will give this matter your early and I hope favourable attention, as I have no doubt the returns would be materially enhanced by the granting of the convenience desired. Your colleague, the Minister for Mines (Mr. Abbott), with whom I have had some conversation relative to this matter, is acquainted with the locality, and can vouch for the desirability of acceding to my request.

I have, &c.,

A. J. GOULD.

[Enclosure.]

My dear Sir,

Whittingham, 6 March, 1883.

In reply to your inquiries about the traffic in connection with the Whittingham platform, I beg to inform you that I am now stocking Dulculmach with about 10,000 sheep, principally wedders, for fattening purposes. The wool of same will go by rail from Whittingham, and if suitable yards, &c., are erected there for trucking stock, the greater portion (if not all) the fat sheep would go by rail also.

I remain, &c.,

D. F. MACKAY.

Railways, 28/3/83.—J.R. Mr. Higgs, for report, 28/3/83.

In my opinion the traffic is not sufficient to justify the employment of a man in charge. There is no comparison between the places named by Mr. Gould. Doughboy is on a heavy gradient; and again, it is a staff and ticket station, which necessitates the employment of a man.—J. HIGGS, 31/3/83.

Minute by The Commissioner for Railways.

THE HON. J. P. Abbott saw me, with Mr. Gould, on this matter.

Mr. Abbott expressed his opinion that there was no justification for any outlay for additions at Whittingham, unless it could be shown that small stockyards would be useful.

To my reply that Singleton was only a short distance away, and the stockowners could drive to the stockyards there, it was stated, both by Mr. Abbott and Mr. Gould, that stockowners drove their cattle, &c., to West Maitland from Whittingham, and did not truck at Singleton, but would truck at Whittingham if they had the facilities.

If we are losing a good traffic by there being no stockyards at Whittingham, that is a matter which requires looking into. Mr. Higgs will try and ascertain the quantity of live stock sent from the neighbourhood which, if there had been stockyards at Whittingham, would have been sent from there.

CH.A.G., 5/4/83.

No. 2.

A. Gould, Esq., M.P., to The Commissioner for Railways.

Sir,

Singleton, 25 April, 1883.

Following my letter of 22nd March ultimo, asking that you would be pleased to put a porter in charge at the Whittingham platform, on the Great Northern Railway, and cause to be erected yards for the trucking of stock, and the interview of Mr. J. P. Abbott, M.P., and myself with you in reference to the same matter, I have pleasure in handing you the enclosed letter, received by me from Mr. R. T. Blaxland, J.P., of Murinbrie, near Broke, on the same subject, who appears to consider it very desirable that such porter

porter should be placed in charge and the yards erected for the trucking of stock. I shall be glad if you determine to accede to my request, as I am convinced it will be of great convenience to a very large population at Whittingham, Vere, Broke, and elsewhere, and believe it will be found to pay well.

I have, &c.,
A. GOULD.

[Enclosure.]

Dear Sir,

Murinbri, Whittingham, 17 April, 1883.

Referring to yards for trucking stock at the above place, which I hear you are about applying for, I beg to state that, in my opinion, they are much required, and I, for one, would frequently use them in preference to sending stock by road to Maitland, particularly calves and sheep. Also, with reference to its being made a platform, with a man in charge, I think this is much needed, as quantities of produce and timber, now very inconveniently sent to Singleton, would be trucked there; in fact, the whole of the wheat and corn and hay grown in that portion of the valley of Wollombi, between Broke and Wollombi, would go to Whittingham. Trusting you may be able to obtain this boon for us,

A. J. Gould, Esq., M.P., Singleton.

I remain, &c.,
R. BLAXLAND.

Re Stockyards, Whittingham.—From inquiries made I am under the impression that Messrs. A. A. and W. J. Dangar, Blaxland, Mackay, and a few others would send stock from Whittingham if suitable stock-yards were provided. I think it would be much used for sheep and pigs; but I am not so sure that the accommodation would create so much additional traffic, that is, to any great extent. I have no doubt that some traffic would be diverted from Singleton. Mr. Bewick informs me that even to provide small yards would be very costly.—J. HIGGS, 30/4/83.

Let me know what the estimated cost is for small yards.—CH.A.G., 4/5/83. Mr. Cowdery. The cost will be about £50.—G.B., 11/5/83. Engineer, Existing Lines. Estimated cost, about £50.—G.C., 15/5/83. Commissioner. Have the yards erected.—CH.A.G., 21/5/83. Mr. Cowdery. Inform Mr. Gould, 25/5/83.

The Commissioner for Railways to A. J. Gould, Esq., M.P.

Sir,

Department of Railways, 25 May, 1883.

Adverting to your letter of the 25th ultimo, and previous communications and interviews on the subject of constructing yards at Whittingham, to facilitate the trucking of stock, I have the honor to inform you that it has been decided to erect a suitable yard at that place, and directions will be given for the work to be carried out as early as possible.

I have, &c.,
CH. A. GOODCHAP,
Commissioner for Railways.

Mr. Bewick to have yard erected and charge to Sch. G.—G.C., 26/5/83. Noted.—G.B., 30/5/83 Engineer, Existing Lines. Accountant to see cost.—G.C., 31/5/83. Accountant. Noted.—J.W 19/6/83. Engineer, Existing Lines. Commissioner.—G.C., 21/6/83.

No. 3.

A. J. Gould, Esq., to The Commissioner for Railways.

Sir,

Sydney, 23 October, 1883.

I understand that no provision has been made at the small yards at Whittingham, on the Great Western Railway Line, for trucking stock, for the loading and unloading of sheep into the upper floors of the sheep-trucks, nor is there at this platform any accommodation for the loading and unloading of ordinary merchandise and produce. I shall be glad therefore if you will give this matter your favourable attention, and have these matters attended to, as also the erection of a suitable goods-shed. I may remind you that the traffic at this platform is considerably larger than at other more favoured platforms.

I have, &c.,
A. J. GOULD.

Mr. Higgs for report.—D.C.M.L., 26/10/83.

Return herewith showing the goods and live stock for three months, ending 30th September. I would suggest that Mr. Bewick be instructed to provide a portable stage whereby the upper tier of the trucks can be used. I scarcely think it advisable at present to erect a goods-shed at this place.—J. HIGGS, 31/10/83.

Approved and informed.—D.V., 3/11/83.

The Commissioner for Railways to A. J. Gould, Esq., M.P.

Sir,

Department of Railways, 6 November, 1883.

With reference to your letter of the 23rd ultimo, directing attention to the necessity for providing conveniences for trucking stock at Whittingham, and asking that a suitable goods-shed may be erected at the same place, I have the honor to inform you that a portable stage will be provided to load the upper tier of the trucks, but the traffic is not sufficient to warrant the erection of a goods-shed.

I have, &c.,
CH. A. GOODCHAP,
Commissioner for Railways.

Mr. Cowdery, 7/11/83. Mr. Bewick for report.—G.C., 7/11/83.

There is very little room for increasing the accommodation at this place; but I think a kind of portable stage for the purpose of loading sheep into the upper tier might be made for about £10.—G.B., 12/11/83. Engineer, Existing Lines.

Approved.—G.C., 13/11/83.

No. 4.

A. J. Gould, Esq., M.P., to The Secretary for Public Works.

Sir,

Sydney, 10 November, 1883.

I am in receipt of letter from Commissioner for Railways, intimating, in reply to my request that a suitable goods-shed might be erected at Whittingham platform, on the Great Northern Railway, "that the traffic is not sufficient to warrant the erection of goods-shed."

May I draw your attention to the fact that the goods traffic at this platform for the year 1882 amounted to £88, while that at Allandale amounted during same period to £81, and yet a goods-shed and other improvements, costing £621 6s. 4d. to the end of August last, were provided at this latter place, and to ask upon what principle the Department acts in these matters. The gross traffic at Allandale was (1882) £327, as against £354 at Whittingham, £27 less; yet the Department spends £621 and places a porter in charge, and deny the same advantages to Whittingham and Glennie's Creek, at which latter place traffic receipts (1882) were £378, £51 more than Allandale.

I have, &c.,

A. J. GOULD.

Mr. Higgs for report, 19/11/83. Report herewith.—J. HIGGS, 22/11/83.

Traffic at Allandale.—In reporting on matters of this kind it is not the traffic that we do in all cases that guides me in recommending the erection of goods-shed, &c., but it is principally the traffic which we anticipate by affording additional accommodation. Again, the population and the localities tend to influence me in such matters.—J. HIGGS, 22/11/83. Commissioner.

Be good enough to report on the allegations contained in Mr. Gould's letter.—D.V., 23/11/86.

Mr. Higgs.

It will be seen by enclosed returns for the portion of 1883 ending 31st October last, that the goods trade at each of the places named was as follows:—

Allandale, in and out	...	...	...	...	...	£194
Whittingham, in and out	...	...	...	...	...	86
Glennie's Creek, in and out	...	...	...	...	...	124

These figures show an increase at Allandale which it is confidently hoped will justify the naming of that platform before either of the others named for a porter-in-charge to be placed there. It might be added that the bulk of the business done at Whittingham and Glennie's Creek is of a class that does not call for any shed, while that of Allandale is mainly general merchandise, requiring shed accommodation. I have now in hand the preparation of returns which will show the class of business in the goods branch of each of the three places named, which will, I am convinced, prove this, and which I will send on as soon as prepared. If the decision can conveniently be postponed for Mr. Higgs' further report, I am satisfied good and sufficient grounds can be advanced by that gentleman for deferring, at least for the present, any outlay on buildings or on account of wages. There is already ample siding room at both Whittingham and Glennie's Creek.—F. R. NIELD, 29/11/83. Commissioner.

A. J. Gould, Esq., M.P., to The Secretary for Public Works.

Sir,

Singleton, 24 November, 1883.

Following my letter of the 10th instant, receipt of which is acknowledged, relative to my request for a goods-shed at Whittingham platform, Great Northern Railway, I beg to enclose letter I have received from Mr. Mackay on the subject, in which he points out certain accommodation required for loading sheep, and platform for loading trucks. These very reasonable requirements, I trust, will be at once acceded to, and that the goods-shed and porter in charge, not alone here, but at Glennie's Creek platform, will follow at an early date.

I have, &c.,

A. GOULD.

[Enclosure.]

My dear Sir,

Dulcahmah, Whittingham, 19 November, 1883.

Speaking to you yesterday, I understood you to say that there was not sufficient traffic at Whittingham platform to induce the Government to give us more accommodation there for loading and unloading stock, hay, wool, &c. The reason is that we have no accommodation, except for loading sheep in the lower portion of trucks. There should be a second rail at a higher elevation leading into the top trucks. There should also be a platform on a level of the trucks for loading hay, buggies, horses, &c., so that a dray could be backed up to it, and hay rolled off the dray into the truck, so that one man could do it. As it is at present the sheep have to be lifted into the top trucks, and three men have to be sent with every load of hay or wool to load or unload, and the farmers from Broke, Vere, and this neighbourhood, Dangars and myself prefer sending loading into Singleton, a distance of 4 extra miles, which means 8 there and back, rather than load at Whittingham as it is at present. The whole affair would not cost £150, and if properly done would last for the next twenty years. That portable platform or plank which you spoke of will not do, the incline would be too steep, and sheep will not walk up it. So I hope you will do your best to get the necessary additions made.

I remain, &c.,

D. F. MACKAY.

Commissioner for report.—F.A.W., 27/11/83. Mr. Higgs to see and expedite the reports alluded to.—D.V., 7/12/83.

In reporting again on this matter I have but little to add. I think the figures already given show that the business conducted at Allandale is much more extensive than that done at either of the other places, but with a view of showing that a shed was required, that for the ten months ending October, 53 tons of wire was sent from Allandale, I think it will be admitted that this alone would almost justify the erection of a shed; but would it not be as well to let the matter stand over for a few months, then if it is found that the traffic at Glennie's Creek and Whittingham would justify increased accommodation, I would be prepared to recommend it.—J. HIGGS, 18/12/83. Commissioner.

Acknowledge letter and inform of effect of Traffic Manager's reports.—D.V., 21/12/83.

The

The Commissioner for Railways to A. J. Gould, Esq., M.P.

Sir,

Department of Railways, 28 December, 1883.

Referring to your letters of the 10th and 24th ultimo (the latter covering a communication from Mr. D. F. Mackay) addressed to the Hon. the Minister for Public Works, on the subject of increased shed and loading accommodation at Whittingham platform, I have the honor to inform you that I have caused a full report (including a return of the traffic, inwards and outwards, up to the 31st October last) to be furnished in the matter, but there appears to be no warrant for further provision being made at the places named at present. Comparing Whittingham with Allandale and Glennie's Creek, I find that for the first ten months of this year the traffic amounted to only £88 at the first-named platform, as against £194 and £124 respectively. The bulk of the business, moreover, at Whittingham is of a class that does not require shed accommodation, and the Traffic Manager reports that with the present traffic he is not prepared to recommend the accommodation asked for.

I have, &c.,

CH. A. GOODCHAP,
Commissioner for Railways.

No. 5.

D. F. Mackay, Esq., to The Secretary for Public Works.

My dear Sir,

16 January, 1884.

On the strength of old acquaintance I take the liberty of writing you a private letter, and enclose one of mine cut out of the *Singleton Argus*. I need say very little, as it explains what we require, and I hope that you will give us the necessary accommodation both at Whittingham and Ravensworth platforms. The trucking yard at the latter place is now quite useless. Mr. Hill, my manager there, informs me that the last time he attempted to truck some calves at Ravensworth they broke the yard down and several of them got astray on the line, so that we cannot now truck stock there of any description without the danger of their getting away. A man who was sent up to repair it after a few hours work left it in much the same condition that it was in before.

Yours, &c.,

D. F. MACKAY.

Commissioner for report.—F.W.W., 17/1/84.

Remark on newspaper paragraphs.

Mr. Mackay's argument goes simply to show that by supplying facilities at Whittingham we should take the traffic from Singleton, where appliances already exists. The matter is at present standing over for a few months to see how the traffic will show at the end of that time.—D.V.

Let matter stand for a time as proposed.—CH.A.G., 7/2/84.

No. 6.

A. J. Gould, Esq., M.P., to The Commissioner for Railways.

Sir,

Singleton, 15 January, 1885.

Referring to previous correspondence, urging the appointment of a porter-in-charge, and erection of necessary accommodation for the traffic at Whittingham platform, on the Great Northern Railway, I beg to hand you enclosed letter from Mr. D. F. Mackay on this subject, complaining of the inconvenience suffered by him through the absence of the necessary facilities for the required traffic. I may remind you that this platform is much used and of great convenience to the public resident in the neighbourhood, and at the village of Vere and Broke, and that they really have cause of complaint at the scant accommodation afforded. I do not know whether Mr. Wright, during his recent visit of inspection, made any inquiries relative to the requirements of this platform, but I am sure if he did so he must have found abundant evidence as to the need and advisability of appointing a porter and giving the necessary accommodation, similar to that at Allandale.

I have, &c.,

A. J. GOULD.

Traffic Manager, North, for report.—19/1/85. Report herewith.—J. HIGGS, 29/1/85.

[Enclosure.]

Sir,
I hope you will not forget to remind the Government of the necessity of having better means provided for loading and unloading stock at Whittingham. We can load sheep there, but there is no provision for loading cattle, horses, or buggies. A shed should also be built, and porter appointed. I had 240 bulls to truck to Newcastle on Tuesday morning last. These bulls, with four horses, had to be sent to Singleton and put into the trucks on Monday evening at 4 p.m., and had to remain without either feed or water until 8 a.m. on Tuesday morning, when they arrived at Newcastle. If they could have been loaded at Whittingham, they could have remained in my paddock until 1 a.m. on Monday night, and then trucked in time to leave Whittingham by the 4 a.m. train on Tuesday morning. As we cannot load horses or cattle at Whittingham, many that now go by road would go by rail if I can get them on board there. You will see by this that Singleton gets a great many stock that ought to be trucked at Whittingham.

I remain, &c.,

D. F. MACKAY.

A. J. Gould, Esq.

Referring to M.P. 85-432, dated 17/1/85, wherein Mr. Gould, M.P., applies for additional accommodation at Whittingham platform, it will be seen by the enclosed return that there has been a small increase in the traffic from this place, but, in my opinion, the increase is not sufficient for any great outlay; in fact, as the platform is within 3 miles of Singleton, which has the necessary accommodation for doing a large business, I think it would be unwise at present to expend any more money at this platform.—J. HIGGS, 29/1/85.

[Sub-enclosure.]

[Sub-enclosure.]

COMPARATIVE Statement of Goods and Passenger Traffic done at Whittingham Platform during years 1883 and 1884.

Periods.	Inwards.				Outwards.				Total in and out.		
	Goods.		Passengers.		Goods.		Passengers.		Goods and Passengers, &c.		
	Tons.	Amount.	No.	Amount.	Tons.	Amount.	No.	Amount.	Goods.	Passengers.	Amount.
1883	368	£ 72	1,357	£ 177	52	£ 63	1,318	£ 78	Tons. 420	No. 2,675	£ 390
1884	208	69	1,505	207	131	133	1,372	82	339	2,877	491
Increase during 1884 .....	...	...	148	30	79	70	54	4	...	202	101
Decrease during 1884	160	3	...	...	...	...	...	...	81	.....	...

J. HIGGS, 29/11/85.

The Commissioner for Railways to A. J. Gould, Esq., M.P.

Sir,

Department of Railways, 4 February, 1885.

With reference to your letter of the 15th ultimo, asking that additional accommodation may be provided at Whittingham platform, I have the honor to inform you that inquiry has been made, and under the report of the Traffic Manager I am unable to sanction any further expenditure at this platform.

I have, &c.,

CH. A. GOODCHAP,
Commissioner for Railways.

No. 7.

D. F. Mackay, Esq., to The Secretary for Public Works.

My dear Sir,

Dalcalmah, Whittingham, 29 April, 1885.

I hope you will pardon the liberty I take in writing to you privately on the following subjects, but I have sent in so many petitions, and written to the head of the Department without any results, that I now think it best to write to yourself. We have a siding at Whittingham platform, but no facility for loading or unloading horses, buggies, &c. We can load sheep, but everything else has to go either to Singleton or Branxton, which is very inconvenient for all residents of Whittingham and Broke, as it incurs, from Singleton, an extra carriage of 6 miles (3 miles to Singleton and 3 miles back). For instance, I had 250 bulls to truck to Newcastle, and instead of being able to load them at Whittingham I had to send them on to Singleton, thus incurring extra expense and loss of time. Goods also have to go through to Singleton and then back to Whittingham, thus incurring extra freight.

In a reply to former application to head of Department it was said that there was not sufficient traffic to warrant expense of additional works at Whittingham, but the reason is that we have no facility for loading or unloading, and therefore have to send goods to Singleton that ought to start from Whittingham.

Hoping you will give this matter your favourable consideration,

I remain, &c.,

D. F. MACKAY.

The Secretary for Public Works to D. F. Mackay, Esq.

My dear Sir,

Department of Public Works, 30 April, 1885.

In reply to yours of yesterday, asking that accommodation might be provided at Whittingham for loading and unloading vehicles, I have to inform you that I have given the matter consideration, but regret I cannot comply with your request. Were I to do this it would mean that this place would be ranked as a station, with all the accompanying expenses of station hands, &c., and this the traffic would not justify; and further, there is no great necessity for the accommodation, as there is a carriage deck, &c., existing on a station only 3 miles distant.

Yours, &c.,

F. A. WRIGHT.

D. F. Mackay, Esq., to The Secretary for Public Works.

My dear Sir,

Dalcalmah, Whittingham, 4 May, 1885.

Yours of the 30th April to hand. I am sorry you cannot see your way to give us better accommodation at Whittingham. You say the traffic is not sufficient for further expenditure there, but if you only give us one porter with a shed to receive goods, and platform to load and unload, the traffic will soon increase, which it cannot do until we get these conveniences. Only a few days ago I had to go on to Singleton instead of being let out at Whittingham, which I was ill able to do, being in a very delicate state of health, incurring extra expense and 6 miles additional travelling for myself, horses, two carriages, and servants, and as I have already pointed out to you, with the exception of sheep alone, we have to send our cattle, horses, &c., to Singleton to be trucked, or by road to Maitland. The farmers from Broke lose a day by having to go to Singleton with a load of hay, whereas if we had the shed and porter at Whittingham they could get back on the evening of the same day. The Government has given sheds and porters at Glennie's Creek and other places on the line not so important as Whittingham. Only give us the facilities for loading and unloading, and you will soon have sufficient traffic.

Yours, &c.,

D. F. MACKAY.

Mr. Mackay informed that no further accommodation can be given.—F.A.W., 11/5/85.

No. 8.

No. 8.

D. F. Mackay, Esq., to The Commissioner for Railways.

Sir,

24 June, 1885.

I am surprised at you opposing our application for a goods-shed and porter at Whittingham platform, when the same has been given to other places on the line, of much less importance, such as Glennie's Creek and other places further up. Your reply to all our petitions has been not sufficient traffic to warrant the expense, but if you will only give us the necessary appliances, such as a shed, porter, and facilities for loading and unloading, you would very soon find the traffic would so increase that it would not only pay, but pay well. As it is now we have to pay extra carriage on goods from Whittingham to Singleton, and then back to Whittingham, incurring not only extra expense but also loss of time, and sometimes loss of goods also, as when they are left at Whittingham they are left on the platform with no one in charge and open to the weather, and sometimes lost altogether. Some goods of mine that ought to have arrived several days ago have not turned up yet. The people from Broke and surrounding neighbourhood must either send three men to load and unload hay, &c., at Whittingham, or else send an extra distance of 6 miles to Singleton (3 miles there and 3 miles back), thus incurring extra expense in labor or time, for if they could load at Whittingham they could truck their produce and return home the same day with their supplies. Now, by going to Singleton it takes two days, besides the additional expense of a night in town with man and team. We can truck sheep at Whittingham, and on a few occasions were allowed to truck horses there, but the latter has been stopped. I, myself, had 500 bulls to ship at Newcastle for Queensland, and had to send them to Singleton, and of course incurring extra expense and trouble, and it is the same with all stock, everything must go to Singleton. Instead of encouraging traffic you are obstructing it. Only this morning, although it is pouring rain now, I have sent sixty head of fat cattle to Maitland by road, where they will arrive hollow and foot sore. If I could truck them from Whittingham they would remain quietly in my paddock to-night, start at daylight in the morning by 4 o'clock train, and arrive fresh and full at the sale-yards. I could say a good deal more on this subject, but think I have said enough, and trust that you will see the necessity of giving us what we have so long asked for, viz., a goods-shed and porter, crane and other appliances necessary at Whittingham.

I remain, &c.,

D. F. MACKAY.

The Minister has so recently decided that no further accommodation can be given at Whittingham that it seems unnecessary to prolong the correspondence. The papers may therefore be put by for the present.—CH.A.G., 29/6/85.

No. 9.

A. J. Gould, Esq., M.P., to The Commissioner for Railways.

Sir,

Singleton, 17 September, 1885.

Great dissatisfaction continues to be evinced by numbers of persons who are desirous of availing themselves of the facilities that should exist at Whittingham platform on the G.N.R. for goods traffic.

Newcastle Department appear disinclined to grant the very just and reasonable applications for a porter-in-charge. I am desired to ask that at least a platform with a crane be erected at the siding at this place for the loading and unloading of goods, together with a covered shed for the protection of such goods in wet weather.

I have, &c.,

A. J. GOULD.

The Commissioner for Railways to A. J. Gould, Esq., M.P.

Sir,

Department of Railways, 19 September, 1885.

Referring to your letter of the 17th instant, asking that a platform and crane may be provided at Whittingham siding, together with a weather-shed, I have the honor to inform you that this matter has been under the consideration of Mr. Secretary Wright, who decided that no further accommodation can be given at Whittingham.

I have, &c.,

CH. A. GOODCHAP,

Commissioner for Railways.

No. 10.

A. J. Gould, Esq., M.P., to The Commissioner for Railways.

Sir,

Sydney, 30 August, 1886.

I have again to draw your attention to the need of additional railway accommodation at the Whittingham platform, near Singleton, on the Great Northern Railway, and enclose a letter received by me on the subject from Mr. R. Faulkner. Many residents in the locality are constantly complaining of the lack of accommodation and inconvenience experienced by them. If returns are called for, I am confident it will be found that a considerable amount of business is done in spite of the lack of convenience provided, and I am further sure that the appointment of a porter-in-charge, the erection of a small goods-shed, and providing conveniences for the loading of hay and other goods, and unloading, and the prompt despatch of sheep and cattle will tend not only to the convenience of the public and the prevention of loss in the way indicated and suffered by the Messrs. Faulkner, but also to the receipts at this platform.

I have, &c.,

A. J. GOULD.

Mr. Higgs for report.—D.C. M'L., 2/9/86. Report herewith.—J. HIGGS, 27/9/86.

[Enclosure.]

[Enclosure.]

Dear Sir,

Lairmount, Singleton, 24 August, 1886.

Enclosed you will find a letter I have had from Mr. M'Kay about getting a proper convenience placed at Whittingham platform. I think myself, the place is due for a shed and one porter at any rate. There is a great deal of business done there, and I am sure a lot more would be done if the proper convenience were placed there. On last Thursday my brother and myself had thirty-seven head of fat cattle to truck to Maitland for sale on that day. We ordered trucks the night before, and they were sent by 20 to 8 train in the morning, which was the train the latter were to go by. We had the cattle in the yard ready to truck, waiting for the trucks, but the train would not let us truck them. It would not have taken 10 minutes, so had to take the cattle back and send them by Monday's train. The trucks stayed there from the Tuesday until the Monday following. When we used them we lost fully £1 per head on our cattle, through not having the trucks on the Thursday, for cattle had fallen fully that much between the two days. There is no fault to be found with the officials at Singleton, for the Station-master is very obliging as far as he can go, but if they can leave trucks there from Thursday until Monday, why cannot they have trucks left there for the public to use as they require them. If you want trucks for there you have to give at the least 24 hours' notice before you can have them at Whittingham, and that is not always convenient; for instance, the auctioneer wires up in the evening, send your cattle or sheep for to-morrow, a good market; we near Whittingham platform have no chance of doing so.

I think there is quite sufficient traffic forwarded to Whittingham to justify the Minister in putting a small shed and one porter there. Mr. M'Kay thinks two porters, but I think one would be sufficient.

Hoping you will see to the matter,
A. J. Gould, Esq., M.L.A.

I am, &c.,
R. FAULKNER.

In replying to the letter referring to the wants of Whittingham platform, it will be seen by the annexed return that the traffic at this platform is growing, and it is only a question of time when we must place a man there in charge by affording additional facilities at this place; I feel sure it will add to the traffic, but I am afraid it will draw the traffic from Singleton; still I think increased accommodation should be provided. As to the loss sustained by Mr. Faulkner, he has no one but himself to blame. He should order the trucks in sufficient time.—J. HIGGS, 27/9/86. Commissioner.

In the first six months of 1885 the revenue from coaching and goods amounted to £235. For the past six months of this year, £294. Increase, £59. The increase is not very large. A porter-in-charge will be £130 a year. Residence, £26 = £156. Interest at 6 per cent. upon (say) £500 outlay for goods-shed, &c., £30 = £186. Will the increase traffic justify this outlay.—CH. A. G., 30/9/86. Mr. Higgs. I am under the impression the traffic will increase, and something should be done, I think.—J. HIGGS, 5/10/86. Commissioner.

I cannot recommend compliance with the recommendation that a man be placed in charge of Whittingham platform and siding and a goods-shed be erected. The annual outlay will not be less than £200 a year. I will visit this place shortly.—CH. A. G., 10/10/86. Inform.—W. J. L., 13/10/86.

G. N. Railway.

RETURN of in and out traffic at Whittingham during the first six months of 1885, and the same period of 1886.

Months.	1885.								1886.							
	Coaching.				Goods.				Coaching.				Goods.			
	In.	Out.	In.	Out.	In.	Out.	In.	Out.	In.	Out.	In.	Out.	In.	Out.		
	No.	No.	£	£	tons	tons	£	£	No.	No.	£	£	tons	tons	£	£
January	149	145	18	18	16	6	7	8	125	92	14	11	11	9	4	13
February	105	83	13	6	5	5	1	7	107	98	22	10	4	6	2	13
March	138	124	14	8	4	3	3	10	115	89	28	8	12	1	10	6
April	188	185	16	19	15	8	5	13	152	173	22	16	18	12	4	19
May	127	100	22	8	15	6	7	4	97	89	17	6	17	1	3	13
June	93	83	14	6	6	4	3	2	90	85	16	6	20	5	10	21
	800	720	97	65	61	32	26	44	686	626	119	57	82	34	33	85

The Commissioner for Railways to A. J. Gould, Esq., M.P.

Sir,

Department of Railways, 16 October, 1886.

Referring to your letter of the 3rd August last, with enclosure from Mr. Robert Faulkner, representing the use of a small goods-shed and siding at Whittingham, Great Northern Railway, and the appointment of a porter in charge, I have the honor to inform you that, under the reports received, I am unable at present to recommend a compliance with your wishes; but when I go north, shortly, I will visit the place and ascertain if the traffic facilities can be increased at a reasonable expenditure.

I have, &c.,
CH. A. GOODCHAP,
Commissioner for Railways.

No. 11.

A. J. Gould, Esq., M.P., to The Secretary for Public Works.

Sir,

Singleton, 28 February, 1887.

Referring to my interview with you on Thursday last, when I drew your attention to the urgent need of additional railway facilities at Whittingham platform, near Singleton, I now beg to hand you letter received by me from Mr. D. F. Mackay, on the subject, a similar letter having been addressed you or the Commissioner, as I am informed by Mr. A. A. Dangar. Whittingham platform will naturally command an increased trade if proper facilities are offered for public convenience. I have repeatedly addressed the Department on this subject, but without any satisfaction. I do however venture to hope that

that the past consideration so long denied to my representations will no longer be withheld. The only accommodation afforded the public is a small platform, a siding, and stage for loading sheep. What is required is the appointment of a porter-in-charge, a platform for loading and unloading goods, facilities for trucking stock, a crane, weigh-bridge, and small goods-shed. That a large traffic exists, spite of the discouragement afforded the public, cannot be gainsaid, and, with the conveniences sought, these would be largely increased; and I cannot more strongly urge than does Mr. Mackay in the enclosed that the railways were built and are, presumably, maintained for the convenience, and not the inconvenience, of the public.

I have, &c.,
A. J. GOULD.

[Enclosure.]

Dear Sir,

11 February, 1887.

I must again address you *re* Whittingham platform, and the troubles we are put to in railway matters there. Since the recent alteration of time-tables there is only one train per diem which can put a truck into Whittingham (as all the others are ticket and not staff trains), and this truck cannot go out till the same train next day, thus causing unnecessary delay. The chief reason why graziers here prefer to truck stock to market instead of travelling them by road, is because they are or should be enabled to get stock promptly to market on short notice from agents, and with sensible management this could easily be done, but if we are obliged to give at least two days previous notice to railway authorities it will facilitate matters to send stock by road, as this only takes one day.

It is a pity to see income driven away from the railways thus, simply through clumsy mismanagement, which would not for a moment be tolerated by any director of a Company. If this be a fair example of the managing capacity of the Railway Department there is little to wonder at that railways do not pay in New South Wales. Another trouble is concerning goods consigned to Whittingham. In order to get delivery of these their freight has to be paid in Singleton, as there is no one at Whittingham authorized to receive money.

Hitherto this has been partially obviated by the Singleton Station-master consenting to hold an advance fund to meet freight, thus saving delay and inconvenience, but I am informed that the authorities have vetoed this. This appears to me an unreasonably piece of despotism. I imagine our railways were built by the people for their own use to the best advantage, and not for a ring of apparently incompetent men to practise mismanagement on. I have written so repeatedly on this matter to the various members of the Department without result that I am tired of doing so, and trust you may do something for me. Surely some improvement could be made, if only to permit the gate-keeper, Mr. Cousens, who is thoroughly reliable, to receive freight payments, and also to put up signals to permit ticket trains putting in trucks.

Yours, &c.,
D. F. MACKAY.

For inquiry.—J.S., 1/3/87. Please see papers herewith. The Commissioner is to visit the place on the first opportunity.—D.C.M'L., 3/3/87. I propose visiting the northern line about the middle of this month.—CH.A.G., 3/3/87.

Seen.—J.S.

A. J. Gould, Esq., M.P., to The Secretary for Public Works.

Sir,

Sydney, 30 March, 1887.

Referring to my interview with you some short time since, and my letter to you forwarding a communication from Mr. Mackay on the subject, I shall be glad to learn whether it is in contemplation to place a porter-in-charge at Whittingham platform on the Great Northern Railway, and proceed with the several requirements of the platform as desired in my many letters, enclosures, and interviews on the subject. The recent visit of Mr. Goodchap to the line has, I trust, convinced him of the reasonable nature of the requests so often preferred by me.

I have, &c.,
A. J. GOULD.

For report.—J.S., 31/3/87.

I visited this place and could see no indication of any traffic beyond the wants of the two admirable private properties of Mr. Dangar and Mr. Mackay. They are as pleasing to the eye as the evident absence of nearly all but most trifling traffic is disappointing to the expectation of a railway manager. Although this is only a platform with limited means of loading stock, I do not see that any more outlay, if outlay is to be justified by corresponding returns, can be justly sanctioned. Obtain for me the returns: passenger, goods, and stock of such traffic as there is, and the revenue derived from it. One or two of the matters referred to in Mr. Mackay's characteristic letter might be attended to.—CH.A.G., 29/3/87.

Mr. Higgs for attention.—D.C.M'L. Mr. Higgs.—A.R., 31/3/87. In my opinion the traffic is not sufficient to justify the appointment of a man. I would suggest that the platform be lengthened, and that signals be provided so that ticket trains could stop and attach and detach trucks when necessary.—J. HIGGS, 7/4/87. Assistant Secretary. Inform Mr. Gould.—A.R., 13/4/87.

The Commissioner for Railways to A. J. Gould, Esq., M.P.

Sir,

Department of Railways, 18 April, 1887.

With reference to your letter of the 30th ultimo, and your previous interview with the Secretary for Public Works, relative to the expediency of placing a porter-in-charge at Whittingham platform, G.N.R., and of effecting certain improvements there, I have the honor to inform you that the whole subject has had careful attention, and it is not considered that the traffic would justify either the appointment of a porter or the outlay involved in carrying out your other recommendations.

I have, &c.,
CH. A. GOODCHAP,
Commissioner for Railways.

No. 12.

A. J. Gould, Esq., M.P., to The Secretary for Public Works.

Sir,

Sydney, 21 April, 1887.

Referring to the eminently unsatisfactory letter of 18th inst., intimating that it is not considered that the traffic at Whittingham platform on the G.N.R. would justify either the appointment of a porter or the outlay involved in carrying out my other recommendation, may I request that you will obtain a return of the receipts and traffic done with this platform before arriving at a final determination.

The present system of management is scandalously inefficient and unsatisfactory, and the repeated refusals of additional accommodation at this platform are alike unjust to the public and well calculated to destroy every semblance of traffic. As an evidence of the inefficient management to send a truck load of stock to Maitland necessitates a notification to the station at Singleton not later than two days previous, so that practically the convenience (?) is worthless.

I have, &c.,

A. J. GOULD.

Let me have the papers on this subject.—J.S., 23/4/87.

The letter to Mr. Gould, to which this is a reply, should not have been sent without Minister's approval. I asked in my minute of 29/3/87 for a return of the traffic. This has not been furnished. Be good enough to have it supplied.—CH.A.G., 27/4/87. Mr. Higgs.

Return herewith.—J. HIGGS, 4/5/87.

The traffic is greater than I thought it was. The revenue for six months was £350. Is there a gatekeeper at this place, and if signals were erected and the platform lengthened could he attend to the platform, issue tickets, &c. How far is the gate away?—CH.A.G., 5/5/87. Mr. Higgs.

G. N. Railway.

RETURN of in and out traffic at Whittingham from October, 1886, to March, 1887, inclusive.

Months.	IN.								OUT.									
	Coaching.		Goods	Live Stock.					Amount from Goods and Live Stock.	Coaching.		Goods	Live Stock.					Amount from Goods and Live Stock.
	Passengers.	Amount.	Weight.	Horses.	Cattle.	Calves.	Sheep.	Pigs.		Passengers.	Amount.	Weight.	Horses.	Cattle.	Calves.	Sheep.	Pigs.	
1886.	No.	£	tons	No.	No.	No.	No.	£	No.	£	tons	No.	No.	No.	No.	No.	£	
October	159	20	108	...	...	...	...	16	150	18	3	12	20	1	1,413	...	22
November	214	15	145	...	...	...	15	23	183	11	9	...	3	...	499	10	17
December	217	21	35	...	...	...	56	6	185	10	1	...	3	...	726	...	13
1887.																		
January	211	15	24	...	...	...	...	5	209	16	1	...	9	...	535	29	7
February	235	18	53	...	...	...	...	12	215	10	...	...	...	...	200	2	2
March	192	28	35	...	28	...	15	24	165	11	6	...	7	...	95	...	10	
Total	1,228	117	400	...	28	...	86	86	1,107	76	20	12	42	1	3,468	41	71	

The gatekeeper is the wife of one of the permanent way men. If tickets are to be issued it will be necessary to appoint a man, and also provide an office, &c. The gate-house is quite close to the platform.—J. HIGGS, 7/5/87.

What is the wife of the fettler paid?—CH.A.G., 4/6/87. Mr. Higgs. 15s. per week.—J. HIGGS, 7/6/87. Commissioner.

For Minister's consideration. A man might be appointed to attend to gates and platform Signals should be put up, and the platform lengthened slightly.—CH.A.G., 13/6/87. Approved.—J.S., 14/6/87. Mr. Higgs.—A.R., 14/6/87.

The Commissioner, in his notes on inspection on the north, directed the closing of Woodford, and I think it would be a good opportunity to utilize the officer-in-charge's services and the station plant by removing them to Whittingham, giving the public, of course, ample notice of closing. The platform at Whittingham should be lengthened about 80 feet, and authority is required for erection of office and waiting-room. Signals have been erected.—J. HIGGS, 15/6/87. Commissioner.

Mr. Cowdery to note authority for lengthening platform, and report lowest cost of office and waiting accommodation necessary.—A.R., 16/6/87. Mr. Bewick to note approval, and carry out and report as to lowest cost of office and necessary waiting accommodation.—G.L., 17/6/87.

Mr. Higgs suggests that a waiting-room and a ticket-office be erected; also closet and urinal accommodation be provided, and the platform lengthened by 80 feet. The total cost of these works will be about £250. Please say how to be charged.—G. BEWICK, 24/6/87. Engineer.

The lengthening of platform is already approved. What will be the cost of office and necessary waiting accommodation.—G.L., 25/6/87. Mr. Bewick. Estimated cost of ticket-office and waiting-room, about £170, and closet and urinal accommodation, about £30; total, £200.—G. BEWICK, 28/6/87. Engineer, Existing Lines. The estimated cost of ticket-office, waiting-room, and closet accommodation will be about £200.—G.L., 29/6/87. Secretary. Does Mr. Higgs recommend so large an expenditure?—A.R., 30/6/87. Having decided to put a man in charge, the accommodation suggested, and the cost, are on the lowest scale. I am therefore obliged to recommend.—J. HIGGS, 7/7/87. Assistant Secretary. For Minister's approval.—CH.A.G., 11/7/87. Approved.—J.S., 15/7/87. Engineer for Existing Lines.—A.R., 16/7/87. Mr. Bewick to carry out.—G.L., 18/7/87. Noted. Please say how to be charged.—G. BEWICK, 19/7/87. Engineer, Existing Lines. Please say how work is to be charged.—G.L., 20/7/87. Commissioner. Schedule G.—CH.A.G., 23/7/87. Engineer for Existing Lines.

No. 13.

A. J. Gould, Esq., M.P., to The Commissioner for Railways.

Sir,

Singleton, 25 October, 1887.

I am glad to observe that some of the much-needed work at the Whittingham platform, near Singleton, viz., lengthening of platform and erection of ticket office and waiting-room, &c., have at length been completed.

I must, however, direct your attention to the need of a loading stage and crane and small goods-shed, as also platform for loading stock. The traffic will, I am convinced, amply justify the erection of these conveniences, which are anxiously desired by a large section of the public.

I have, &c.,

A. J. GOULD.

Mr. Higgs.—A.R., 27/10/87.

I find the traffic is improving at this place. I think a loading stage or a crane should be provided, but I am afraid the erection of a shed for goods would be too costly; therefore I am unable to recommend it. We have stock-yard accommodation already, although on a small scale,—still it serves the purpose for which it was intended.—J. HIGGS, 8/11/87. Assistant Secretary.

What would a loading stage and crane cost?—D.C.M'L., 17/11/87. Engineer, Existing Lines. Mr. Bewick for estimated cost.—G.C., 19/11/87. The cost will be about £200.—G.B., 25/11/87. Estimated cost, £200.—G.C., 26/11/87. Secretary. Not at present.—CH.A.G., 28/11/87. Mr. Higgs to see.—A.R., 29/11/87. Noted.—J. HIGGS, 2/12/87. Assistant Secretary. I have made inquiry in this matter. I think amount (£200) might be expended.—J.S., 5/12/87. Inform Mr. Gould, then Mr. Cowdery.—D.C.M'L., 6/12/87.

The Commissioner for Railways to A. J. Gould, Esq., M.P.

Sir,

9 December, 1887.

Referring to the representations contained in your letter of the 25th October last, I have the honor to inform you that the Secretary for Public Works has approved of a loading stage and crane being provided at Whittingham platform, and the necessary directions have been given in the matter accordingly.

I have, &c.,

CH. A. GOODCHAP,

Commissioner for Railways.

Mr. Bewick to carry out.—G.C., 9/12/87. Noted.—Please say how to be charged?—G.B., 10/12/87. Engineer, Existing Lines. Please authorize charge.—G.C., 12/12/87. Commissioner. Schedule G.—CH.A.G., 13/12/87. Accountant.—A.R., 14/12/87. Engineer, Existing Lines.—J.V., 20/12/87. Mr. Bewick to note.—G.C., 29/12/87. Noted.—G.B., 30/12/87.

1887.

(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

GOVERNMENT RAILWAYS BILL.

(MESSAGE No. 4.)

Ordered by the Legislative Assembly to be printed, 29 September, 1887.

CARRINGTON,

Governor.

Message No. 4.

In accordance with the provisions contained in the 54th section of the Constitution Act the Governor recommends for the consideration of the Legislative Assembly the expediency of making provision to meet the requisite expenses in connection with a Bill to make better provision for the management of the Government Railways and Tramways of New South Wales, and for other purposes.

Government House,

Sydney, 29th September, 1887.

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

GOVERNMENT RAILWAYS ACT AMENDMENT BILL.
(MESSAGE No. 61.)

Ordered by the Legislative Assembly to be printed, 26 June, 1888.

CARRINGTON,
Governor.

Message No. 61.

In accordance with the provisions contained in the 54th section of the Constitution Act, the Governor recommends for the consideration of the Legislative Assembly the expediency of making provision to meet the requisite expenses in connection with a Bill to amend, in certain respects, the "Government Railways Act of 1888."

Government House,
Sydney, 26th June, 1888.

1887.

(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

RAILWAYS AND TRAMWAYS.

(PURCHASE OF BLUE METAL—TENDERS, MINUTES, &c.)

Ordered by the Legislative Assembly to be printed, 4 November, 1887.

RETURN to an *Order* of the Honorable the Legislative Assembly of New South Wales, dated 5th October, 1887,—

“Copies of all tenders, minutes, and papers relating to the purchase of 3,000 tons of blue metal for the Railways and Tramways, called for on the 20th September.”

(Mr. O'Sullivan.)

SCHEDULE.

NO.	PAGE.
1. Minute by the Engineer for Existing Lines, forwarding advertisement calling for tenders for 3,000 tons of blue metal. 19 July, 1887	1
2. Telegram from Colledge Bros. & Collins, asking that acceptance of tender be delayed.....	2
3. List of tenders, with analysis and acceptance of Lewis Litton's. 9 August, 1887	2
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5. List of fresh tenders, with analysis of same, and acceptance of H. E. Russell's. 20 September, 1887	4
6. Letter from Mr. T. R. Smith. 21 September, 1887	6

No. 1.

Minute by The Engineer for Existing Lines.

Department of Public Works, Railway Branch, Existing Lines,
Sydney, 19 July, 1887.

Subject:—3,000 tons of blue metal required for maintenance of tramways.

I FORWARD herewith draft advertisement, inviting tenders for the supply of 3,000 tons of blue metal, to be delivered in trucks at Darling Harbour or Botany Road Siding, for insertion in the *Government Gazette*, &c.

The metal is required for maintenance of tram lines.

GEO. COWDERY.

The Commissioner.

Insert.—CH.A.G., 22/7/87. Advertised.—F.V., 22/7/87.

[Enclosure.]

Department of Public Works, Railway Branch,
Sydney, 19 July, 1887.

TENDERS will be received at this office, until 11 o'clock on Tuesday, the 9th August, from persons willing to contract for the supply and delivery, in trucks, at Darling Harbour or Botany Road Siding, of 3,000 tons of blue metal.

Form of tender and further particulars may be obtained on application to the District Engineer, Redfern.

Tenders are to be endorsed "Tender for 3,000 tons of Blue Metal."

The Commissioner does not bind himself to accept the lowest or any tender.

CHAS. A. GOODCHAP,
Commissioner for Railways.

221—A

[817 copies—Approximate Cost of Printing (labour and material), £5 16s. 0d.]

No. 2.

No. 2.

Telegram from Colledge Bros. & Collins to The Secretary for Public Works.

Brisbane, 8 August, 1887.

KINDLY postpone acceptance of tender blue metal until you hear from me. See Reuben Woods, Lloyd's Chambers, George-street; he has hundred tons sample from here.

COLLEDGE BROS. & COLLINS.

No. 3.

The Under Secretary for Public Works to The Commissioner for Railways.

Sir,

Department of Public Works, Sydney, 9 August, 1887.

The tenders, fourteen in number, for the work specified in the margin, are referred to you for report, and you will have the goodness, as early as possible, to return them to me direct, for submission to the Minister.

I have, &c.,

JOHN RAE.

Supply of 3,000 tons of blue metal at Darling Harbour or Botany Road Siding.

[Enclosures.]

Form of Tender.

I HEREBY agree to supply and deliver in trucks, at Darling Harbour Railway Station, 3,000 tons of good sound blue metal stone, broken to a gauge of $2\frac{1}{2}$ inches,—that is, no stone shall in any way exceed $2\frac{1}{2}$ inches, and must be of such dimensions, that it can be passed through an iron ring of $2\frac{1}{2}$ inches diameter, in any direction; the whole to be of the best quality, and subject to the approval of the Engineer for Existing Lines, and to be delivered at the rate of not less than 150 tons per week, for the sum of 6s. 1d. per ton.

LEWIS LUTTAN,
Gravel Pits, 9 August, 1887.

To the Commissioner for Railways.

Form of Tender.

I HEREBY agree to supply and deliver in trucks at Botany Road Railway Siding 3,000 tons of good sound blue metal stone, broken to a gauge of $2\frac{1}{2}$ inches,—that is, no stone shall in any way exceed $2\frac{1}{2}$ inches, and must be of such dimensions that it can be passed through an iron ring of $2\frac{1}{2}$ inches diameter, in any direction; the whole to be of the best quality, and subject to the approval of the Engineer for Existing Lines, and to be delivered at the rate of not less than 150 tons per week, for the sum of 9s. per ton.

JNO. MORRISON,
Emu Plains, 9 August, 1887.

To the Commissioner for Railways.

Form of Tender.

I HEREBY agree to supply and deliver in trucks at Botany Road Siding, 3,000 tons of good sound blue metal stone, broken to a gauge of $2\frac{1}{2}$ inches,—that is, no stone shall in any way exceed $2\frac{1}{2}$ inches, and must be of such dimensions that it can be passed through an iron ring of $2\frac{1}{2}$ inches diameter, in any direction; the whole to be of the best quality, and subject to the approval of the Engineer for Existing Lines, and to be delivered at the rate of not less than 150 tons per week, for the sum of 9s. 4d. per ton.

ANDREW TURNBULL,
Emu Plains, 9 August, 1887.

To the Commissioner for Railways.

Form of Tender.

I HEREBY agree to supply and deliver in trucks at Botany Road Railway Siding 3,000 tons of good sound blue metal stone, broken to a gauge of $2\frac{1}{2}$ inches,—that is, no stone shall in any way exceed $2\frac{1}{2}$ inches, and must be of such dimensions that it can be passed through an iron ring of $2\frac{1}{2}$ inches diameter, in any direction; the whole to be of the best quality, and subject to the approval of the Engineer for Existing Lines, and to be delivered at the rate of not less than 150 tons per week, for the sum of 9s. 6d. per ton.

BARCLAY & CO.,
180, Pitt-street, 9 August, 1887.

To the Commissioner for Railways.

Form of Tender.

I HEREBY agree to supply and deliver in trucks, at Botany Road Railway Siding, 3,000 tons of good sound blue metal stone, broken by hand to a gauge of $2\frac{1}{2}$ inches,—that is, no stone shall in any way exceed $2\frac{1}{2}$ inches, and must be of such dimensions that it can be passed through an iron ring of $2\frac{1}{2}$ inches diameter, in any direction; the whole to be of the best quality, and subject to the approval of the Engineer for Existing Lines, and to be delivered at the rate of not less than 150 tons per week, for the sum of 11s. 5d. per ton.

GEORGE WATTS,
Prospect, 6 August, 1887.

Sureties,—William Higgins, William Bishop, Wemyss-street, Marrickville.
To the Commissioner for Railways.

Form of Tender.

I HEREBY agree to supply and deliver in trucks, at Botany Road Railway Siding, 3,000 tons of good sound blue metal stone, broken to a gauge of $2\frac{1}{2}$ inches,—that is, no stone shall in any way exceed $2\frac{1}{2}$ inches, and must be of such dimensions that it can be passed through an iron ring of $2\frac{1}{2}$ inches diameter, in any direction; the whole to be of the best quality, and subject to the approval of the Engineer for Existing Lines, and to be delivered at the rate of not less than 150 tons per week, for the sum of 12s. per ton.

WM. T. SYNNOTT & CO.,
15, Bond-street, 8 August, 1887.

To the Commissioner for Railways.

Form of Tender.

I HEREBY agree to supply and deliver in trucks, at Botany Road Railway Siding, 3,000 tons of good sound blue metal stone, broken to a gauge of $2\frac{1}{2}$ inches,—that is, no stone shall in any way exceed $2\frac{1}{2}$ inches, and must be of such dimensions that it can be passed through an iron ring of $2\frac{1}{2}$ inches diameter, in any direction; the whole to be of the best quality, and subject to the approval of the Engineer for Existing Lines, and to be delivered at the rate of not less than 150 tons per week, for the sum of 12s. per ton.

JOHN WAITON,
Prospect, 8 August, 1887.

To the Commissioner for Railways.

Form

Form of Tender.

I HEREBY agree to supply and deliver in trucks at Botany Road Siding, 3,000 tons of good sound blue metal stone, broken to a gauge of 2½ inches,—that is, no stone shall in any way exceed 2½ inches, and must be of such dimensions that it can be passed through an iron ring of 2½ inches diameter, in any direction; the whole to be of the best quality, and subject to the approval of the Engineer for Existing Lines, and to be delivered at the rate of not less than 150 tons per week, for the sum of 12s. per ton.

To the Commissioner for Railways.

D. B. DUFFY,

Riverstone Park, Canterbury, 8 August.

Form of Tender.

I HEREBY agree to supply and deliver in trucks at Botany Road Siding, 3,000 tons of good sound blue metal stone, broken to a gauge of 2½ inches,—that is, no stone shall in any way exceed 2½ inches, and must be of such dimensions that it can be passed through an iron ring of 2½ inches diameter, in any direction; the whole to be of the best quality, and subject to the approval of the Engineer for Existing Lines, and to be delivered at the rate of not less than 150 tons per week, for the sum of 12s. 6d. per ton.

To the Commissioner for Railways.

JOHN O'SULLIVAN,

Stevedore, Newcastle, 5 August, 1887.

Form of Tender.

I HEREBY agree to supply and deliver in trucks at Darling Harbour Railway Station, 3,000 tons of good sound blue metal stone, broken to a gauge of 2½ inches,—that is, no stone shall in any way exceed 2½ inches, and must be of such dimensions that it can be passed through an iron ring of 2½ inches diameter, in any direction; the whole to be of the best quality, and subject to the approval of the Engineer for Existing Lines, and to be delivered at the rate of not less than 150 tons per week, for the sum of 9s. 4d. per ton.

To the Commissioner for Railways.

ANDREW TURNBULL,

Emu Plains, 9 August, 1887.

Form of Tender.

I HEREBY agree to supply and deliver in trucks at Darling Harbour Railway Station, 3,000 tons of good sound blue metal stone, broken to a gauge of 2½ inches,—that is, no stone shall in any way exceed 2½ inches, and must be of such dimensions that it can be passed through an iron ring of 2½ inches diameter, in any direction; the whole to be of the best quality and subject to the approval of the Engineer for Existing Lines, and to be delivered at the rate of not less than 150 tons per week, for the sum of 9s. 6d. per ton.

To the Commissioner for Railways.

BARCLAY AND CO.,

180, Pitt-street, 9 August, 1887.

Form of Tender.

I HEREBY agree to supply and deliver in trucks at Darling Harbour Railway Station, 3,000 tons of good sound blue metal stone, broken to a gauge of 2½ inches,—that is, no stone shall in any way exceed 2½ inches, and must be of such dimensions that it can be passed through an iron ring of 2½ inches diameter, in any direction; the whole to be of the best quality and subject to the approval of the Engineer for Existing Lines, and to be delivered at the rate of not less than 150 tons per week, for the sum of 11s. per ton.

To the Commissioner for Railways.

WM. T. SYNNOTT & CO.,

15, Bond-street, 8 August, 1887.

Form of Tender.

I HEREBY agree to supply and deliver in trucks at Darling Harbour Railway Station, 3,000 tons of good sound blue metal stone, broken to a gauge of 2½ inches,—that is, no stone shall in any way exceed 2½ inches, and must be of such dimensions that it can be passed through an iron ring of 2½ inches diameter, in any direction; the whole to be of the best quality and subject to the approval of the Engineer for Existing Lines, and to be delivered at the rate of not less than 150 tons per week, for the sum of 12s. 6d. per ton.

To the Commissioner for Railways.

J. O'SULLIVAN,

c/o H. SIMPSON & SON. 4 August, No. 87-145.

Form of Tender.

I HEREBY agree to supply and deliver in trucks, at Darling Harbour Railway Station, 3,000 tons of good sound blue metal stone, broken to a gauge of 2½ inches,—that is, no stone shall in any way exceed 2½ inches, and must be of such dimensions that it can be passed through an iron ring of 2½ inches diameter, in any direction; the whole to be of the best quality, and subject to the approval of the Engineer for Existing Lines, and to be delivered at the rate of not less than 150 tons per week, for the sum of 10s. 10d. per ton.

To the Commissioner for Railways.

[This tender was received unsigned.]

Form of Tender.

I HEREBY agree to supply and deliver at Molong Railway Station 1,000 cubic yards of good sound limestone or blue stone, broken to a gauge of 2½ inches,—that is, no stone shall in any way exceed 2½ inches, and must be of such dimensions that it can be passed through an iron ring of 2½ inches diameter in any direction; the whole to be of the best quality, and subject to the approval of the Engineer for Existing Lines, and to be delivered at the rate of not less than 200 cubic yards per week, for the sum of £49 3s. 4d.—per cubic yard, 4s. 11d.

To the Commissioner for Railways.

A. McLENNAN,

George's Plains, 1 August.

ANALYSIS of tenders for the supply and delivery of 3,000 tons of Blue Metal Stone.

		In trucks, at Botany Road Siding.		£	s.	d.
John Morrison	3,000 tons at 9/-	...	1,350	0	0	
Andrew Turnbull	3,000 " 9/4	...	1,400	0	0	
Barclay & Co.	3,000 " 9/6	...	1,425	0	0	
George Watts	3,000 " 11/5	...	1,712	10	0	
Wm. T. Synnott & Co.	3,000 " 12/-	...	1,800	0	0	
John Waiton	3,000 " 12/-	...	1,800	0	0	
D. B. Duffy	3,000 " 12/-	...	1,800	0	0	
John O'Sullivan	3,000 " 12/6	...	1,875	0	0	
		In trucks, at Darling Harbour.		£	s.	d.
Lewis Luttan	3,000 " 6/1	...	912	10	0	
Andrew Turnbull	3,000 " 9/4	...	1,400	0	0	
Barclay & Co.	3,000 " 9/6	...	1,425	0	0	
Wm. T. Synnott & Co.	3,000 " 11/-	...	1,650	0	0	
J. O'Sullivan	3,000 " 12/6	...	1,875	0	0	
Unsigned	3,000 " 10/10	...	1,625	0	0	
A. McLennan—to be delivered at Molong. (Informal)	1,000 " 4/11	...	245	16	8	

The tender of Lewis Litton is the lowest, and I recommend it be accepted.—G.C., 11/8/87. Commissioner. For Minister's consideration: 6s. 1d. is a very low price.—CH.A.G., 12/8/87. Approved.—J.S., 18/8/87.

Department of Public Works, Railway Branch,
Sydney, 22 August, 1887.

Sir,

I beg to inform you that I accept your tender of date the 9th August instant, to supply and deliver in trucks at Darling Harbour Railway Station three thousand tons of good, sound blue metal stone, broken to a gauge of 2½ inches,—that is, no stone shall in any way exceed 2½ inches, and must be of such dimensions that it can be passed through an iron ring of 2½ inches diameter, in any direction; the whole to be of the best quality, and subject to the approval of the Engineer for Existing Lines, and to be delivered at the rate of not less than 130 tons per week, for the sum of 6s. 1d. per ton, upon the understanding that I have the option of terminating this Contract, by notice in writing, at any time, without being called upon to pay any sum of money beyond the amount then due for work actually performed, and that in no case shall I be required to pay for work done hereunder, until the Engineer for Existing Lines has certified that the work in respect of which payment is to be made, has been completed to his entire satisfaction, and it is to be considered as part of the contract created by this acceptance of your Tender that the obtaining a certificate from the Engineer for Existing Lines, that the work done by you has been satisfactorily executed, or completed, and that all materials supplied hereunder have been supplied to his satisfaction, shall be a condition precedent to your having any cause or right of action in respect, or on account of any work done by you, or materials provided, or to any payments in respect thereof.

Before any money can be paid, a shilling duty stamp must be forwarded to this Office to be affixed to your Tender.

I have, &c.,

CHAS. A. GOODCHAP,
Commissioner for Railways.

Mr. Lewis Luttan, Gravel Pits.

No. 4.

Mr. F. Luttan to The Commissioner for Railways.

28 August, 1887.

The Emu Gravel and Road Metal Company, (Limited).

Dear Sir,

Your acceptance of my tender came duly to hand. I am sorry to inform you that the price was made-up, delivered in trucks at Emu, the same as the contract for screenings the Company is now delivering at Botany Road.

The price given in is only just about cost price without the freight. I must therefore decline to go on with it.

I am extremely sorry that this mistake should have happened or cause any trouble to the Department.

I have, &c.,

L. LUTTAN.

I recommend the cancellation of Luttan's contract, and that fresh tenders be invited; but, as some metal is very urgently required, I recommend that 250 tons be ordered from Mr. G. Hill, at his former price, 10/6 per ton.—G.C., 1/9/87.

Approved, as regards fresh tenders—why not order the 250 tons from John Morrison at 9/-?—CHAS.A.G., 3/9/87.

Draft advertisement inviting fresh tenders herewith. I have instructed Mr. Shellshear to order 250 tons of metal from Morrison.—G.C., 5/9/87. Advertised, 7/9/87.

As per Commissioner's minute of 3/9/87, I instructed Mr. Shellshear to order 250 tons of metal from Mr. John Morrison of Emu Plains; but, although every inquiry has been made no such person can be found—and as the metal is urgently required, I recommended it be obtained from Mr. George Hill, at 10/6 per ton.—M.T., 13/9/87. Commissioner.

Approved.—CHAS.A.G., 16/9/87. Noted and instructions given to order from Mr. Hill.—G.C., 16/9/87.

Department of Public Works, Railway Branch,
Sydney, 5 September, 1887.

FRESH tenders will be received at this office, until 11 o'clock on Tuesday, the 20th September, from persons willing to contract for the supply and delivery in trucks at Darling Harbour or Botany Road Siding of 3,000 tons of blue metal.

Form of tender and further particulars may be obtained on application to the District Engineer, Redfern.

Tenders are to be endorsed "Tenders for 3,000 tons of Blue Metal."

The Commissioner does not bind himself to accept the lowest or any tender.

CHAS. A. GOODCHAP,
Commissioner for Railways.

No. 5.

The Under Secretary for Public Works to The Commissioner for Railways.

Sir,

Department of Public Works, Sydney, 20 September, 1887.

The tenders, seven in number, for the work specified in the margin, are referred to you for report, and you will have the goodness, as early as possible, to return them to me direct, for submission to the Minister.

I have, &c.,
JOHN RAE.

Supply, &c., in
trucks, Darling
Harbour or
Botany Road
Siding of 3,000
tons blue metal.

[Enclosures.]

Form of Tender.

I HEREBY agree to supply and deliver in trucks at Darling Harbour, 3,000 tons of good sound blue metal stone, broken to a gauge of 2½ inches,—that is, no stone shall in any way exceed 2½ inches, and must be of such dimensions that it can be passed through an iron ring of 2½ inches diameter, in any direction; the whole to be of the best quality, and subject to the approval of the Engineer for Existing Lines, and to be delivered at the rate of not less than 250 tons per week, for the sum of 9s. 6d. per ton.

To the Commissioner for Railways.

GEORGE HILL,
31, Cowper Wharf, 20 September, 1887.

Form

Form of Tender.

I HEREBY agree to supply and deliver in trucks at Darling Harbour or Botany Road Siding, 3,000 tons of good sound blue metal stone, broken to a gauge of $2\frac{1}{2}$ inches,—that is, no stone shall in any way exceed $2\frac{1}{2}$ inches, and must be of such dimensions that it can be passed through an iron ring of $2\frac{1}{2}$ inches diameter, in any direction; the whole to be of the best quality, and subject to the approval of the Engineer for Existing Lines, and to be delivered at the rate of not less than 250 tons per week, for the sum of 9s. 6d. per ton.

THE EMU GRAVEL AND ROAD-METAL COMPANY
(LIMITED),

To the Commissioner for Railways

H. E. RUSSELL, Secretary,
Norwich Chambers, Hunter-street, 20 September, 1887.

Form of Tender.

WE hereby agree to supply and deliver in trucks at Darling Harbour or Botany Road Siding, 3,000 tons of good sound blue metal stone, broken to a gauge of $2\frac{1}{2}$ inches,—that is, no stone shall in any way exceed $2\frac{1}{2}$ inches, and must be of such dimensions that it can be passed through an iron ring of $2\frac{1}{2}$ inches diameter, in any direction; the whole to be of the best quality, and subject to the approval of the Engineer for Existing Lines, and to be delivered at the rate of not less than 250 tons per week, for the sum of 9s. 10d. per ton, in trucks at Darling Harbour, or in trucks at Botany Road siding at 10s. 10d. per ton.

To the Commissioner for Railways.

WM. SYMOTT & CO.,
15, Bond-street, 20 September, 1887.

Form of Tender.

I HEREBY agree to supply and deliver in trucks, at Botany Road Siding, 3,000 tons of good sound blue metal stone, broken to a gauge of $2\frac{1}{2}$ inches,—that is, no stone shall in any way exceed $2\frac{1}{2}$ inches, and must be of such dimensions that it can be passed through an iron ring of $2\frac{1}{2}$ inches diameter, in any direction; the whole to be of the best quality, and subject to the approval of the Engineer for Existing Lines, and to be delivered at the rate of not less than 250 tons per week, for the sum of 10s. 9d. per ton.

Sureties—William Higgin, William Bishop, Wemyers-st., Stanmore.
To the Commissioner for Railways.

GEORGE WATTS,
Post Office, Prospect, 20 September, 1887.

Form of Tender.

I HEREBY agree to supply and deliver in trucks, at Botany Road Siding, 3,000 tons of good sound blue metal stone, broken to a gauge of $2\frac{1}{2}$ inches,—that is, no stone shall in any way exceed $2\frac{1}{2}$ inches, and must be of such dimensions that it can be passed through an iron ring of $2\frac{1}{2}$ inches diameter, in any direction; the whole to be of the best quality, and subject to the approval of the Engineer for Existing Lines, and to be delivered at the rate of not less than 250 tons per week, for the sum of 11s. per ton.

To the Commissioner for Railways.

WILLIAM HENRY SMITH,
Seven Hills, 20 September, 1887.

Form of Tender.

I HEREBY agree to supply and deliver in trucks at Darling Harbour or Botany Road Siding, 3,000 tons of good sound Melbourne blue metal stone, broken to a gauge of $2\frac{1}{2}$ inches,—that is, no stone shall in any way exceed $2\frac{1}{2}$ inches, and must be of such dimensions, that it can be passed through an iron ring of $2\frac{1}{2}$ inches diameter, in any direction; the whole to be of the best quality, and subject to the approval of the Engineer for Existing Lines, and to be delivered at the rate of not less than 250 tons per week, for the sum of 12s. 6d. per ton.

To the Commissioner for Railways.

JOHN O'SULLIVAN,
Messrs. H. Simpson & Co., Newcastle, 17 September, 1887.

Form of Tender.

I HEREBY agree to supply and deliver in trucks at Darling Harbour or Botany Road Siding, 3,000 tons of good sound blue metal stone, broken to a gauge of $2\frac{1}{2}$ inches,—that is, no stone shall in any way exceed $2\frac{1}{2}$ inches, and must be of such dimensions, that it can be passed through an iron ring of $2\frac{1}{2}$ inches diameter, in any direction; the whole to be of the best quality, and subject to the approval of the Engineer for Existing Lines, and to be delivered at the rate of not less than 250 tons per week, for the sum of 13s. 9d. per ton, or 7s. delivered on the trucks at Bowral.

To the Commissioner for Railways.

F. CASS,
122, Elizabeth-street, Sydney, 20 September, 1887.

SUPPLY and delivery in trucks at Darling Harbour or Botany Road Siding of 3,000 tons of blue metal.

Analysis of Tenders.

	Rates per ton.	Amount.		
		£	s.	d.
George Hill	9/6	1,425	0	0
Emu Gravel and Road Metal Co. (Limited)	9/6	1,425	0	0
Wm. T. Synnott & Co.	9/10	1,475	0	0
George Watts	10/9	1,612	10	0
Wm. Henry Smith	11/-	1,650	0	0
John O'Sullivan	12/6	1,875	0	0
F. Cass	13/9	2,062	10	0
F. Cass (delivered in trucks at Bowral).....	7/-	1,050	0	0

The tenders of George Hill for delivery at Darling Harbour, and the Emu Gravel and Road Metal Co. (Limited) for delivery at Botany Road Siding, being equal, and as the metal is urgently required, I recommend their tenders be accepted for the supply of 1,500 tons each.—G.C., 23/9/87. The Commissioner.

Which is cheaper to the Department, to take the metal from Darling Harbour or from Botany Road Siding?—CHAS. A.G., 26/9/87. Engineer for Existing Lines.

The metal delivered at Botany Road Siding would be the cheaper; but as we are completely run out of metal I thought it better to divide the contract in order to get a quicker supply.—G.C., 26/9/87. The Secretary.

For Minister's consideration. I think the metal should be taken from the Emu Company. They can supply within a week or ten days; besides, delivery at Botany Road being cheaper, we gain on the freight from Emu to Sydney.—CHAS. A.G., 26/9/87.

Approved.—J.S., 27/9/87.

Department of Public Works, Railway Branch,
Sydney, 27 September, 1887.

Sir,
I beg to inform you that I accept your Tender of date the 20th instant, to supply and deliver at Botany Road Siding Railway Station, 3,000 tons of good sound blue metal stone, broken to a gauge of $2\frac{1}{2}$ inches,—that is, no stone shall in any way exceed $2\frac{1}{2}$ inches, and must be of such dimensions that it can be passed through an iron ring of $2\frac{1}{2}$ inches diameter, in any direction; the whole to be of the best quality, and subject to the approval of the Engineer for Existing Lines, and to be delivered at the rate of not less than 250 tons per week, for the sum of 9s. 6d. per ton, upon the understanding that I have the option of terminating this Contract, by notice in writing, at any time, without being called upon to pay any sum of money beyond the amount then due for work actually performed, and that in no case shall I be required to pay for work done hereunder, until the Engineer for Existing Lines has certified that the work, in respect of which payment is to be made, has been completed to his entire satisfaction, and it is to be considered as part of the Contract created by this acceptance of your Tender that the obtaining a certificate from the Engineer for Existing Lines, that the work done by you has been satisfactorily executed, or completed, and that all materials supplied hereunder have been supplied to his satisfaction, shall be a condition precedent to your having any cause or right of action in respect, or on account of any work done by you, or materials provided, or to any payments in respect thereof.

Before any money can be paid, a shilling duty stamp must be forwarded to this Office to be affixed to your Tender.

H. E. Russell, Secretary,
Emu Gravel and Road Metal Co., Sydney.

I have, &c.,
CHAS. A. GOODCHAP,
Commissioner for Railways.

No. 6.

Mr. T. R. Smith to The Secretary for Public Works.

Dear Sir,
I understand we are the successful tenderers for metal delivered at Granville, and we are the same price as some other contractors for Sydney—9s. 6d. per ton. As our metal is carried a long way by train, and your Department gets 3s. 6d. out of every ton, I think, in justice to your Department, we are entitled to the Contract.

Sydney, 21 September, 1887.

Yours, &c.

T. R. SMITH.

Previous papers returned to Commissioner to-day.—G.C., 23/9/87.

1887-8.

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

RAILWAYS AND TRAMWAYS.

(COMPENSATION FOR LAND RESUMED FROM 1880 TO 1886.)

Ordered by the Legislative Assembly to be printed, 10 February, 1888.

RETURN to an *Order* of the Honorable the Legislative Assembly of New South Wales, dated 27th October, 1887, That there be laid upon the Table of this House, a Return showing,—

- “(1.) The amount of compensation paid by the Government for land resumed
“for any purposes connected with Railways and Tramways (for any period
“not less than the last seven years), to be in the form of annual statements.
“(2.) The persons or companies to whom such compensation has been paid,
“and the amount paid in each individual case.”

(Mr. Schey.)

RETURN showing the amount of compensation paid for land resumed for Railway purposes during the years 1880, 1881, 1882, 1883, 1884, 1885, and 1886, and the names of the persons to whom such compensation has been paid.

Name	Amount paid.	In what year paid	Name.	Amount paid.	In what year paid.
1880.			1880—continued.		
	£ s d			£ s d	
Mullen William H.	40 0 0	1881	Coates George	15 0 0	1880
Godbold William (Executors of)	55 0 0	1882	White Thomas A. M.	40 0 0	”
Cohen & Nathan	45 0 0	1880	Wentworth Fitzwilliam	500 0 0	”
Chisholm's Estate (Trustees of)	100000 0 0	”	Moses William	200 0 0	1881
Livingstone W.	12 0 0	1882	Davies E	157 10 0	”
Phelps Robert	88 0 0	1881	Hughes Matthew	150 0 0	”
Dick Peter	12 0 0	”	Toomey Michael	350 0 0	1883
Hammond & Johnston	50 0 0	1882	Dean Thomas	50 0 0	”
Adams Henry B.	63 17 9	1885	Gillard James	205 10 6	1880
Conn James	95 10 0	1882	Bergin Adolphus	570 0 0	1881
Lloyd Charles M.	118 15 6	”	M'Donald Murdock	146 17 6	1882
Flood Edward	43 1 4	”	Barton Edward (Trustees of)	600 0 0	1886
Do	137 10 0	1883	Kiernan James (occupier)	5 0 0	1882
Hebden George and others	791 5 10	1882	Lane Edward	177 6 0	1881
Learmonth A. J. L.	8,000 0 0	”	Gorrie David (occupier)	2 0 0	1882
M'Culloch, Sellar, & M'Pherson	273 7 3	1886	M'Lennon Alexander (occupier)	2 0 0	”
Bradley Benjamin	10 1 6	1883	Wilson George (occupier)	34 7 6	”
Bennett Barnett B.	5 6 6	1885	Gleeson Patrick	10 0 0	”
Do	20 15 3	1886	Lawson William (Trustees of)	326 16 10	”
Adams Henry D.	20 19 6	1884	Hughes Enoch (lessee)	19 5 0	”
Flood Edward	37 4 7	1886	Morris Robert (occupier)	31 11 6	”
Douglas James H. & C.	954 6 5	1884	Corlette Rev. J. C.	288 15 0	1883
Roach Nicholas	99 17 6	1883	Tucker F. J.	34 7 6	”
Hebden George H., Chas. S. B., & Wm. W	347 1 6	1887	Cadelle Anne and others	181 1 6	”
M'Gaw Joseph	533 6 6	”	Radburn Charles (occupier)	10 0 0	1882
Baillie Thomas	446 4 9	1883	Paddison George (Trustees of)	301 14 0	”
Learmonth A. J. L.	435 10 3	”			
Rutherford, M'Culloch, & M'Pherson..	999 5 4	1884			
			Total	118149 10 1	

Name.	Amount paid.	In what year paid.	Name.	Amount paid	In what year paid.
1881.	£ s. d.		1881—continued.	£ s. d.	
Scott Agnes	97 18 4	1882	Maund James E.	174 3 0	1882
Namor Pastoral Co.	63 1 10	1885	Henderson Patrick H.	1,183 0 0	1885
Vickery Ebenezer	312 7 6	1882	Scott Enos	96 12 6	1883
Do	875 11 0	1881	Moore William	78 16 9	1885
Town Andrew	144 2 6	1884	O'Rourke Patrick	155 19 8	1884
Nelson James	381 3 6	1882	Chandler D. M'Iver	134 2 3	1883
Clegg Charles J.	351 8 3	"	M'Innes Finlay	53 0 0	1886
Clarke John K.	425 5 9	1883	Mitchell John	65 0 0	1883
Hawke George W	29 0 0	1882	Moore John	28 19 8	1884
Dederer George F.	93 19 6	"	Richardson J. and A.	5 5 9	1885
Mosely James	468 4 6	1883	Moore William	5 11 9	"
Town Andrew	123 8 9	"	O'Rourke Thomas	6 1 4	1884
Baker Samuel	44 18 8	"	O'Hara W. T.	5 15 7	1887
Conway Eliza	28 9 11	1887	Healey Timothy	2 11 0	1885
Dederer Francis	8 10 5	1885	Gibson James J. R.	26 1 6	1886
Cleghorn William	332 1 0	1882	Underwood Estate (Trustees of)	1,517 14 1	1883
Carroll John	245 0 3	"	Irvine Alexander	68 13 9	1881
Anderson John	197 6 6	"	Blacklock Charles W.	250 0 0	"
Rixon Thomas	178 8 0	"	Do	15 0 0	"
White Francis J. and J. C	1,896 10 0	1883	Learmonth A. J. L.	25 0 0	"
M'Lennan John	97 10 9	1882	M'Killop John A.	3 0 0	"
Perrott Robert J.	491 12 6	1883	Kater E. H.	100 0 0	"
Bransheid Ambrose	65 8 3	1882	Wheatley George	22 0 0	1884
Post George (Executors of)	45 0 0	1883	King J. W.	32 1 7	1885
Oliver Thomas (occupier)	9 12 10	1882	King W. J.	61 3 0	"
Fuchs Conrad	800 0 0	1883	Gallagher James	43 0 0	1883
Cattle Thomas	92 8 9	1882	Morrison James	8 3 3	1882
Cragie Elizabeth	120 5 3	1883	Caddis George	12 0 0	1883
Simmonds John	200 0 3	1882	Cox Herbert A.	37 18 4	"
Scholes Joseph	262 7 6	"	Lloyd John	5 0 0	1882
Brown James	79 18 3	"	Cannary Patrick	29 9 2	"
Cannon Michael	89 12 6	"	Lloyd Illelwyn	20 0 0	1885
Massie Robert G.	52 19 6	"	Lloyd John, senr.	55 0 0	1882
Patterson Robert	88 12 2	"	Fitzgerald R. M.	150 0 0	1884
Lynch Thomas	86 8 0	1883	Salmon Charles	16 15 5	1883
Monehan Eugene	48 8 0	"	Kersley Robert	15 14 11	1882
Pilcher Emily S.	13 4 0	1882	George B. W.	126 12 9	"
Moore John	450 0 0	"	Wallon John (Executors of)	400 0 0	1883
Jackes Jessie	82 10 0	"	Owen Thomas	217 5 3	1882
Moses & Cohen	330 0 0	1883	Farrar Wilham (occupier)	40 0 0	"
Jackes Franklin	242 0 0	1882	Dunbar Wilham	120 15 0	"
Burnham Thomas (occupier)	45 0 0	"	Hardwick J. W.	100 0 0	"
Pearson Robert, senior	450 0 0	1884	Bisley Henry	55 12 6	"
Martin Elizabeth	81 4 6	1882	Brown John	20 0 0	"
Heagney Martin	200 11 0	1883	Brown Ann	17 15 0	1883
Pearson Robert, junior	64 16 3	1882	Brown William Lee	28 10 0	"
Pearson Henry	388 13 10	1884	Harris Elizabeth	32 16 3	1882
Upchurch William	62 10 1	1882	Harris Abel (Executors of)	120 0 0	1883
Upchurch James and Wilham	152 15 4	"	Purvis Joseph	413 7 0	1882
Frazer Joseph	75 7 0	"	Dunn Effie	90 0 0	"
Ellis James	121 13 0	"	Leader Alfred	48 0 0	"
Clarke John	265 19 7	"	Purvis William	3 3 6	"
Schupp George	71 5 0	1883	Hardwick George W.	38 15 0	1885
Ferris James J.	5 14 10	1882	Cox E. K.	665 11 9	"
Haynes Susan	220 13 6	1883	Mow Wilham	103 15 11	1883
Haynes John (occupier)	25 0 0	1882	Moss Walter	100 0 0	1882
O'Brien Owen	107 2 3	1884	Cox Edward S	77 12 7	1883
O'Brien Rose Ann	120 7 3	"	Dowling Vincent	752 5 10	1884
Belfield & Hungerford	166 8 0	1882	Sheridan M. M.	121 19 1	1884
Dawson John S.	7 15 11	1884	Miskle John	1 0 0	1882
Roberts Richard	125 0 0	1882	Martan W. J (occupier)	10 0 0	"
Richardson & Salmon	29 12 0	1885	Miligan John	55 19 4	"
Hockley John	22 5 0	1882	Thompson William	31 16 0	"
Saunders George	24 14 6	1884	White Henry Charles	4,000 0 0	1884
Scott Enos	118 19 10	1882	Cook Thomas (lessee)	21 16 0	1883
Chandler William	40 0 0	"	M'Grath James	284 7 6	1882
Chandler David M.	39 15 9	"	Bawson Clarence (Trustees of)	406 1 0	1884
M'Innes Finlay	223 6 6	1883	Southwick G. B. (occupier)	143 5 0	1882
Chandler Thomas	70 14 11	1882	M'Grath James	50 7 6	1886
Witherspoon John	141 15 6	1886	Cheshire Thomas (lessee)	30 0 0	1882
Noble Charlotte J.	155 10 9	"	Cox G. H.	936 4 6	1883
Noble John	174 14 9	1885	Flack & Sharp (occupiers)	52 4 6	1882
Proctor John	264 16 6	1882	Neale John (occupier)	38 13 6	1883
Ruming George	94 2 3	"	Murray Wilham & John (occupiers)	41 3 10	1884
Ruming William	175 0 9	"	Stoddart Ewan & John (occupiers)	10 0 0	1882
Skerry Wyberry	150 0 0	"	Miskle Patrick (Executors of)	29 4 6	1885
Ruming Katherina	15 18 9	"	Clarke David	203 18 0	1882
Wood Robert (occupier)	0 13 6	"	Tessimond Ann E	62 0 0	1884
Macarthur Mrs. E. H.	229 7 6	1883	Tessimond C.	103 0 0	1883
Penson Eliza	98 16 3	1884	Newton Charlotte	65 5 0	1882
Fletcher Colin	240 0 0	1882	Seifflet Robert	62 0 0	"
M'Alpin David	113 11 0	"	Brooks Charles	62 0 0	"
M'Alpin Andrew	24 1 3	"	Nardin E. A	147 5 0	"
Every John	62 19 10	1883	Gallagher William J.	760 0 5	1884
Cruse Thomas	39 0 9	"	Gallagher James	12 2 6	1885
Every George	80 5 6	"	Cox E. K.	78 13 6	1886
Fakes Henry	256 18 6	1882	Dowling Vincent J.	0 1 2	1884

Name.	Amount paid.	In what year paid.	Name.	Amount paid.	In what year paid.
1881—continued.			1882—continued.		
	£ s. d.			£ s. d.	
Hayward George M.	3 3 2	1885	Hinds John	528 0 0	1883
Sheumack G.	10 17 9	1883	Tebbatt Edward J.	750 0 0	"
Dowling Vincent	27 14 8	1885	Ludford Henry	1,029 14 6	"
Miskle R. (Executors of)	3 6 8	"	Yeldon Richard	604 18 0	"
Anshaw John	10 10 11	1883	Kerr Robert	10 0 0	1884
M'Grath James	70 6 9	"	Jacobs Edwin	5,443 4 4	"
Clements Ingram	187 6 10	1884	Mooney John	497 4 0	1885
Duigan John	15 0 0	1882	Hicks John	58 0 0	1884
Holl Robert	304 14 6	"	Horsfall Joseph	1,160 10 0	"
Campbell John E.	225 13 1	"	Clarke W. J.	572 0 0	1883
Byrne Lawrence	51 2 3	"	Miller and Rofe	1,628 0 0	"
Barry Martin (occupier)	10 0 0	1883	Stockwell Waddington	123 15 0	1884
Nancarrow Richard	281 13 9	1882	James T. R.	247 10 0	1883
Jones Richard	169 19 0	"	Fallick W. C.	990 0 0	1884
Baird Thomas	369 11 10	"	Hudson Charles	363 0 0	"
M'Killop D. (Executors of)	138 18 7	1887	Williams B. C.	358 4 0	"
Casey Michael	41 4 3	1883	Blake Louisa	101 15 0	"
Maher F. & M. E.	102 16 8	"	Owen Richard	515 5 0	"
			Fuches Frances	320 0 0	"
Total	33,614 14 11		Bell Henry (Executors of)	534 10 0	1885
			Bennett B. J.	442 4 0	1883
1882.			Herbert Christiana	504 8 0	"
Christie Mary	27 10 0	1884	Drew Catherine	980 0 0	1884
Namoi Pastoral Co.	30 13 7	1885	Do	50 0 0	1885
Noble William	21 8 0	1886	Bryen Stephen	2,196 17 6	"
Noble John	50 2 6	1885	Heighington Mary (occupier)	26 0 0	1883
English, Scottish, and Australian Chartered Bank.	42 0 9	1886	Bray George Charles	3,762 10 0	1886
Grover Edward	27 10 0	"	Cooper Sir Daniel	1,883 4 0	1883
Mitchell Alexander	124 19 10	1885	Gentle Josiah (occupier)	156 0 0	"
Harris George W.	26 8 0	1884	James Benjamin and Son	4,633 9 3	"
Cotton & Selkirk	13 4 0	1885	Hoad Mrs. E.	66 17 6	1884
Doust Thomas	13 15 0	1884	Goodsell J. W. and H. W.	22,753 10 4	1885
Murray J.	13 15 0	1883	Smidmore Albert	2,831 7 6	"
Murray A. W. (Trustees of)	13 15 0	1884	Baker Thomas L.	9,485 0 0	1884
M'Innes Eliza	15 9 6	"	Lipscombe Henry (occupier)	174 0 0	1883
Onus William	105 4 2	1883	Smidmore Francis P.	2,403 0 0	1885
Ward Henry	40 17 0	1887	Fulton John	94 12 0	1883
Stone Benjamin R.	208 13 6	1884	Chivers Eliza	411 12 0	1884
Chapman James	141 17 2	"	Morrison James and John	768 19 0	1883
Mitchell John	184 11 11	"	Rose J. J.	189 15 0	"
O'Hara Thomas	127 15 6	1886	Kingscote William A.	692 10 0	"
Irby Edward	1,737 16 5	1884	Gilder Algernon S.	93 19 2	"
Irby & Carr	52 14 4	1885	Kingscote William A.	287 16 8	1884
Schwenke John L.	25 12 2	1886	Meinan John	82 10 0	"
Do	83 7 10	1887	Parker Emma	82 10 0	1883
Bloxsome Oswald	74 8 0	1884	Cooper H. S.	99 18 3	1884
Sloman Frederick J.	87 11 6	"	Fripp Edward	541 4 0	1883
Sloman Charles	66 11 8	1887	Fripp Thomas	189 15 0	1884
Curr William	6 3 0	1884	Rose Elijah	80 0 0	"
M'Lean Donald	40 8 8	"	Fripp Edward	191 8 0	"
Bourke Patrick	144 19 0	1885	Fischer Dr. C. F.	539 0 0	1885
M'Canish, Windeyer, & Cadell	274 5 8	1886	Brian Susannah	825 0 0	1883
Do	85 13 6	1887	Curran Edward	722 18 6	"
Collins William	102 14 7	1884	Gallagher Barnet	811 10 0	"
Cubis Peter	3 12 9	1886	Brian William (Trustees of)	448 16 0	1884
Walker William H.	50 0 0	1883	Moyes William	440 5 0	"
Do	25 0 0	1884	Jackson H. W.	856 0 0	1883
Chorley James	162 10 0	"	Way Harmsworth R.	8,800 0 0	1884
Donnelly Julia	47 6 0	1885	Toyer George	1,487 12 10	"
Murphy Daniel	81 1 11	1884	Buswell & Hamilton	60 10 0	1883
Young W.	343 6 6	"	Holdsworth Richard	500 0 0	"
Law Hannah	179 0 0	"	Birril John (Trustees of)	615 0 0	1884
M'Donald John	194 8 0	"	Dreis Jacob (occupier)	17 0 0	1885
Walters William	3 11 11	"	Excelsior Land & Building Co.	1,782 12 0	"
Sloman Charles	2 0 1	1885	Tidswell Frederick	1,000 0 0	1884
Peters J. Eadie	1,103 0 0	1883	Frank Conrad	362 14 0	1883
Blundell Thomas	800 0 0	"	Tidswell Frederick (occupier)	30 0 0	1884
Jones John T. and others	519 11 8	1882	Gannon Alfred	1,500 0 0	"
Jenkins R. L.	105 0 0	1884	Newton Thomas (occupier)	100 0 0	1883
Oxley Emily	304 13 9	1883	Gannon Michael (Executors of)	227 16 0	1884
Lampert William E.	6,025 13 3	"	Favell Eleanor	33 0 0	1886
Richardson W. W.	3,743 8 7	"	Gannon Frederick	800 0 0	1885
Southernwood J.	186 17 10	"	Johston Herbert (occupier)	25 0 0	1883
Blakely G. (occupier)	6 0 0	"	Johnston Herbert	542 12 0	"
Kilbrunner V.	211 16 3	"	M'Innes John (Trustees of)	5,835 0 0	1884
Kress Katherina	405 7 6	1884	Do	29 5 0	1885
Plummer Thomas	2,247 2 8	"	Dale J. F.	495 0 0	1883
Kerr A. A.	112 4 0	"	Fripp Thomas	78 10 0	"
Hudson Brothers	1,088 6 0	"	Meinard Morris M.	97 12 6	1884
Gregg A. W. S.	200 0 0	"	Fripp Agnes	86 19 4	1883
Wilson Caleb (Executors of)	9,265 12 6	1883	Fripp Thomas (occupier)	10 0 0	"
Mighell Henry (occupier)	70 0 0	"	Cliff J. W.	1,853 10 1	1884
Dumbarton Henry	20 8 0	"	Lathan Henry F.	1,000 0 0	"
Frazer Henry	68 12 6	"	Draper Thomas	105 0 0	"
Leich Charles	175 17 6	"	M'Innes John (Trustees of)	509 8 9	1887
			Luscomb Martha	113 8 0	1884
			Hannam Mary	101 10 0	1886

Name	Amount paid.	In what year paid.	Name	Amount paid	In what year paid
1882—continued.			1882—continued.		
Judd William	585 4 0	1884	Watson William J.	219 6 3	1885
Richardson Charles Thomas	407 8 0	"	Hayes Thomas	315 0 3	1884
Bayman Margaret	301 1 0	"	Do	11 5 0	1887
Adams Thomas	279 0 0	"	Brabner John H.	62 7 6	1884
Maloney Martha	304 10 0	1883	Parkman Ann	111 7 6	"
Barden Frederick	6 1 0	1884	Timbrell Thomas H.	77 17 6	1883
Stafford William	13 4 0	"	Herrett Samuel	186 12 0	1884
Clune Susan	166 2 0	1886	Van Idestine and Gough	926 18 3	1883
Terry Samuel H.	231 0 0	1883	Tout Samuel	806 3 6	1884
Roach W. R.	1,246 17 6	1885	Education Department	1,239 6 8	1885
Jones William F.	793 15 0	1884	Chft Alfred	1,335 2 0	1884
Geering George G.	217 12 6	"	Sons of Temperance (Trustees of)	629 13 9	"
Sturgen Thomas (lessee)	100 0 0	1883	Gates Joseph	653 5 6	1883
Best George	97 12 6	"	Schmith Peter M.	422 16 0	1884
Ferrier Rachel	85 0 0	"	Webb George	1,250 0 0	1883
Perigo Thomas	241 9 9	"	Brown A. W.	16 0 0	"
Morse Thomas	387 7 6	"	Hadwick J.	17 1 0	1885
Tillock James	474 10 0	"	Bell Sidney	434 3 10	1884
Baker H. J. (occupier)	6 15 0	"	M'Groder E.	34 2 0	1883
Hindmarsh Joshua	520 2 0	"	Cavanagh Edward	49 10 0	1884
Arnold Joseph (occupier)	5 10 0	"	Payne Miss E.	80 0 0	1885
Geeves Yeoman	500 0 0	1885	Campbell Samuel	36 6 0	1884
Walz Joseph	1,152 10 0	1883	Cranney James	10 0 0	"
Cunningham Ann	62 13 0	1886	Eustace William	45 7 6	"
Barden Frederick	127 12 0	1885	Beckett O. J.	36 6 0	"
Skidmore Frederick	216 15 7	"	Hebblewhite Samuel (Executors of)	99 0 0	1886
Ocean View Estate (Trustees of)	674 6 0	1884	Gannon Michael	99 0 0	"
Sydney Permanent Building Society	278 16 0	"	Selkirk Thomas E.	99 0 0	1885
Education Department	10 0 0	"	M'Rae Myles	187 5 0	1887
Australian Mutual Investment and Building Co.	876 12 0	1885	Word William	313 16 6	"
Roberts John	864 17 6	1884	Bradley Benjamin	34 15 9	1883
Chappelow William	1,320 0 0	"	Butcher H. G.	19 12 6	1885
Word William	2,175 0 0	"	Bruce W. L.	80 7 7	1884
Treacy D. J.	116 4 0	"	Flood James	241 17 9	1887
Kingscote William A.	4,411 9 9	1883	Branyon Robert	186 4 0	1884
Humphreys Martha	1,054 16 0	"	Brown Thomas	88 10 0	"
Flood James	1,449 0 0	1884	Robertson Angus	772 13 0	1885
Loudan James & Co.	621 10 0	1883	Robertson, Duncan, and David S.	1,467 16 4	1887
Fripp Charles (occupier)	30 0 0	"	Harrington Joseph	592 18 2	1884
Doyle J. K.	2,400 15 0	"	Harrington Thomas	379 2 3	"
Minnitt William	1,405 17 6	1884	M'Caughy Samuel	321 9 3	1886
Precious Robert	676 10 0	1885	Grant William	2,428 14 3	1884
O'Brien Patrick	44 0 0	"	Bank of Australia	4 5 0	1885
Byron Michael	117 0 7	1883	M'Farland Thomas	17 3 4	1884
Lauchlan M. H. & Co.	390 5 7	"	Wilson Sir Samuel	152 0 0	1886
Connolly Thomas	231 5 0	"	Killen Edward	1,128 6 4	1884
Jones Anne	801 19 0	1884	Brett P. M.	406 12 0	"
Haymarket Building Society	102 8 9	1883	Killen Edward (occupier)	47 15 0	1885
Ryland Joseph	664 14 0	"	M'Lean Mrs. Hannah	325 19 5	1883
Kemp George	629 1 3	1885	Pryde James (occupier)	22 0 0	1885
Newman James	322 10 0	1883	Moran Patrick	49 10 0	1887
Doust Isaac	108 12 6	1885	Harkin H. D.	239 19 3	1884
Griffith C. C.	905 0 6	1883	M'Kenzie William (occupier)	50 0 0	"
Holt Thomas	500 0 0	1885	M'Intyre Mary	13 3 6	1886
Holt Sutherland Estate (Trustees of), lessees.	2,032 0 0	1884	Solomon Lewis	13 1 11	1885
Wilson Rrd. John	44 8 3	1886	Jones W.	18 12 3	"
Do	44 19 3	1885	Jonson May	1 3 2	"
Coghlan John	24 14 3	1884	Brown Thomas	10 19 1	"
Harber Abel	284 0 4	1885	O'Shea Sarah	14 15 2	"
Nagle Joseph H.	72 9 3	1884	Grant William	11 9 0	"
Dillon John	171 5 0	1883	M'Farland Thomas	11 13 4	1884
Coddington William	93 6 0	1884	Ferrier Robert H.	4 14 10	1886
Whybrow William	8 12 7	"	Walton John (Executors of)	200 0 0	1884
Long William, junr.	169 11 6	"	Brown John	100 0 0	1883
Wilson George (Trustees of)	167 7 2	"	Brown Ann	13 0 0	"
Whybrow Edward	39 4 0	1883	Cox George H.	327 13 9	1886
King Sarah	92 10 6	1884	Millett W. W.	189 4 0	1883
King Elijah	241 15 10	"	Robertson Andrew	103 7 0	"
King Henry	122 10 6	"	Crossing Henry	108 7 0	"
Kirk Hugh	13 3 9	"	Nardin E. A.	108 7 0	"
King Frederick	92 16 7	1885	Barret Alfred	273 7 0	"
Marino Carlo	632 13 7	1884	Taylor Thomas	86 7 0	"
Hennock George	31 11 4	"	Smith Alfred G.	86 7 0	"
Starr James	234 0 0	"	Nicholson William Laing	66 0 0	"
Watt Jane E.	67 5 6	1885	Meares Charles	173 6 0	"
Do	291 19 6	1887	Richardson W. and P.	38 4 0	1886
Miller Jacob	74 8 0	1884	Total	195,128 9 6	
Gordon James	135 14 6	"	1883.		
M'Cube, E. J.	17 17 9	"	Australian Agricultural Co.	977 6 10	1884
Harris Samuel (occupier)	36 8 0	"	Herbert William	225 9 0	"
Russell John	23 2 0	1886	Bransheid Ambrose	4 19 9	"
Wright Mark	100 0 0	1884	Fuchs Conrad	256 9 9	"
Prosser John	195 19 3	"	Scott Enos	20 7 0	1883
Papworth Arthur	424 16 6	"			

Name.	Amount paid.	In what year paid.	Name.	Amount paid.	In what year paid.
1883—continued.			1883—continued.		
	£ s. d.			£ s. d.	
M'Shane Henry	200 0 0	1884	Couche Edward	276 13 0	1887
Bockhaus John	134 11 3	"	Scott Sarah	353 19 6	1884
Cohen Louisa	1,561 19 6	"	Walker Thomas	854 0 0	1885
Morris John	1,005 0 0	1885	Cowper Sedgwick	76 8 0	"
Griffith Edward	116 0 0	1886	Hobbs & Anderson	116 18 6	1886
Thorne George	608 5 0	1887	Kelly John	66 0 0	"
Bryen Stephen	280 10 0	1885	Maxwell E. D.	70 0 0	1887
Powell Edward	1,170 17 0	1884	Roman Catholic Church (Trustees)	300 6 6	1886
Pearson Stephen J.	1,464 10 0	1887	Donovan Catherine	232 13 0	1887
Walker Thomas	5,040 0 0	1886	Donnelly William	17 12 0	"
M'Namara Henry (lessee)	71 10 0	1884	Thompson Elizabeth	1,187 0 9	1885
Love Emily	517 10 0	1885	Keene Marian	560 4 3	"
Downs Stephen	178 4 0	1887	Parry Griffith W.	462 11 9	1884
Hobbs W. J.	145 15 0	"	Parry William H.	252 13 0	"
Swyny G. R.	58 6 0	"	Parr John F.	90 15 0	"
Richardson H.	30 5 0	"	Jacks Alfred S.	99 16 6	"
Hegarty Peter	36 6 0	"	Capper David, James & John	217 16 0	1886
Morris J. H.	116 3 2	"	Palmer J. W.	150 0 0	1885
Gardiner A. J.	29 3 0	"	Spears Elizabeth	313 15 0	1884
Phillips A.	60 10 0	1886	Wamsley Edward	7 4 0	1886
Hogben E.	72 12 0	1887	Hely H. (Executors of)	44 0 0	"
Dyson Robert	29 3 0	"	Campbell Hugh	830 4 3	"
Whitehead W.	34 13 0	"	Fountain John	290 4 6	1885
Taylor Henry	29 3 0	1886	Do	372 12 6	1884
Floyd J.	29 3 0	1887	Alison Eliza	699 10 5	1885
Brown J.	29 3 0	"	Alison Eliza and Charles	158 1 0	1886
Mackintosh Richard	823 5 11	1884	Gannon Frederick	66 16 0	1885
Morgan William	60 0 0	1885	Wamsley Edward	733 9 3	"
Hogan John	159 10 0	"	Cox J. P. G. and Eliza	528 0 0	"
Morgan John	374 16 3	"	Earl William	191 17 6	1884
Bray A. L. (lessee)	24 18 9	"	Davis R. (occupier)	26 19 0	1885
Bray Thomas	700 0 0	1884	Education Department of	145 0 0	"
Bray Alfred	3,233 1 3	1885	Smith Henry G	266 17 3	1884
Walker Anna E.	4,534 15 0	1884	Heron Henry	518 4 1	1885
Bowden Mary	2,955 3 0	1885	Armstrong John	192 0 3	1884
Rodd T. B. (lessee)	8 5 0	1886	Smith Michael	231 9 0	"
Blaxland John (Executors of)	3,684 9 0	1887	Smith Thomas	41 8 3	1887
Darvall Mrs. Jane	2,300 14 3	1885	Smith Thomas, Joseph, James & Henry	32 16 8	"
Terry Richard	827 1 4	"	Smith George	19 3 6	1885
Drury George (lessee)	50 0 0	1884	Worley Henry	357 5 9	"
Collis Henry (occupier)	30 0 0	"	Holden K. (Executors of)	383 15 0	1884
Terry Edward	2,900 0 0	1885	Steel Michael	150 19 9	1885
Ballard Edward (occupier)	178 10 0	1884	Wallsend Coal Company	1,770 13 0	"
Hopkins Charles (occupier)	62 10 0	"	Quintal Samuel	152 15 0	1884
M'Namara John	2 15 0	1885	M'Namara Thomas	74 3 9	1886
Perry Benjamin	28 9 0	1884	Hanson Peter	204 13 6	1885
Blow & Melliday	298 3 0	"	Johnson W. W.	80 3 0	1886
Stott Samuel	214 16 3	"	Scottish Australian Mining Company	1,170 1 6	"
Aiken William	20 7 0	"	Waratah Coal Company	1,374 1 9	1885
Duncan Miss M. B.	199 6 3	"	Johns Thomas (occupier)	38 10 0	"
Boyle John	135 0 0	1885	Australian Agricultural Company	17,697 7 0	1887
Melliday Thomas	210 0 0	1884	Waddington H.	54 7 3	1884
Harding James	115 17 6	"	Bond Chapman B.	187 8 9	"
Duffy Agnes	620 2 6	"	Hodgson William R.	225 10 0	1886
Fox John	53 19 6	"	Macara Donald	9 2 6	1884
Harris William	1,048 7 0	"	Cole James W.	16 12 6	1885
Craig Joseph	138 6 9	"	Ross James	13 7 0	"
Hammond A.	703 17 6	"	Davis Rock	36 5 7	1886
M'Mahon M.	275 11 9	"	Gondie James	1 1 10	1884
Selge Norman	105 14 5	1887	Kingscote William A.	12 6 8	1885
Duffy Charles J.	87 3 0	1886	Gorman Henry	0 7 1	1884
Leek William	158 1 3	1885	Thompson Walter	33 0 0	1883
Leek George	39 13 1	"	Kilbrunner V.	22 10 0	1884
Leek John	39 13 2	"	French Henry	396 0 0	1883
Pollard Thomas	261 16 3	1886	Crane Richard	148 10 0	"
North Shore Building Society	261 13 9	1884	Vale George	132 0 0	"
Hobbs William Joyce	245 9 6	"	Ross Joseph	400 0 0	"
Coonan John	158 17 0	"	Bell Henry (executor of)	850 0 0	1884
Reddy Daniel	1,441 3 6	1885	Kerr Robert	101 15 0	1885
Foster Thomas	278 15 0	1884	Serbutt James	400 0 0	1884
Smith Robert B. & others	1,413 16 3	"	Bray George Charles	341 14 0	1886
Fear Hugh	24 16 0	"	M'Kechnie Andrew	114 8 0	1885
Fear Jeremiah	188 9 3	"	Lipcombe Henry (occupier)	11 0 0	1883
Wheeler Henry	105 10 6	"	Griggs & Chappell	260 3 6	1884
Wall John	1,127 2 0	"	Fulton John	50 12 0	1883
Duffy Thomas H.	1,916 14 9	"	Barton Thomas	600 0 0	1884
Salmon Thomas	1,734 14 6	"	Tomkins Valentine	268 15 0	1883
Seymour Vincent W.	20 3 9	1887	Draper Thomas	88 10 0	1884
M'Rae Myles	172 12 0	"	Luscomb Martha	90 15 0	1885
Waring Richard C.	36 6 0	"	West Botany Council	100 0 0	1884
Davis Rock	55 15 0	1885	Hannam Mary	108 18 0	1886
Murphy Andrew	322 12 0	1884	Judd William	379 1 0	1884
Fagan Peter F. (administrator)	263 17 0	1887	Richardson Charles Thomas	473 0 0	"
Fagan Brothers	538 3 11	"	Gearing George G	94 3 9	"
Fagan Peter F.	534 6 0	"	Sturgen Thomas (lessee)	5 5 0	"
Fagan George	88 0 0	1885	Ferrier Rachel	44 0 0	"

Name.	Amount paid.	In what year paid.	Name.	Amount paid.	In what year paid.
1884—continued.			1884—continued.		
Wamsley James	£ 59 13 6	1885	Bode Theodore	£ 203 14 0	1885
Holden K. (Trustees of)	106 16 9	"	Musgrave Thomas	1,409 4 9	"
Hazlewood Charles	700 0 0	"	Robinson Arthur	936 8 9	1886
Flood Charles E.	148 10 0	1884	Sing War (occupier)	23 5 0	1887
Wrench E. T. J.	1,230 12 6	1887	Ahearn Wilham	321 6 3	1886
O'Dwyer James	1,589 6 3	1885	M'Court William	661 8 0	"
M'Kenzie Susan	3,319 7 6	"	Gilmore R. (occupier)	20 0 0	"
Bell Sidney	38 1 6	"	Drake Thomas (lessee)	20 4 3	1887
Briggs George	15 16 0	1887	Wiley Wilham	1,990 14 4	1884
Adams Thomas	96 0 0	1884	Parsons Aquila	578 0 0	1885
Grant William	57 6 9	1885	Kelly Alexander	399 4 0	"
Badgery F. D.	15 2 6	1886	Kennedy Isabella	200 0 0	1886
Wright Eva	25 0 0	1885	Hyndes R.	600 0 0	1885
Cropper John	890 5 11	1887	Dakin Truman	2,839 14 6	"
Hargraves Gilbert	282 10 6	1885	Gilmore Charles	487 12 0	"
Hargraves Ralph	75 0 0	"	Osborne William	2,954 9 0	"
North Illawarra Land & Coal-mining Co.	8,374 4 5	1887	Woods Edward (occupier)	456 0 0	"
Walker Thomas	5,709 1 3	1886	Goodsell & Wright	877 5 6	"
Hamilton William	905 5 0	1885	Jolliffe John (lessee)	13 0 0	"
Hargraves Lawrence	306 6 3	1886	Owen Robert (Trustees of)	300 0 0	"
North Illawarra Land & Coal-mining Co. (lessees).	2,087 13 10	1887	Martin James (occupier)	200 0 0	"
Parsons Aquila (lessee) ..	90 0 0	1885	Elliot Andrew	574 2 9	1887
Broadhead A. (occupier) ..	20 0 0	1886	James Robert	687 11 0	1885
North Illawarra Land & Coal-mining Co.	12,977 2 6	"	Jenkins Wilham (Trustees of)	4,051 16 0	"
Collings J. & J.	85 0 0	"	Cullen Charles J. (occupier)	365 12 6	"
Hicks H. T.	450 5 0	1885	Irvine Henry (occupier) ..	74 0 0	1884
Kennedy P.	664 14 6	"	Burgess John (occupier)	132 13 0	1885
Beatson A.	903 17 6	"	Richards John & Son (occupiers) ..	259 2 6	1886
Robins Frederick	125 12 6	1886	Presbyterian Church (Trustees of) ..	273 11 3	1885
Fry H. S.	75 17 6	1885	Hughes John (occupier) ..	29 11 3	"
Powell Charles	75 15 0	1884	Fackender Robert (occupier)	46 10 0	"
Round Edward	27 1 9	1885	Smith Alice (occupier)	6 5 0	"
Peck James	454 6 0	1884	Beatus Phineas ..	53 10 0	"
Robinson Francis	50 0 0	1885	M'Paul George	35 0 0	"
M'Geary Terence	156 0 0	"	Harwarth Robert (Trustees of)	1,623 7 0	"
Turnbull George	97 0 0	"	Gorrell Mrs. Jane (occupier) ..	65 5 6	"
Robinson Francis	228 12 6	1884	Griffin James (occupier) ..	67 10 0	"
M'Cauley George	401 19 0	1885	Phillips Miss Selma	75 0 0	1886
Bond C. B.	955 8 9	1887	Ryan Peter ..	536 3 0	1885
North Bulli Coal-mining Co.	2,619 6 1	1886	Osborne Captain	637 5 0	1886
Voigel Catherine ..	187 2 6	1885	Gibson Edward (occupier) ..	177 0 0	"
Bateman T.	256 19 0	"	Brown George	1,039 0 8	1887
Black Allan ..	306 1 0	"	Brown John	26 15 8	"
Orvad Peter and Hanora	33 0 6	"	Marshall Robert and Ann	1,282 2 0	1886
Morris Edward	215 11 9	"	Evans Evan R.	1,000 0 0	1885
Skinner T.	363 0 0	"	Osborne George and others ..	381 10 0	"
Croft George	977 0 5	"	Buckley Timothy (occupier) ..	10 0 0	1887
Tresidder Henry	73 15 0	"	Musgrave Wilham L. (occupier) ..	94 5 0	1885
Wilson Elizabeth	79 0 0	"	Ah Pun and Wang Kee (occupiers) ..	30 8 6	1886
Charlesworth Edward	133 6 0	"	M'Cauley Wilham (occupier) ..	13 0 0	1885
English, Scottish, and Australian Char- tered Bank.	127 0 0	"	Rutledge Thomas	838 13 10	1886
Walshe & Carolan	12 2 0	1887	Powell H. J.	233 16 3	"
Smithers A.	127 0 0	1885	Shanahan Thomas	242 5 9	"
Brown Frederick (occupier) ..	65 0 0	"	Gilligan John (occupier) ..	53 19 6	1885
Dumbrell Wilham	89 15 0	"	Hyles Richard	98 13 11	"
Reeves Henry, sen.	81 5 0	"	Sparrow George	115 16 0	1886
Taylor Wilham	193 10 0	"	Sparrow James ..	84 2 0	"
Floyd Rose Ann	196 0 7	1886	M'Donald Alexander	177 13 9	"
Heard Roger	490 1 9	1885	Culverwell Luke (occupier) ..	6 12 0	1885
Organ George	11 0 0	1886	Do do ..	58 16 9	1886
Collings J. and J. (lessees) ..	13 10 0	1885	Williams Sarah ..	139 18 1	"
Campbell Robert	526 0 0	"	Wright J. J. (occupier) ..	304 7 0	"
Collins Mary	219 14 0	1886	Hinksman Thomas ..	761 12 5	1885
Campbell R. and W.	24 0 0	"	Priece William (occupier) ..	867 9 6	"
Collins Thomas	25 0 0	1887	Campbell and Close ..	701 2 3	1886
Do.	358 0 9	1885	Wright J. J. (occupier) ..	5 10 0	"
Mitchell Sarah and John	337 11 6	1887	Pike James do ..	73 14 0	"
Farraher Murty James	269 3 0	1885	Kaye Joseph John	105 13 6	"
Collaery Edward ..	640 10 0	"	Fogarty Bridget	38 6 3	1887
Farraher P.	330 9 6	1884	Culverwell Luke ..	0 13 3	1885
Wilson John (occupier) ..	21 9 0	1886	Ryan James ..	17 1 0	1886
Cauley Eugene ..	408 16 0	1887	Cahalan Peter ..	106 7 9	1887
Cauley J.	84 3 0	1886	Smith James ..	86 2 6	1885
Anderson Gerald ..	500 0 0	1885	Dunn John (occupier) ..	10 11 3	"
Reid Robert J.	229 5 6	"	Moran Mary ..	27 19 0	1887
Beatson A.	238 12 6	"	Brennan Edward ..	97 2 6	1885
Tratt John	219 17 6	"	Owen John ..	216 0 0	1886
Griffin Sophia ..	268 12 3	"	Cunningham A. J.	235 0 6	1887
Clark Matthew ..	325 4 0	1886	Campbell Hon. Charles ..	268 10 9	1886
Carmichael M. (occupier) ..	11 0 0	1885	Keefe James ..	57 11 9	1887
Do. do.	201 6 4	1887	Commings Michael ..	52 9 1	"
Flanagan M.	132 6 3	1886	Campbell and Close ..	80 6 9	1886
Townsend John ..	231 18 0	1885	Smith Francis E.	239 4 0	1885
Elyard Samuel ..	76 2 0	"	Bates George ..	97 19 9	"
Madden John ..	100 5 0	1886	Ryrie Alexander ..	699 19 0	"
Anderson James ..	643 0 0	1884	Lenane John ..	122 5 5	1886
			Commings John ..	5 4 9	1885
			Lenane Patrick ..	155 6 0	1886

Name.	Amount paid.	In what year paid.	Name.	Amount paid.	In what year paid.
1885—continued.			1885—continued.		
Curran J. P.	£ 61 17 6	1886	Smith Mary	£ 34 7 6	1887
Nott Randolph	202 17 6	"	Schofield John	41 3 8	"
Beckhaus John	251 7 0	1887	Reed Margaret	150 0 8	"
Walz Joseph	150 0 0	1885	Cullen John	41 5 0	"
Glasson Henry	43 19 3	1887	Ryrie Alexander and David.....	365 5 6	"
Madden John.....	100 0 0	1886	Ware H. J.	15 7 2	"
Sherman Caroline	27 10 0	"	Bowerman Richard	8 3 0	1886
Frewin Edmund	31 10 0	"	St. Barnabas Church (Trustees of).....	462 0 0	"
Cooper Beston	75 5 0	"	Murray Adam	30 0 0	1885
Smith Archibald S.	56 15 6	"	Caldwell James	15 10 0	1886
Roman Catholic Church (Trustees of).....	42 2 0	"	Keenan James	63 5 0	"
Phillips Henry	37 2 6	"	Cantrill William	2 3 9	"
Lindlay Thomas.....	281 18 9	1887	Keenan Mary	167 19 0	1887
Regan Thomas	98 1 3	1886	Stibbard George.....	100 8 9	1886
Chong Jemmy Ah (occupier)	5 10 0	"			
Woodman, C. J., senior	55 0 0	1887	Total.....	10,701 1 3	
Woodman, C. J., junior	66 0 0	"			
Woodman, Henry.....	88 0 0	"	1886.		
Norton Michael	45 18 0	"	Moss Moses	150 0 0	1887
Hogan Mary A.....	73 15 0	1886	Haydon Clara	254 2 0	"
Booby Bridget	172 5 0	"	Cohen Abraham.....	575 0 0	"
Crow James	250 18 9	1887	M'Rae Myles	6 15 3	"
Hunt George T.....	110 0 0	1886	Hobbs and Anderson.....	17 19 6	1886
True Samuel	242 16 0	"	Friend and Fagan.....	89 2 0	1887
M'Alister Thomas	125 10 0	"	Excelsior Land and Building Company	10 15 6	"
Fenwick Thomas (occupier).....	73 18 6	1887	Bucknell A. W.	486 0 0	1886
Fryer William (occupier).....	62 11 0	"	Conolly William	450 0 0	1887
Dunster William and Humphrey (occupiers)	74 12 0	"	Murphy Mary	360 0 0	"
Lindsay David	36 2 9	"	Harris George	56 2 0	"
James William (occupier)	68 16 0	"	Mealia James J.	216 9 3	"
Buckley Timothy (occupier)	155 5 0	"	Walker P. B. (lessee)	247 13 6	"
Malone Bartholomew (occupier).....	85 0 0	"	Mackenzie Susan	202 1 3	"
Murphy Elizabeth (occupier)	33 0 0	"	Wiseman and Blackburn	162 1 3	"
Macguckin B. (occupier)	15 0 0	"	M'Sharry and Co.	650 0 0	1886
Cameron Charles	956 9 3	"	Robinson Francis	34 11 0	"
Ryrie Alexander	1,484 12 0	"	M'Cauley George	77 1 0	1887
Davis A. E.	97 9 0	1886	Croft George	348 4 6	"
Ryan Martin	66 11 6	1887	Farrell Thomas	76 0 0	"
Koppman Rudolph	151 14 6	"	Ryrie Alexander	91 2 0	"
Koppman J. W.	29 9 3	"	Smith James	7 6 6	"
Ware H. J.	67 8 10	"	Cram Donald	24 6 3	1886
Lahiff E.	27 10 0	"	Chew Henry	16 4 6	"
Hinton J. V.	33 0 0	"	Donges Christoff	11 16 6	"
Spring G. W.	22 0 0	1886	Fitzpatrick Thomas (lessee).....	18 14 0	"
Hands John	19 16 0	1887	Hines Thomas	3 7 3	1887
Deveruex J.	11 0 0	"	Cant Abraham	1 10 7	1886
Halloran Patrick	0 5 6	"	Flegler George	60 16 0	1887
Connelly John	99 15 3	"	Rawlinson Charles.....	16 0 0	"
Ware Alfred J.	147 0 9	"	Garner William.....	607 1 4	1886
Fergus James.....	90 19 9	"	Brown J.....	38 10 0	1887
Fergus John A.....	38 9 6	"	Boland Thomas.....	975 0 0	1886
Colquhoun Margaret	50 8 0	"			
Bowerman Richard	205 19 6	1886	Total	6,341 12 11	

RETURN showing the amount of compensation paid for land resumed for Tramway purposes during the years 1880, 1881, 1882, 1883, 1884, 1885, and 1886, and the names of the persons to whom such compensation has been paid.

Name.	Amount paid.	In what year paid.	Name.	Amount paid.	In what year paid.
1880.			1881—continued.		
Nil .....	£ .....	...	Thompson Ann	£ 115 9 6	1882
1881.			Graham John.....	77 0 7	1884
Lavers Robert V.	400 0 0	1881	Gregory Job	79 0 0	1883
Leigh Maria C.	400 0 0	"	Wynn William	69 0 0	"
Pemell James	1,000 0 0	"	White Hon. James	429 10 2	"
Forrester W. J.	500 0 0	1882	Taylor Rev. R.	2 15 0	"
Farrell Mrs. E.	1,482 10 0	1881	Turner Henry	6 0 0	"
Wesleyan Church (Trustees of)	1,400 0 0	1882	Gregory William (occupier)	5 0 0	"
Pemell James (occupier)	65 0 0	1883	Waterworth James	330 0 0	1885
Flint John William (Executors of).....	800 0 0	1882	Presbyterian Church (Trustees of).....	722 19 0	1884
Chippendale M. A.	139 2 2	1883	Phillip Joseph	6,000 0 0	1883
Kidd John	195 6 3	1882	Solomon John T. (lessee)	2,500 0 0	1882
Fieldhouse Brothers	47 1 3	1884	Low Mrs. Stella F.	8,337 3 4	1883
Fitzpatrick James	177 0 0	1887	Do	88 0 0	1882
Nott Elizabeth	43 0 0	1883	Williams Thomas (occupier)	50 0 0	"
Powell John	24 4 0	1882	Dixon Fletcher	300 0 0	1884
Nott David	86 9 9	1883	Total	25,871 11 0	

Name.	Amount paid.	In what year paid.	Name.	Amount paid.	In what year paid.
1882.			1885.		
	£ s. d.			£ s. d.	
City Corporation	1,694 0 0	1884	Cooper William.....	1,316 5 0	1886
Robertson William	800 0 0	"	Bellett Henry D.	2,152 0 0	1885
Morgan James	3 0 0	"	Cook Miss Rebecca	2,293 0 0	"
Waterworth James	696 12 6	1882	Kent Charles (occupier)	75 0 0	"
Scottish Australian Investment Co.....	30,900 0 0	1883	Paul William H.	3,505 4 4	1886
Holmes Estate (Trustees of)	17,847 10 0	"	Crowther Enos (occupier)	5 15 0	1885
Córmack A. W.....	4,500 0 0	"	Halstead Thomas (occupier)	5 14 0	"
Cliff J. W.....	45,000 0 0	"	Etherington Thomas (occupier)	2,000 0 0	"
Lee Henry	140 18 9	"	Slater Thomas (lessee)	82 0 0	"
Wilson & Clarke	2,752 0 0	1885	Potts J. (occupier)	7 19 0	"
Lee Henry	284 1 3	1884	Waterhouse Charles (occupier)	20 0 0	"
Gall Elizabeth	119 13 9	1886	Atchison Isabella	800 0 0	1886
Hall T. E.	1,168 2 6	1883	Lord Francis	2,020 0 0	1885
Wiley William	622 0 0	"	Jago John	821 6 4	"
Wilson & Shepherd	182 18 9	"	Holterman B. C. (Executors of)	1,306 16 0	1886
Moore Charles	1,690 12 6	"	M'Carty Hannah	1,379 8 0	1885
Lepherd Ann.....	100 0 0	"	Paul William H.	1,050 0 0	1886
Total.....	107,601 10 0		Lord Edward (Trustees of)	1,544 8 0	1885
			Hordern Anthony & Son (lessees)	86 3 0	1887
			Cozens Richard	681 0 0	1886
1883.			Total.....	20,651 18 8	
Plummer W. C.....	266 2 6	1884			
			1886.		
1884.			Monaghan James	1,415 0 0	1886
Larcombe & Rofe	150 0 0	1885	Stokes Mrs. A. G.	198 0 0	1887
			Total.....	1,613 0 0	

1887-8.

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

RAILWAYS AND TRAMWAYS.

(AUTOMATIC ELECTRIC CARS—CORRESPONDENCE RESPECTING.)

*Ordered by the Legislative Assembly to be printed, 11 April, 1888.**Re Automatic Electric Cars.*

Sir,

5, Westminster Chambers, Westminster, S.W., 30 September, 1887.

I have the honor to draw your attention to an Automatic Electric Car for Tramways and Railways, patented by Messrs. Immisch & Company, Electric Works, Malden Crescent, Prince of Wales Road, Kentish Town, London.

The particulars of the car, and system, will be found in the pamphlets which I transmit herewith. On the 24th instant, in conjunction with a number of gentlemen, and accompanied by Mr. H. C. Russell, Government Astronomer, I witnessed at Brighton a trial of the car, and, for the distance run, it was a great success; I send herewith, for your information, a newspaper report thereof. As I deemed it desirable to direct your attention to this system, I procured from Messrs. Immisch & Company an approximate estimate for one electric tram-car and dynamo, and this estimate I enclose. The Company are willing to send out to your Government, on trial, one of their cars, upon the understanding that you should not be bound to take it over unless it was approved by you. They would further be prepared to send out a competent electrician to superintend the running of the car. I send letter from Messrs. Immisch making this offer. If several cars or locomotives were required there would be a reduction in the price.

In addition to the estimate for the car, I enclose rough estimate furnished by the Company for transmitting power to a distance, namely:—

“A” for 20 or 25-horse-power, 10 miles; and “B” for 50-horse-power, 10 miles.

I am informed that the motors used by the Immisch system are the best yet adopted.

Should your Government decide to accept the proposal herein submitted, you will doubtless be good enough to cause me to be informed by telegraph, and I will instruct the Company accordingly.

I have, &c.,

SAUL SAMUEL.

[Enclosures.]

THE Electrical Car Company's System of Automatic Propulsion for Tram-cars and Railways with Extracts from Press Notices.

AUTOMATIC ELECTRICAL CARS.*

* PLATE 1.

MAJOR-GENERAL HUTCHINSON, on behalf of the Board of Trade, having given his approval of the system of Electrical Traction for Tram-cars and Railways, inaugurated by the Electrical Car Company, the direction have pleasure in pointing out the advantages, claimed for their system of electrical propulsion. Each car, being “self-contained,” or carrying its own power on board, can be sent out to do its day's work independently of all electrical cables or other direct connection with the depot or works. This system avoids the necessity of a third line or groove in the streets occupied by the tramways; such third line or channel being so objectionable as to be fatal to the application of electrical propulsion of cars in public thoroughfares, when the power is dependent upon the electrical current direct from the dynamos. Further, if the lead or cable be tampered with by any person during its entire length or is accidentally injured, the whole organization fails, the cars being left at intervals along the road without motive power. This state of things has frequently happened on lines so constructed. The self-contained car is free from any such disadvantages. When the current is supplied direct from the dynamo there is considerable leakage along the conductors, varying according to changes of temperature and the seasons of the year. Again, owing to the consumption of fuel (which is the largest item of maintenance) going on uselessly in the meantime, there is great loss of power during the descent of the cars down gradients, and while stopping for passengers or at termini.

In this Company's system there is no appreciable loss from leakage; one of their cars has been charged and run at intervals during three months without any recharging. Thus the method adopted by this Company avoids all the objectionable features, and has produced a car which, under a long series of severe tests, has been found to associate the maximum of convenience and the minimum cost of maintenance and working.

Roughly, the car may be described as of four parts: first, an ordinary tram-car body; secondly, a set of electrical accumulators in which the power is stored, so stowed away under the seats as to be out of the way of passengers; thirdly, the motor, which converts the electrical energy into mechanical power; and, lastly, the gearing between the motor and the wheels of the car by which it is driven along the road. There is one great advantage of the system, that ordinary cars may be converted into electrical cars at comparatively small cost. The motors are of the well-known Immisch type, built expressly for this Company with a view to particular work they have to do. These machines are remarkably light for their power, with high efficiency. This motor is so far ahead in design of any others known, that the Company have finally adopted it in their work.

† PLATE 2.

In general appearance the automatic electrical car is like an ordinary tram-car without horses, nothing unusual being observed in outward form. The effect while running on the road is very odd, and a source of much astonishment to those wayfarers who have not hitherto seen one, for without any apparent reason the car speeds along at any pace up to twenty miles an hour. In crowded thoroughfares, of course the speed may be regulated to suit the traffic, and it has been found that the most perfect control exists in pulling up, stopping and starting, even on the most severe gradients yet attempted; one, on the road between Brighton and Shoreham, being one in twenty. The driving is controlled by a switch-handle so simple that any unskilled labourer may drive the car.

The Electrical Car Company also build large electrical locomotives for the purpose of drawing trains of carriages. The power developed by these machines is extraordinary; they are more suitable for either railway work or street tramways: These locomotives can be built to develop any power that may be required, and would be of immense advantage on underground railways.

When compared with horse and steam traction, the advantages of electrical power include the greatly reduced cost of traction of tram-cars as against horse traction, as demonstrated by the trials during the competition between steam, compressed air, and horses for tramway traction, at the Antwerp Exhibition, in 1885; the less room occupied in the streets in consequence of absence of horses; no wear and tear of the roads by horse traffic; reduction of cost of street-sweeping; great reduction of stable-space, but one-third the room of horses being required for the charging-machinery; reduction of labour of horse-keepers and cost of horse-infirmary (so large an item in the expenses of tramway companies); and lastly the absence of all pain, and wear and tear of horse-flesh, as well as setting free for other purposes somewhat over 24,500 horses, now occupied in drawing tram-cars in the United Kingdom.

In comparison with steam, the advantages are absence of smoke, soot, dirt, escape of steam, and other noises which are liable to frighten horses on the roads, besides perfect absence of all chance of explosion; objections which are seriously detrimental to the use of steam-engines for hauling tram-cars in public streets. Further, being ordinary tram-cars having the power "self-contained," they take up only half the space in the streets, and obliterate the objection of the train-like appearance of steam-engine and car attached, as well as avoiding the necessity of taking two rolling loads over the line to convey one car-load of passengers, as well as saving wear and tear of the metals. The automatic electrical car can be controlled by a mere labourer. There are no parts about the car which cannot be speedily and easily replaced.

So far as concerns the average of horses and steam, the comparative cost of tram-car traction, based upon the Board of Trade returns on tramways for the past year, may be taken as follows:—Horse and steam traction, sixpence per car-mile run; electricity, fourpence per car-mile—thus showing a saving of one-third on either power now used in tramway haulage. This will be better understood when it is stated that the horse-cars of the North Metropolitan Tramway Company of London last year ran the enormous mileage of 5,927,451 miles.* A saving of (say) even one penny per mile on that amount would realize no less than £24,697 per annum, available for dividends or extension of system. It must be further borne in mind that the tendency of electrical traction will be towards economy; whilst horses and provender now being cheaper than ever remembered in modern times, the tendency will be in the direction of increased expense for horse-traffic, especially if some great continental war breaks out or other cause puts up the price of horses and provender.

The system under notice has been carefully matured and demonstrated on the Brighton District Tramway Company's line running between Brighton and Shoreham; and has been approved and adopted by several of the leading companies.

EXTRACTS FROM PRESS NOTICES.

THE following are extracts from a few of the many leading papers which have noticed this system of Electrical Traction, as demonstrated by the Syndicate from which this Company evolved. The notices having been generally very lengthy, are considerably reduced to avoid repetition:—

Times, 29 July, 1887.

A NUMBER of gentlemen visited Southwick, near Brighton, yesterday, at the invitation of the Directors of the Electrical Traction Syndicate, for the purpose of witnessing a demonstration of the application of electricity to the propulsion of tram-cars or railway carriages. The system of the Electrical Traction Syndicate has been approved by Major-General Hutchinson, on behalf of the Board of Trade, and the system has also met with the approval of several of the leading tramway companies of this country. By this system of propulsion each car is provided with a set of electrical accumulators, in which the power is stored. There is a motor, which converts the electrical energy into mechanical power, and there is also the gearing between the motor and the wheels of the car, by which the car is driven along the ground. Each car, therefore, is "self-contained," and can be sent out to do its day's work independently of electrical cable or other direct connection with the depôt or the works. Various kinds of accumulators have been tried, the Tatham cells being at present in use. The motors are of the Immisch type, and have been built expressly for the Syndicate with a view to the particular work they are intended to perform. This automatic electrical car resembles an ordinary tram-car in appearance. There are, of course, no horses, and the car apparently runs of its own accord and without any propelling power. A speed of twenty miles an hour can be attained; but the speed may be regulated to suit the traffic, and the driver possesses perfect control over the car. The work of driving the car is very simple, and it is therefore unnecessary to employ skilled labour for this purpose. An electrical locomotive for the purpose of drawing a train of carriages has also been constructed by the Electrical Traction Syndicate. Trips were made yesterday by an automatic electrical car, and also by the electrical locomotive, and very satisfactory results were obtained. Indeed, it is evident that the difficulties which formerly surrounded the problem of electric traction are being overcome. In addition to other advantages which the system of the Electrical Traction Syndicate possesses over horse and steam traction of tram-cars, it is estimated that the cost will be very much less. The work in connection with this system has been going on for nearly two years, and it was initiated by Lord Bury. The engineering department is at present under the management of Mr. Thomas Fraser.

Daily News, 29 July, 1887.

THE little Sussex fishing village of Southwick was the scene yesterday of a novel experiment in the use of electricity for locomotive purposes—novel in the sense that it brought on to a public road a kind of vehicle not yet at work in any other part of Great Britain, but experimental only so far that it showed on a limited scale the application of a principle which it is only reasonable to suppose will sooner or later make considerable progress in being employed from tram-car traffic. The experiment, if such it can be called, was made by the Electric Traction Syndicate, who for some time past have had at Southwick several tram-cars fitted on their "self-contained" principle. Most people are aware that the use of electricity in the place of horse or steam power is by no means a recent idea; but in most of these cases the motive force is supplied from a stationary engine at the terminus of the tram-line. A car on this method has been running at Brighton for several years past. The essential difference between that and similar systems and the system shown in working order yesterday is that, instead of being dependent on a stationary engine, the car is complete in itself, being, in fact, put on the rails with batteries, motor, and other appurtenances in a state of perfect equipment, as independent of extraneous assistance as is a locomotive with its tender on the railways. But, just as a locomotive has to stop to take in water, so this improved car has to stop to take in a fresh supply of electricity, which is provided easily enough by means of accumulators. The comparison between the steam locomotive and the electric tram-car is not quite complete, inasmuch as the accumulators and motor are placed out of sight, the former under the seats and the latter suspended under the body of the car, so that all appearances the car is without encumbrance and differs very slightly, if at all, from the ordinary tram-car. The moving power being concealed, it starts, stops, reduces or increases speed seemingly of its own accord, though in reality controlled by the small switches placed at each end of the driver's platform. The rails upon which the car was placed were laid a year or two since by the Brighton District Tramways Company, a distance of something over 4 miles. The car, having been brought from Southwick to West Brighton, was run along the full length of rails and back again, and made the journey in a quick and easy fashion, which was regarded as very satisfactory, especially where the car had to mount gradients, some of which were rather steep, as much as 1 in 20. The motive-power was furnished by eighty cells, or accumulators, connected with an Immisch motor, which operates on the second pair of wheels, the car being a four-wheeled vehicle of the usual pattern, and giving seating-room for twenty passengers. On passing the depôt the occupants of the car

* These figures are taken from the Official Board of Trade "Returns of Street Tramways" for the year ending June, 1886.

car were taken to see a large locomotive, estimated at 30 horse-power, for drawing three or four loaded cars at a time; it being suggested that such might be used on the Underground Railway, though it is rather felt that when a train of cars is used each car could carry its own propelling power. The accumulators used in the ordinary car are reckoned to contain a store of electricity sufficient for a journey of 30 miles, and the "leakage" being next to nothing the supply is available for use within any reasonable time. When it is exhausted, a fresh set of accumulators has to be inserted, and this, it is claimed, can be done in a few minutes, quite as quickly as horses can be changed under the system now familiar. There was no opportunity of seeing this done yesterday, as the appliances on the spot are of a more or less temporary character; but under working conditions the plan would be to have two sets of accumulators for each vehicle, one set being charged whilst the other is being used, by which means practically no time would be lost at the terminus. So far as speed is concerned, the car could be run at a rate far in excess of that permitted by the Board of Trade (whose inspector examined and approved of it on Monday), but for street traffic speed may be looked upon as a secondary consideration. Whilst, however, it can travel faster than it is likely to be required to do, the car is kept in hand in a thorough manner. Virtually the driver has four methods to rely upon. In the first place there is a switch worked by a handle on a disc, which regulates the rate of movement or brings the car to a stop. A second switch worked by a key breaks the current instantaneously, and so effects the same end in a prompter fashion; whilst such momentum as may be left can be reduced by the application of an ordinary crank-brake. Finally, if need be, a lever can be used which will reverse the motor, and so not only stop the forward movement of the car, but send it in an opposite direction; but this last method is one reserved for emergencies. A car fitted in this fashion can be used on any ordinary tram-line, while some of the advantages claimed for the "self-contained" electrical system are that the roads are subjected to no wear and tear, that the cost of scavenging would be reduced, and that, as the team used in the ordinary cars takes up nearly as much space as the cars themselves, a car which has no team and only covers the space actually required for the use of the passengers is a decided gain. The trial trips of yesterday can be taken as a fair specimen of practical work, and how far the problem has been solved of applying electricity to meet one of the most pressing demands of every-day life.

Standard, 29 July, 1887.

A SPECIAL testing trial was made yesterday at Brighton of a 20-passenger tram-car fitted by the Electrical Traction Syndicate of London. * * * The road is a very trying one, having curves as sharp as a 30-ft. radius, and inclines of 1 in 20. Nevertheless, the journeys were performed with admirable speed, and under perfect control. The homeward run from Shoreham to Hove was accomplished in 27 minutes, being at the rate of 10 miles an hour, the speed at times reaching 14 miles. * * *

Daily Chronicle, 29 July, 1887.

A NEW electrical motor for driving tram-cars was tried with success yesterday on the ordinary tram-lines between Brighton and Shoreham. The trial-car travelled smoothly at from 12 to 20 miles an hour. It was stated that the cells, which contain sufficient force to last for 35 miles, take less time to replace than would be occupied by changing horses, and that the cost per car per mile is less than that of steam or horse-power. The cells are hidden beneath the seats, and no machinery is visible.

Observer, 31 July, 1887.

A SATISFACTORY demonstration of the practical utility of a new system of propulsion by electricity, as applied to the purposes of passenger traffic, was witnessed on Thursday last, at the invitation of the Electrical Traction Syndicate at Southwick, near Brighton. * * * Of the efficacy of the system convincing proof was given during the trial trip over the Brighton District Tramways Company's route from the western extremity of the town, *via* Portslade and Southwick, to Shoreham, a distance of $4\frac{1}{2}$ miles. The route chosen is of a very tortuous and undulating nature, with extremely abrupt curves, and gradients in some cases of 1 in 20; but the car took the curves and surmounted the ascents without sensible diminution of speed, and in a safe and satisfactory manner. The journey to and from Shoreham was accomplished at a good pace. The exhausted accumulators can be replaced by fully-charged ones in the same time as is now occupied in changing horses, and the advantages of the electrical over the usual means of traction are undoubted. The frequent repairing and cleansing of roads is obviated, and a considerable saving of stabling is effected. Major-General Hutchinson, on behalf of the Board of Trade, has signified his approval of the system. * * *

Globe, 29 July, 1887.

A NEW application of stored electricity to the traction of an ordinary tram-car was yesterday experimentally shown to a few gentlemen interested in electricity and engineering on the tram-line between West Brighton and Shoreham, a distance of $4\frac{1}{2}$ miles. The attempts to attain satisfactory results with stored electricity in the propulsion of tram-cars have been many, and several of the most notable have already been fully described in these columns; but while great strides have undoubtedly been made in this direction * * * the most noticeable feature in this electrical tram-car is the remarkable facility with which it may be started and stopped, the car being brought to a standstill within its own length when going full speed, and the high rate of progress which it attains—the maximum being 20 miles an hour. As witnessed yesterday, the new invention is in every way a success.

Engineering, 29 July, 1887.

AMONG those who have spent time and money in working out the best means for driving and manipulating tram-cars by stored electricity is the Electric Traction Syndicate (Limited), who on Tuesday last carried out a number of trial runs between Southwick and West Brighton, to show the progress they had made. The runs, which were highly successful, were made on a line which presented many difficulties, and therefore offered the better proof of the efficiency of the apparatus which was submitted to demonstration. The metals are laid on a macadam road without pitching, and consequently the grooves are often filled with gravel, while the gradients are steep in parts, and the curves very sharp. The entire distance is $4\frac{1}{2}$ miles, and was covered on Tuesday at an average speed of $11\frac{1}{2}$ miles an hour, the car passing all the vehicles on the road with ease, and making the entire journey without any hitch. It is said to be capable of running 25 to 30 miles, or for about half a day, without replenishing the batteries, so that the entire length of the line might have been traversed five or six times without need to go into the depôt for fresh cells.

The car, which has served as the *corpus vile* for a long course of experiments, has under the seats eighty cells, arranged in two series of forty each. Each cell weighs 41 lb. complete, and is rated at 150 ampère-hours, the whole weighing 3,280 lb. The total weight of the car was:—Car, 1 ton; motor, frame, &c., 1 ton; cells, 1.5 ton; twenty passengers, 1.5 ton; equal 5 tons.

The motor is of the Immisch make, and weighs $5\frac{1}{2}$ cwt. At full load it has an efficiency of conversion of over 80 per cent., while its average working efficiency is said to be 70 to 80 per cent. It is capable of exerting a pull of over 100 lb. on the periphery of the armature without risk, and for a short time may be worked to two or three times its nominal capacity of 10 horse-power without risk of overheating. It runs at 1,000 revolutions per minute, with a current of 160 volts and 40 amperes. The speed is reduced in the proportion of 10 to 1 at the wheels, the gearing being by means of two chains and a countershaft. The somewhat high speed of the motor has been chosen, after experiment, as it enables a lighter machine to be used, and a better economy to be gained, in spite of the additional weight of the countershaft and its bearings. The chains have steel links united by cast steel distance-pieces, and they work well, although at times one of them has to run at over 2,000 ft. a minute. The driver's gear includes two switches and a reversing lever. The first switch turns the entire current on and off, while the second alters the grouping of the cells from 80 in series to 40 in series and 2 in parallel, according as much or little power is required. It also puts a resistance in circuit when the car is being started. The reversing lever operates the two sets of armature brushes, taking one set off, and locking the other set on, when it is desired to make the motor revolve in the contrary direction to that which it has been following.

In addition to the car an electric locomotive or "electromotive" was exhibited last Tuesday. This is designed to haul the heavy bogie cars in use on some lines, and weighs in itself some 12 tons. The motors, which are of the Immisch type

type, are geared directly to the wheels by spur pinions and internally toothed wheels, the arrangement being peculiar. Each motor is pivoted to one of the axles by a collar or bearing at its end, and carries on its spindle a steel pinion; the teeth of this pinion gear, with an internally toothed gun-metal ring, bolted to the inside of the car-wheel. When the current is turned on the motor has a tendency to rotate around the axle, but this tendency is resisted by a rod which ties the motor to the framing of the car. Consequently the motor pulls or pushes directly at the frame, and the only medium by which the jar of the teeth can be communicated to the passengers is through the connecting bar. There is to be motor at each axle, but at present only one is in place; it was demonstrated that the motor could pull the wheels round on the rail so that it will utilize the entire adhesion of the vehicle, and of any passengers which it may carry.

The electromotive carries 168 cells, each weighing 60 lb., and capable of a discharge of 70 ampères. The mean working discharge for a load of 20 tons, *i.e.*, electromotive and bogie cars together, at 8 miles per hour, is about 40 to 35 ampères per cell, and the electromotive under these conditions accomplishes 25 to 30 miles in distance without requiring to be recharged.

The Engineer, 29 July, 1887.

For some time experiments, with a view to electric tram-car propulsion, have been carried on at Southwick, near Brighton, by the Electric Traction Syndicate, which has for the purpose had the use of the tramway between Southwick and Hove, and the premises of Southwick for the purpose. Within the last few months tangible results have been arrived at, and the present time the Syndicate has at work an electromotive and an electrically propelled car.

The tram-car, which may be seen running between the places mentioned—sometimes at from 12 to 15 miles per hour—is one of the smaller size without roof-seats, and is capable of carrying about twenty passengers in all. It is a one-horse car, and weighs, according to figures given us, approximately 1 ton. It is driven by an Immisch series-wound motor, supplied with current by eighty secondary cells, weighing each about 40 lb. * * *

The Immisch motor is specially designed to give a powerful torque for work of this kind, and no motor which will not do this can be of any use for the purpose, considering the heavy resistance of tram-cars on some roads, and the occasional necessity for starting on an incline, a contingency, however, which the careful driver avoids by refusing to stop on an up-gradient. The car is driven by means of straight link-chain gearing. * * *

On Tuesday the car was shown at work to a number of those interested in the subject. The road is for the greater part straight, but there are some very sharp curves upon it, one being of only 30 feet radius, and it was noticed that the Ampère-meter showed double the current on this curve that was shown immediately before on the straight. A large portion of the road is level, but there are two rather long gradients, stated to be of about 1 in 30, and a short one of about 1 in 20. The road is not in a good condition in one respect, namely, that it is covered with coarse sand and grit, and the grooves are, to a large extent, filled up, so that the resistance even on the level is probably as much as 40 lb. per ton, and more in some parts. The car gear worked well, and was perfectly under control. The motor is not covered in at all, and yet gives no trouble by sparking. The heating on the runs made, sometimes reaching a speed of 12 to 14 miles, was barely perceptible, and no doubt keeping the machine uncovered is an advantage in this respect. A small quantity of vaseline is occasionally rubbed on the commutator. The absence of sparking at the commutator is to a great extent due to the Immisch arrangement of brush spring which prevents the brushes from dancing upon the commutator without pressing heavily upon them.

The results attained are very encouraging and very favourably commented upon by Major-General Hutchinson, who inspected and tested the car for the Board of Trade. Some of the leading tramway companies intend, we are informed, to adopt it. The success so far obtained opens up the possibility of extensive applications. The Southwick experiments show that there seems to be no difficulty that cannot be surmounted. * * *

The Electrician, 29 July, 1887.

ON Tuesday last, upon the invitation of the Electric Traction Syndicate, the representatives of the technical journals were present at "a private demonstration of electric traction" on the line between Shoreham and West Brighton. The line itself was built by a local company some years ago, and has been in the hands of the syndicate for experimental purposes during the past twelve months, during which period an elaborate series of tests have been carried out. The total length of the line is about 4½ miles, and presents features which are of considerable value for the purpose in view. The gradients are numerous and in some cases exceptionally severe, rising to 1 in 20 where the road crosses a bridge at Southwick, and there are two sharp curves of about 28 yards radius, one of which is on an incline of 1 in 100. When to this it is added that the road has not been maintained in very first-rate order, it will be seen that the line is particularly well adapted to test the capabilities of any system of traction. Indeed, it may be remarked that Messrs. Aveling & Porter, the engine-builders, have been experimenting with a new type of steam-engine upon the same line concurrently with the electric trials. The average coefficient of traction has been found to vary between 42 lb. and 55 lb. per ton, according to the state of the metals; upon a well-laid London line this coefficient does not usually exceed 30 lb. to 35 lb. per ton.

The engineers of the syndicate are of opinion that electric traction upon lines where the cars follow one another at short intervals is best applied upon the cars themselves. * * * The trials upon Tuesday last began with a short run upon an electric locomotive car weighing about 12 tons, and designed to draw a bogie car, with seats for sixty persons, at a mean speed of 8 miles an hour, additional accommodation for fourteen persons being provided upon the locomotive itself. The motive power is obtained from a set of 168 cells, discharging at 50 to 60 ampères, with a capacity of 200 ampère-hours. The motor, which is of the Immisch type (SM9 on their list), series-wound, runs at 650 revolutions. The armature is 9 inches in diameter, and is geared direct to the driving wheels by pinions at each end of the spindle, which mesh with internal teeth upon a circular rack on the wheel. The ratio of the teeth is 10 to 67. The motor is suspended by sleeves on journals cut in the axles, which are of steel, and has a tension bar from the centre of the fields to the end framing, to act as a fulcrum. * * *

Returning to the engine-house at Southwick a self-contained car was next tried, upon which the party made the journey to Shoreham. The car traversed the whole length of the line to West Brighton, attaining a mean speed of slightly over 11 miles an hour; the maximum speed probably approached 16 or 18 miles an hour on some of the inclines. * * *

The cells, which are eighty-four in number, have a normal discharging rate of 45 to 50 ampères, and a capacity of 150 ampère-hours. They are divided into two separate batteries, each battery being again divided into two halves. By means of a suitable switch, designed by Messrs. Immisch & Co., the two halves of each battery can be connected either in parallel or in series, and the two batteries can also be connected in parallel or in series with each other. Out of these four possible arrangements it will be seen that two amount to the same thing electrically, so that three different speeds are obtainable by this means. In actual practice it has been found that these three speeds fulfil all requirements.

The gearing runs with great smoothness and an almost entire absence of noise; in fact, the car runs without more noise than a horse-car.

The motor is again of the Immisch type (SM7), series-wound, and runs at 1,000 revolutions, with 160 volts and 40 ampères. * * *

The motor weighs about 5½ cwt., and has an efficiency of conversion at full load of 85 per cent. Its average working efficiency probably lies between 75 and 80 per cent. By winding the armature with smaller wire this could probably have been increased without reducing the normal output; but the element of safety which exists in an armature capable of taking an excessive current would be reduced in proportion. In this case the factor of safety, as regards the sectional area of the wire, is so great as to admit of the car being stopped and started upon an incline of 1 in 20.

The readings of the ammeter taken during the run showed that under an E.M.F. of 80 volts the current averaged 35 ampères on the level at a speed of 8 to 10 miles an hour, rising to 40 ampères on an incline of 1 in 20. When the cells were placed in series, giving a terminal E.F.M. of 170 volts, the mean speed increased to 12 or 14 miles on the level with a current of 45 ampères. On the incline of 1 in 20, and going round the sharp curves, the current increased to 80 ampères. These figures are little more than approximate, but were taken as a rough verification of the results obtained by more careful tests made at leisure by the engineers of the Syndicate. The limits of our space do not permit us to give a specimen of these tables in our present issue, but we shall probably return to the subject at an early date.

The Electric Traction Syndicate is certainly to be commended for the careful and thorough manner in which they have proceeded to work out the numerous problems connected with the details of the subject, and especially for their determination not to come before the public until a long series of trials of a thoroughly practical character had enabled them to undertake business with perfect confidence in their ability to carry it to a successful issue.

Electrical Review, 29 July, 1887.

OPERATIONS of a most important character in the electrical equipment of tram-cars have for many months been carried on by the Electric Traction Syndicate (Limited), at Southwick, near Brighton. Though Southwick runs a tram-line which was constructed by the Brighton and District Tramway Company, and extends to the western boundary of Hove to Shoreham, a distance of $4\frac{1}{4}$ miles. The use of this line has been acquired by the Syndicate for its experimental trials, and owing to the road being about as bad as it could possibly be, and having a variety of curves and gradients, the engineer considers it an excellent bit for the purpose. The sharpest curve is one of 30 feet radius, and the steepest incline 1 in 20. So completely have all practical difficulties now been surmounted that the Syndicate are giving public demonstrations of it, and are prepared to arrange with tramway companies on the principle of working their cars with electric traction in place of horses, at a saving to the companies of at least a halfpenny per mile run, the Syndicate taking all risk and responsibility. The system adopted is that of working by accumulators. At a special demonstration on Tuesday last, illustrations were given of two distinct methods of traction. The first was by means of an electro-locomotive specially built to meet certain requirements, and called by the owners "The Electromotive." It consists of a frame of rolled angle iron, strongly braced and stayed, supporting three platforms, on which accumulators are lodged in sliding cradles. The springs and axle-boxes are designed upon the waggon pattern, to carry about 13 tons per wheel. The motors, which are of the Immisch type, series-wound, having a speed of 650 revs. per minute, and armatures 9 inches in diameter, gear direct by pinions at each end of the armature spindle into internal tooth gearing, fixed on the inner surface of the wheels, which are three feet in diameter, the proportion being ten teeth of the pinion to sixty-seven teeth of the wheel. * * *

The present design of the electromotive is surmounted by a canopy, which in practice would be superseded by sitting space for fourteen people, making a passenger load with the bogie car of seventy-four seats.

The gross weight of the electromotive is about 12 tons, the accumulators each weighing 56 lb., inclusive of connections, and being capable of a discharge of 70 ampères, having a capacity of about 200 ampère-hours. The mean working discharge for draft of 20 tons—that is, electromotive and bogie car together, at 8 eight miles per hour—is about 40 to 55 ampères per cell, and the electromotive under these conditions accomplishes 25 to 30 miles in distance (practically half a day's work) without requiring to be recharged.

The other form in which the application of the system was shown consisted of an ordinary one-horse tram-car, the sides of which have been altered so as to allow of the package of the accumulators under the seats from the outside, and the flooring reconstructed to allow of the motor being fixed in position. The weight of the car was stated to be 1 ton, the motor and gearing 1 ton, the accumulators $1\frac{1}{2}$ ton, and estimated weight of twenty passengers $1\frac{1}{4}$ ton, making a total rolling load of $4\frac{3}{4}$ tons. The motor is an Immisch series-wound, and runs at 1,000 revolutions, with 160 volts and 40 ampères. The high speed has been determined upon after experiments which showed that a light motor running at a moderately high speed is superior to a heavy motor running at a low speed. The motor weighs $5\frac{1}{2}$ cwt., and has an efficiency of conversion at full load of over 85 per cent. Its average working efficiency is probably about 75-80 per cent. It is capable of exerting a pull of 1,000 lb. on the periphery of the armature without risk. This enormous torque does away with fear of the motor sticking at starting, and the car has been stopped and started on an incline of 1 in 20.

The reversing gear comprises two sets of brushes, and is worked either by lines or levers; it is of first-class mechanical design and locks the brush frame positively in either direction.

The car has eighty cells. They are arranged in two groups of forty cells each, and can be coupled in series or parallel. The arrangement of coupling is necessitated by the condition of running, *viz.*, a fixed maximum speed and a variable load. A resistance is inserted in the circuit, and is used when starting or when it is necessary to run very slowly. A charge is sufficient for a run of about 30 miles, but it is not proposed to exceed 25 in practice.

The gear is a double tram transmission by chains and wheels. The intermediate shaft was found necessary owing to the large reduction of speed—1,000 revs. on the motor to about 100 on the rolling wheels. If a single tram transmission had been used, the pinion would have been so small that the chains would have been seriously strained and its life materially shortened, and moreover it would have been more noisy.

Iron, 29 July, 1887.

ELECTRIC traction on tramways is a branch of electrical engineering which has put to the test the ingenuity of many an electrical engineer. Various systems have been tried; but it cannot be affirmed that perfect practical success has as yet attended the application of any of them. Exception should be made, however, to the experimental tram-car which is being run by the Electric Traction Syndicate on the West Brighton and Shoreham Tramway. We use the term "experimental" advisedly, because the line on which the car now runs is at present being worked by horse traction, and has been selected for experiment on account of the exceptional difficulties—steep gradients, sharp curves, &c.—which it presents. The perfect success, therefore, which attended a special demonstration of electric traction as applied to tram-cars under such conditions on the line mentioned on Tuesday last is all the more significant. The car was an ordinary tram-car converted for the purpose. * * * The motor series-wound, and runs at 1,000 revolutions per minute with 160 volts and 40 ampères. * * * Its average working efficiency is probably about 75 to 80 per cent. It is capable of exerting a pull of 1,000 lb. on the periphery of the armature without risk. This enormous torque does away with fear of the motor sticking at starting, and the car has been stopped and started on an incline of 1 in 20. The reversing gear comprises two sets of brushes, and is worked either by lines or levers. It is of first-class mechanical design, and locks the brush frame positively in either direction.

Each cell weighs about 40 lb. when charged, and has a capacity of 150 ampère-hours with a fall of potential of 10 per cent., admitting a sustained discharge of 50 ampères. The car has eighty cells. These are arranged in two groups of forty cells each, and can be coupled in series or parallel. This arrangement of coupling necessitated by the condition of running a car, *viz.*, a fixed maximum speed and a variable load. A resistance is inserted in the circuit, and is used when starting or when it is necessary to run very slowly. A charge is sufficient for a run of about 30 miles. As has been stated, the road is one of the worst in England, and was chosen on this account by the engineers; so that the figures given above—30 miles—may be looked upon to be increased materially in a well-constructed tramway even as much as 20 per cent. It must further be noticed that the Tatham cell used, being the first adapted, is shown by experience to be open to an improvement of at least 25 per cent. in weight efficiency. The average coefficient of traction throughout the line, including grades, has been found to vary between 42 and 55 lb. per ton, according to the state of the metals. The average coefficient of a well-laid London line is about 30 lb. per ton. The difference of the mean traction between Brighton and Shoreham, and Shoreham and Brighton, is about 7 per cent. The gear is a double transmission by chains and wheels. The intermediate shaft was found necessary owing to the large reduction of speed, 1,000 revolutions on the motor, to about 100 on the rolling wheels. If a single transmission had been used, the pinion would have been so small that the chain would have been seriously strained, and its life shortened, and moreover, would have been noisy.

The gross weight of the electromotive is 12 tons, the accumulators each weighing 56 lb., inclusive of connections, and being capable of a discharge of 70 ampères, having a capacity of about 200 ampère-hours. The mean working discharge for draught of 20 tons, *i. e.*, electromotive and bogie car together, at 8 miles per hour is about 40 to 35 ampères per cell, and the electromotive under these conditions accomplishes 25 to 30 miles in distance without requiring to be recharged. * * * The figures given are in cases the result of very careful records and experiments which have been made, and tabulated by the engineers conducting the trials and extending over the greater part of the last twelve months. In its short experimental trip on Tuesday, the electromotive proved a very powerful traction engine, capable of doing an immense amount of work.

A short trip from the dépôt at Southwick to Shoreham was then made with the automic car. The tramway line from West Brighton to Shoreham has a total length of $4\frac{1}{4}$ miles, its steepest gradient being 1 in 20, besides two of 1 in 30; the sharpest curve having a radius of 30 feet. The rise of 1 in 20 was accomplished at a speed of 7 miles an hour, that being about the mean speed at which the tram-car is permitted to run, although a speed of 15 miles can easily be accomplished, as was subsequently demonstrated. The curves were turned without even materially slackening the speed. The final run of the day was made from Shoreham to West Brighton. A start was made punctually at 4 p.m. The first mile was made in 8 minutes, the second mile in 15 minutes, the third mile in 20 minutes, the fourth mile in 25 minutes, and the whole distance of $4\frac{1}{4}$ miles in 26 minutes. Deducting the stoppages which had to be made on account of traffic and to meet the regular tram-cars, and which amounted altogether to 3 minutes, the whole distance was covered in 23 minutes, which gives a mean speed of 11.6 miles an hour. This was very good, considering the state of the road, and notwithstanding which

which everything worked satisfactorily. * * * Leaving out of the question the saving effected by substituting electric for horse traction, the absolute safety and nicety with which the new electric tram-car can be worked, stopped, and restarted at any speed desired up to 15 miles an hour, fully demonstrated by Tuesday's experiment, should commend its adoption to tramway companies. We understand that Major-General Hutchinson, for the Board of Trade, has given his certificate for the running of the electrical tram-car, being fully satisfied and greatly pleased with its working during his recent official inspection.

Industries, 29 July, 1887.

NEW ideas, even if supported by experimental evidence, are slow to make headway, and electric propulsion of street cars is no exception to this rule. Whatever may have been the causes which have delayed the development of electric tramways, a certain scepticism on the part of the public, and we fear even on the part of many engineers, was one of the most important. Many doubts arose as to the economy and efficiency of the system, and unless these points can be satisfactorily disposed of by the results of actual work on a large scale, it is hopeless to expect that the average surveyor or local board engineer, or even the engineer to a tramway company, would take upon himself the responsibility of recommending electric traction. Nor would this be desirable, for an indiscriminating adoption of new methods must include both bad and good, and in some cases lead to failures, the moral effect of which cannot easily be effaced. We have seen this process in full operation during and after the electric light "boom" of a few years ago, and electrical engineers are still suffering from the effects of it. There is not much probability that a similar thing will happen with electric traction. We have entered into a period of sober and conscientious work, and, although the development may seem slow, it is very sure.

In this respect some excellent work has been done quietly by the Electric Traction Syndicate (Limited), of which Viscount Bury, Lord Egerton of Tatton, Mr. R. Macpherson, Mr. M. Immisch, and many other men of high standing, are members. The members of the Syndicate have set themselves the problem of finding by actual trials, on a large scale, the best battery, motor, and gear for automotor cars, and, having done so, to introduce electric traction on tram lines. So far as may be judged from a visit to their line at Southwick, they have succeeded with the first part of their programme, and there is little doubt that they will succeed equally well with the second part, and that through their instrumentality electric tram-cars will become familiar objects on some of the metropolitan lines. Those who are still sceptical about this method of propulsion cannot do better than pay a visit to the Shoreham and West Brighton line, and watch the behaviour of the electric cars. This line has been chosen on account of the great difficulties it offers to electric, and in fact to any kind of traction; the Syndicate rightly judging that if they can succeed on a road having curves of only 30 ft. radius, and gradients as steep as 1 in 20, they will succeed on any other line. On Tuesday last we had an opportunity of inspecting the line and riding on the electric cars. The work of the Syndicate began in April last year, and included experiments with a large variety of batteries, motors, and gearing. It is perhaps too much to say that a stage of finality has already been reached, but the present plan is sufficiently developed to answer its purpose in a thoroughly practical manner, and, as we said above, the technical part of the problem may now be considered solved. * * * The electric locomotive has been built with the object of hauling exceptionally large passenger cars, and is able to move a paying load of 64 passengers, viz., 50 on the car and 14 on the locomotive. * * *

The most important for ordinary tramway work are, however, the automotor cars, of which several are ready for service. These are of the type known as summer cars, seating twenty-one people—ten in a central cabin and five at each end, besides the driver. * * *

During a run from Shoreham to the dépôt at Southwick, and from there to West Brighton, we took frequent readings of pressure and current, and found that the energy supplied to the motor with the two halves of the battery in parallel averaged about 5 h.-p., and with the whole battery in series about 13 h.-p., the speed during the first portion of the run being 9.4, and during the second portion 11.6 miles an hour. The most remarkable performance of the car was its taking a long gradient of 1 in 20 at a speed considerably faster than walking pace. The current on this occasion was 85 ampères and the pressure 140 volts, corresponding to 16 h.-p. electrical energy supplied to the motor. The car appears to be under perfect control, and can be worked from either end. The reversing is done by sending the current through the armature in the reverse direction, there being two pairs of brushes, one for going forward, the other for going backward. Either pair when in position is automatically locked, so as to prevent jarring off and sparking from vibration. The electric cars were inspected and passed by General Hutchinson on the 18th instant. In concluding this brief account of our visit to the Shoreham-Brighton line, we are glad to be able to congratulate the Syndicate upon the results they have achieved.

Electrical Review, 29 August, 1887.

THE Electric Traction Syndicate is to be congratulated on the result, thus far achieved, of its researches for the purpose of determining the best methods to be pursued for solving the problem of electric traction on a commercial scale. The operations of the Syndicate, which have been quietly progressing for some time past in the neighbourhood of Brighton, were given at some length in our last issue, and we hope that the work already accomplished will give local board surveyors and engineers such faith in the value of electricity as a motive power that new or projected lines may be provided with electrically propelled cars. We should be glad to learn whether any steps have yet been taken to introduce the system of the E.T.S. into the streets of London or other large towns of the United Kingdom.

Graphic, 20 August, 1887.

DIFFERENT systems of electrically-worked tram-cars have appeared during the past few years, and, after trials which promised much, they have sunk into oblivion. We earnestly trust that this may not happen to the system which was tried near Brighton the other day, under the auspices of the Electrical Traction Syndicate of London. The car is perfectly self-contained. It does not rely upon the rails for its supply of electricity, as is the case with some systems, but carries its own store in accumulators. These accumulators feed a motor, which is geared to the driving-wheels, and, once charged will afford energy enough to drive the car a distance of thirty miles. This new car certainly behaved well on its trial. It carried twenty passengers, and its speed was sometimes as high as 14 miles an hour. On the same occasion an electric locomotive, designed to drag a train of carriages, was also tried with hopeful results. * * * Let us hope—for the poor horses' sake, at least—that that time may soon come.

Plate 3.

HIGHEST award for Electric Motors at International Exhibition, London, 1885, and International Exhibition, Antwerp, 1885. The Immisch Electric Motors are the most efficient for tram-cars, launches, lifts, cranes, ventilating fans, pumping, hauling, and winding in mines, collieries, and ironworks. Special attention paid to fitting up factories with electric power. Estimates given for electrical transmission of power for all industrial purposes. Makers—Messrs. Immisch & Co., Malden Electric Works, Prince of Wales Road, Kentish Town, London, N.W. Telegraphic address, "Immisch, London." A.B.C. code, telephone No. 7585.

THE following is an extract from the Report of the Directors of the Telpherage Company (Limited), submitted to the shareholders at the General Meeting, held on Wednesday, 8th June, 1887, at the Company's Offices, 50, Old Broad-street, London, E.C. :-

"The difficulty of obtaining suitable electromotors for driving trains has been mentioned on previous occasions. The Board has watched the progress of invention in this direction with much anxiety. The motors of Mr. Immisch attracted its attention at the Inventions Exhibition, and some time ago experiments were tried with an Immisch motor, which, while having great merit, was unfortunately not found quite suitable for the special requirements of the case. Mr. Immisch expressed well-founded confidence that all difficulties could be overcome, and supplied another motor last winter, which gave very good results. The Company has now been supplied by Mr. Immisch with a complete set of still further improved motors, which do all the work of the line, and have run for some time without a hitch. They require less than half the current taken by the old motors and are much lighter. The company is greatly indebted to Mr. Immisch for this important improvement."

THE

THE "Immisch" motors have now been finally adopted by the Telepherage Company on their line at Glynde. The following letter has been received from the Engineer to the Company, Mr. C. S. E. Crakanthorp:—

The Telpherage Company (Limited), 56, Old Broad-street,
London, E.C., 12th May, 1887.

Dear Sir,

The motors which you have supplied to this Company are working to our entire satisfaction, and have solved a difficulty which, up to the period of their introduction, had given us serious trouble.

We have three trains running in all weathers regularly 51 hours per week, propelled by your 4-in. one-horse-power motors, each of which takes an average current of 6 amperes, with an average E.M.F. over the whole Telpher Line of 170 volts.

In my opinion the working of the brushes is practically perfect, adjustment being required but once a week. This I believe to be due to your form of balanced brush-holder, and the total absence of sparking at the commutator.

Another advantage is its lightness compared with other machines developing the same power.

Yours truly,
C. S. E. CRAKANTHROP,
Engineer.

M. Immisch, Esq.

THE "Immisch" motors were first exhibited in public at the International Inventions Exhibition, London, 1885, where they received the highest award.

The same year they also took the highest award at the International Exhibition at Antwerp.

They have since held the first position in the world for lightness, power, and efficiency.

The chief features of the "Immisch" Electric Motor may be summed up in a few words:—A fixed position of brushes and an entire absence of sparking, even when the motor is temporarily strained to double its normal output.

These qualifications are absolutely essential in motors used in driving machines that are subject to rapid and frequent change of load, as in tram-cars. The "Immisch" Motors are wound in shunt or series. The E.M.F. recommended for the various sizes will be seen in the accompanying table.

Messrs. Immisch & Co. have supplied motors for use in factories, launches, lifts, tram-cars, pumping machines, printing machines, stamping mills, drilling and riveting machines, also for general purposes of transmission of powers by electricity.

There are now in course of completion several large transmissions of power, including pumping in mines, ventilating in mines, and quartz crushing in gold mines.

PRICE List of Immisch's Series-wound Motors.

REFERENCE MARK	S.M. 3	S.M. 4	S.M. 5	S.M. 6	S.M. 7	S.M. 8	S.M. 9	S.M. 10	
	Lowest Speed for H.P. in same line.	Maximum Brake H.P.	Maximum Brake H.P.	Maximum Brake H.P.	Maximum Brake H.P.	Maximum Brake H.P.	Maximum Brake H.P.	Maximum Brake H.P.	
	1,800	6	1.6	4.0					
	1,600	5.7	1.4	3.5					
	1,400	4.7	1.2	3.0	8.0				
	1,200	4	1.0	2.5	6.8	12.5			
	1,000	.....	.....	2.2	5.7	11.25	20	
	900	.....	.....	2.0	5.0	10.0	18	27
	800	.....	.....	.....	4.5	9.0	16	24
	700	.....	.....	.....	4.0	8.0	14	21
	600	.....	.....	.....	.....	6.8	12	18
	500	.....	.....	.....	.....	4.5	10	15
	400	.....	.....	.....	.....	.....	8	12
	300	.....	.....	.....	.....	.....	6	9
	200	.....	.....	.....	.....	.....	.....	6
Highest E.M.F.	60 Volt.	100 Volt.	150 Volt.	200 Volt.	300 Volt.	400 Volt.	500 Volt.	600 Volt.
Lowest E.M.F.	30 Volt.	40 Volt.	50 Volt.	60 Volt.	70 Volt.	80 Volt.	100 Volt.	120 Volt.
Approx. Weight	42 lb.	100 lb.	175 lb.	350 lb.	550 lb.	800 lb.	1,150 lb.	1,600 lb.
Price	£15	£24	£45	£75	£110	£140	£180	£225

The efficiency of conversion averages from 60 per cent. in a ½ H.P. Motor to 90 per cent. in a 20 H.P. Motor.

Larger machines specially quoted for.

SPECIALITY.—We draw special attention to our new type ½ H.P. Motors, weighing only 42 lb., price £15, suitable for lifts, ventilating fans, &c.

Commercial efficiency guaranteed 60 per cent.

IMMISCH SHUNT-WOUND DYNAMOS,

For running incandescent Lamps.

REFERENCE MARK	SH. D. 4.	SH. D. 5.	SH. D. 6.	SH. D. 7.	SH. D. 8.
Output in Board of Trade unit of 1,000 Watts.	75	2	5	10	20
Normal E.M.F.	55	55—110	110	110	110
Price	£24	£45	£60	£100	£160
Approximate speed in revolutions per minute.	1,600	1,200	1,000	850	750

These prices are subject to alteration without notice.

EXTRACTS FROM PRESS NOTICES.

Iron, 7 January, 1887.

THE IMMISCH ELECTRO-MOTOR AND DYNAMO.

ALTHOUGH the history of practical electrical lighting does not extend back many years, it is dotted with instances of brilliant successes of dynamos experimentally and of their utter failure practically. We have known several machines which slumber peacefully in this category, simply because their respective inventors rushed into the market directly they made a dynamo that would work, not caring to wait and see how it would work. There are, however, those who, as Longfellow puts it, could "learn to labour and to wait," and amongst these successful, because sensible, labourers in practical electricity is Mr. M. Immisch, whose works are situate in Malden Crescent, Kentish Town. This gentleman devoted some five years to perfecting his electro-motor and dynamo, and to our mind one of the most interesting and suggestive sights in his works—which we recently visited—was a heap of motors which represent the various stages through which his invention passed from its inception to its present perfected condition—the rounds in his ladder of success. Before proceeding to describe the machines we purpose briefly noticing the factory, which consists of four floors, each 100 ft. long by 53 ft. wide. On the ground floor are the heavy machines, one planing machine weighing 16 tons, and being capable of working over a space 12 ft. in length, 5 ft. 6 in. in width, and 4 ft. 6 in. in height. Here we found the manufacture of dynamos for charging accumulators going briskly on. Adjoining this shop is the engine-house, in which is one of Marshall's semi-portable engines of 35 horse-power nominal, working up to 100 horse-power. This engine drives the machinery on the ground and first floors. On this latter floor are the lighter engineering tools, comprising lathes, slotting, drilling, milling, and planing machines. The armature cores are built up and the coils wound on the second floor, the latter process being carried out in lathes, notwithstanding that the armatures are of the drum type. On this floor also is the constructing shop for dynamos and motors. The third floor is devoted to the manufacture of switches and commutators and an ingenious regulator for tram-car motors on the Immisch principle. On this floor also is the brass finishers' shop, containing some eighteen machines, which are driven by an Immisch 6-horse series-wound electro-motor, which also drives the machines on the second floor. The electro-motor is placed on the third floor, and derives its current from a storage battery on the ground floor. On the third floor is likewise the pattern shop, whilst above all is a large flat, which is partly used as a store, and which offers great facility for the extension of the works.

Turning to the production of these works, we may premise that the transmission of power by electricity comprises four distinct factors of equal importance; firstly the prime motor—water, wind, or steam-power; secondly, the dynamo; thirdly, the line; and fourthly, the motor. Each must in its way be perfect, or the efficiency of the whole system will suffer. The prime motor, whether water or steam, falls within the province of the mechanical engineer, and therefore we need not enlarge upon it here. The construction of the dynamo and motor and the erection of the line are the work of the electrical engineer, and these are the points to which Messrs. Immisch & Co. have successfully given their attention. On page 3 of our present issue we illustrate at fig. 1 the Immisch motor, and at fig. 2 the Immisch dynamo. The present type of series-wound motor, which is used for driving machines of from 1 to 40 horse-power, has been slowly developed, and is an example of the survival of the fittest. The chief peculiarities of this machine lie in the winding of the armature, which is wound either as a cylinder or as a drum. The drum type is usually adopted for low or medium electromotive forces, and the cylinder for large differences of potential. The armature coils are so connected to a commutator, of special construction, and which will be described later on, that the coils lying along the diameter joining the brushes are cut out of the main circuit by being closed on themselves. The reason for this is, that these coils, if active, would tend to make poles in the armature at right angles to the resultant axis of magnetism, and so decrease the total magnetic moment. This would further mean a weakening of the field, for in the motor the field and armature tend to strengthen each other.

Another very important result of this cutting out of a portion of the armature wire is that the lead is fixed, and the brushes require no adjustment for varying loads, as is frequently the case with ordinary dynamos when used as motors. Sparking is almost entirely done away with at any load. The importance of fixing the lead in a motor, which has its load continually varied, cannot be overestimated. For instance, a tram motor, which makes on an average one stoppage every two minutes, will be subjected to continued and rapidly-varying changes of load, the strains fluctuating between the starting torque and that of full speed on level ground. An Immisch series motor, with a 7-in. armature used in a similar manner, showed practically no signs of sparking, although the current at starting was 200 per cent. greater than that for which the motor was designed. Indeed, these motors have, we understand, been pushed to the point at which they were in danger of burning from excess of current, and yet they sparked but little. The torque of the Immisch motor is very great in proportion to its weight, and the risk of burning out an armature through the motor sticking is stated to be practically *nil*. An armature 6 in. in diameter will, at its normal output, lift and sustain a weight of 14 lb. at the end of a lever 2 ft. long. This is equal to a pull of 112 lb. at the periphery of a 6-in. pulley. The greatest torque the motor could momentarily exert without damage would be about five times as much.

The commutator, to which we have already referred, consists of two insulated rings side by side. Each ring is divided into segments, as in a Gramme collector; and the insulated divisions of the one ring are placed opposite the centre line of the segments in the other. The coils are connected in series, but each coil is joined to both rings. The coils are thus alternately short-circuited in pairs, as the segments to which they are severally joined pass beneath the brushes. Shunt motors are also made by the firm for use where weight is of no importance, but where the desideratum is a constant speed.

Messrs. Immisch also manufacture dynamo machines, specially designed both to drive their motors and also for arc and glow lamp lighting, electro-plating, and charging accumulators. These machines have a high efficiency of conversion, are sparkless at all loads, and, like the motor, have a fixed lead. A special type is also made for giving very large currents at low potentials. These dynamos are suitable for electroplating and charging accumulators in parallel. Their chief feature is the double commutator, one at either end of the armature. This arrangement gives large bearing surface for the brushes, without unduly lengthening the commutator. Since the two commutators are insulated from each other, the two windings may be coupled in either series or parallel. This gives two different E.M.F.'s for the one dynamo. We may add that the firm was awarded a silver medal for improvements in electro-motors at the Inventions Exhibition, 1885, which was the only award made in this department. In the same year the firm also received the highest award for electro-motors at the International Exhibition at Antwerp. On the occasion of our visit to Messrs. Immisch's works we saw one of these motors in an adjoining printing establishment, where it was driving a Lafitte polychromatic machine of large size with ease and showing a good surplus of power. From our inspection of the working of this motor and that in Messrs. Immisch's works, we consider that the firm may be congratulated on having made an important advance in the practical application of electricity.

Electrician, 11 March, 1887.

THE IMMISCH ELECTRIC MOTOR.

ON Saturday last, on the invitation of Messrs. Immisch & Co., a party of mechanical and electrical engineers visited their works at Kentish Town, and witnessed the performance of the Immisch motor under various practical conditions. We have so recently described at length the construction of this motor that at present we shall content ourselves with little more than a bare enumeration of the several applications which were here exhibited.

The first set to be examined consisted of a plant which had just been completed to the order of an Australian Gold-mining Company for the purpose of delivering about 10 horse-power to drive stamping machines at a distance of a mile and a-half from the water-side, where power is originally obtained. The dynamo was designed to give 300 volts, with 30 amperes, at 700 revolutions, and the motor runs at 1,000 revolutions. The machines are each simply series-wound, but effective regulation has been obtained by an application of the method described by Mr. Kapp in his "Electric Transmission of Energy," p. 178. This method consists in designing the machines so that on plotting the characteristic of the motor, and adding at each point an ordinate representing the total loss of E.M.F., with the given current in the entire circuit, we shall obtain the characteristic of the dynamo. This method is therefore applicable to all series motors driven by series-wound dynamos, when the total resistance of the circuit remains a fixed quantity. We were unable on Saturday to carry out a complete test of the regulation attained, because the machines were coupled terminal to terminal, and the $1\frac{1}{2}$ ohm which has been allowed for the resistance of the line was not represented. Under these circumstances the following figures, which show that a regulation within 7 per cent. was actually given, can only be considered highly satisfactory:—

Speed.		Volts.	Amp.	E.H.P.
Dynamo.	Motor.			
680	1,070	155	12	2.5
640	1,000	280	31.5	11.8

The

The variation in the E.M.F. of the dynamo was effected by means of a variable shunt on the field-magnets. Other series of tests gave similar results. The motor was employed to drive a second dynamo, and the load was varied by shunting the field of this machine and varying the resistance of the shunt. This method is very convenient, but it has the disadvantage of rendering it impossible even to estimate the horse-power actually transmitted. Other tests carefully made by Mr. Snell have, however, enabled an efficiency of 90 per cent. to be claimed for the motors and 90 per cent. for the dynamo; the loss in transmission in this case (45 watts) is negligible. The brushes were all fixed throughout the trial, and the entire absence of sparking in all three machines (even, in respect to the third, under the very unceremonious treatment it received) was particularly noticeable. It should be added that the dynamo weighs 17·25 cwt., and the motor 6·25 cwt., or 70 lb. per horse-power.

Among other machines shown we may mention a 5-unit shunt-wound incandescent dynamo, giving at 100 revolutions 108 volts and 48 ampères, and weighing 6 cwt.

The party next inspected some tram-cars and electric locomotive gearing, constructed for the Electric Traction Syndicate, and driven by Immisch motors. Gearing of several different types was shown running on absorption brakes. For heavy work a sun and planet gearing has been devised, and is intended more especially for employment with separate locomotives. For lighter work a worm and wheel gear running in an oil-bath is preferred; this is somewhat similar to that introduced by Mr. Reckenzaun for the same purpose. In each case the motors and dynamos were series-wound, and excellent speed regulation was obtained, as before. The practical conditions of electric railway working on a large scale are, however, obviously unsuited to the immediate application of this simple method of regulation, because the loss of E.M.F. in the line must be continuously varying with respect to every machine. It remains to be seen whether these difficulties cannot be overcome.

The visitors next made their way to an adjoining factory, where a Lafitte polychromatic printing press, and also a type-cutting machine, are in daily use, driven by an 8-horse-power motor. This arrangement has been working with unqualified success for the last six months.

Returning to the Immisch Factory, the mechanical engineers present were much interested in the performance of Mr. F. J. Rowan's electric riveter, a machine for riveting ships' plates *in situ*. The apparatus is slung over the side of the ship, and, being supplied with current from a dynamo by means of two powerful electro-magnets, it readily holds itself in any required position over the rivet to be closed up. The workman then turns a switch, and a small motor, acting by reducing gear upon a cam, draws back the hammer against the pressure of a very powerful spring, which is placed between the magnets. Coming to the top of the cam the spring is liberated, and a very powerful blow is delivered upon the rivet. This action can be repeated at the rate of 150 times a minute, and the tension of the spring can be adjusted with great nicety. The whole apparatus is under the most complete control; but on account of its necessarily considerable weight, although one man can operate it, it requires two men to shift its position. We hope shortly to be able to give some further information, with drawings, of this interesting machine. Now that all large steamers carry their own dynamos, it may be expected that machines of this class, which are capable of materially expediting the work of repairs, will find a large field of usefulness.

Industries, 11th March, 1887.

ELECTRO-MOTORS AND ELECTRIC TRACTION.

THOSE members of the Institution of Mechanical Engineers who availed themselves of Messrs. Immisch & Co.'s invitation to inspect their works at Kentish Town, on Saturday last, had a good opportunity of judging for themselves how simple and easy is the application of electricity to mechanical purposes. It is to be feared that many engineers who have not yet had an opportunity of becoming practically familiar with the conversion of electrical into mechanical energy are disposed to regard electricity as a somewhat unreliable agent, not to be compared in certainty of action with such absolutely positive agents as steam, compressed air, water under pressure, belting or other gear, and would consequently prefer any of the latter, with all their admitted drawbacks and imperfections, to new and unknown methods, no matter how excellent they may be in theory. There is also the popular notion that electricity is as yet in its infancy, and that the improvements of to-morrow will make the machines of yesterday obsolete; and these opinions operate to retard the application of electro-motors, even in cases where their superiority over every other means of converting and applying energy is indisputable. Matters are very different in the United States. There the use of electro-motors for domestic industries, for the propulsion of vehicles, and for many other purposes, is rapidly extending, and many of the electric light companies derive now a handsome income from the hiring out of motors, the power which can safely be contracted for being about double that provided at the central station. Nothing is more calculated to illustrate the thoroughness and perfection with which English engineers do their work, and the spirit of enterprise with which American engineers apply new inventions, than the development of heavy electrical engineering here and on the other side of the Atlantic. The dynamo, although not an English invention originally, has almost become so by reason of the many improvements made here, and it is not too much to say that the lead of English electricians and engineers in dynamo construction is now, with very few exceptions, followed all the world over. And yet we have no central electric lighting stations at all comparable with those which were established in America years ago, and at a period when the dynamo was far from being the perfect machine it now is. The same with motors. Whilst we are striving to construct motors a few per cent. higher in efficiency, or a few pounds less in weight, than our rivals in America and in other countries, they take whatever motors are ready to hand, and use them up in a variety of ways hardly dreamt of by the majority of our electricians, who seem to devote all their energies to making each motor, if possible, a little more perfect than the last. Practical business men will agree that the time has now arrived when further improvements in the machines themselves are of much less importance than a more extended application of them, and the makers and designers of motors would certainly not object to an altered state of business affairs, under which they might invent less but sell more. To bring about this salutary change, it is, however, necessary that the engineering world in general should be educated so as to duly appreciate and acquire confidence in the capabilities of electricity as applied to mechanical purposes.

Viewed in this light, the practical demonstration given by Messrs. Immisch & Co., on Saturday, to a number of eminent mechanical engineers cannot fail to have a beneficial effect, and we would strongly recommend other firms to follow their example; information of a practical character cannot be too widely diffused. Broadly speaking, the experiments shown were illustrative of three different applications of electricity, viz., the transmission of energy to a distance, electric traction, and the working of machine tools. The set of generator and motor which was used to illustrate the first application was one built to the order of Messrs. Laing, Wharton, and Down, for an Australian mining company; but, owing to want of proper foundations, could not be shown working at full power. The generator is of the single magnet type, placed horizontally, and weighs 17½ cwt., the maximum output at 750 revolutions being above 25-horse-power. Formerly, Mr. Immisch built his dynamos with vertical magnets of the Edison type; but he has abandoned this design, because he found that the loss of lines by leakage through the bed-plate, even when the pole-pieces were raised above the latter to a distance of two-thirds the diameter of the armature, was too great. A further advantage of the horizontal arrangement is that the armature can be exposed for inspection or slight repairs, without removing it from the machine, simply by lifting the upper magnet off. The motor is also a horizontal machine, but of the double horse-shoe type, and is intended to develop 10 horse-power at 1,000 revolutions, its weight being 6½ cwt. It is wound for 300 volts and 30 ampères. All the machines built by the company have armatures (whether of the cylinder or drum type) wound on a special plan, by which the coils at the neutral points are cut out, the object of this arrangement being to keep the brushes exactly at the neutral points, and avoid sparking, even if the field be weakened for the purpose of regulation. Practically, Mr. Immisch employs a double circuit on the armature, and the arrangement is, in effect, equivalent to the differential compound winding employed by Mr. Sprague on the field of his motor. Electric traction was represented by two systems of gearing, the one intended for an electric locomotive, and the other for application to a passenger tram-car. In the former case the motor, which has a 6-inch armature, is rated at 8 horse-power, and speeded at 500 revolutions, is suspended from underneath the floor of the locomotive car, and hinged by a bracket to the axle of the driving wheels; the motor spindle is provided at each end with a pinion of phosphor bronze gearing into spur wheels with internal teeth, also of phosphor bronze, which are bolted to the driving wheels. The pinions have ten and the wheels sixty-seven teeth, giving a reduction of speed of 6·7 to 1. In the latter case, the reduction is somewhat greater, viz., 10 to 1, and is effected by a worm and wheel, on the plan which, if we rightly remember, was first used by Mr. Reckenzaun three or four years ago, and has since then also been adopted by Mr. Holroyd Smith. This gear works quite noiselessly, and is, for this reason, particularly suitable to passenger-cars. Both

gears have been tried by the Electric Traction Syndicate on a tramway line near Brighton; and a third gear, consisting simply of a double chain wheel and two link chains, transmitting power direct from the motor spindle to the two car axles, is now being tried on that line. Another modification, in which the speed of the motor spindle will first be reduced by a nest of sun and planet gear, and then transmitted to the car axles by link chains, will be the next to be tried. The Baille rope gear, in which the grip of the rope on the small sheave is obtained by india-rubber plugs set alternately on the right and left, thus forcing the rope into a sinuoidal line, has completely failed, the plugs wearing out very fast if once the rope begins to slip. Iron sheaves with sinuoidal grooves and steel ropes, have answered very little better; but in this case the difficulty lies probably in the small size of the sheave as compared to the diameter of the rope.

The engineer to the syndicate, Mr. W. D. Gooch, gave an interesting account of the various experiments undertaken with a view to test the capabilities of motor, gear, and accumulators, and he laid particular stress on the fact that with electrical propulsion it is possible to keep a continuous record of the energy required at every point of the road; whereas to do this with steam traction would necessitate the continuous use of the indicator, and is, therefore, hardly practicable. From the records of current and potential, and previous brake tests of motor and gear, the actual horse-power of traction can be calculated all over the line, and it will probably surprise most readers to learn that Mr. Gooch found 40 lb. to 45 lb. as the tractive force required per ton weight on some portions of the line. This is exclusive of the traction due to gradients, and considerably exceeds the average given by Mr. Kinnear Clark in his book on tramways, and is about double the figure found in Tresca's and Holt's experiments, although it is yet within the limits found by Perrett for very dirty roads. The application of electricity to the working of machine tools, especially of the lighter and portable types, was certainly more of a novelty than the other experiments. Rowan's electric drills and riveting machines are most interesting, and, as far as can be gleaned from a casual inspection, highly efficient tools. The riveter, which was shown in action, is fastened to the piece to be operated on by means of a strong electro-magnet, excited by a shunt current. The magnetic grip is so great that it is impossible to tear the machine off by hand, nor does the machine shift under the jar of the hammering. The hammer is brought against the rivet head by the action of a spring, and it is worked by a cam, which receives motion through a double set of bevel gear from a $\frac{1}{2}$ horse-power Immisch motor attached to the machine, but, for protection, completely enclosed in a tin box. As the cam revolves the hammer is drawn back, compressing the spring until the highest part of the cam is passed and the spring released. The machine works with great rapidity, and we saw it close up a 1-in. rivet in about ten seconds. The drills, as far as the electro-magnets and gear are concerned, are similarly constructed. Two have been delivered about nine months ago to Messrs. McMillan & Co., in Dumbarton, and are said to give every satisfaction. As we did not see a drill in action we cannot speak from personal experience; but the makers state that, with a 1-in. drill running about one hundred revolutions a minute, the machine is capable of drilling through $1\frac{1}{2}$ -in. of iron in one minute and twenty seconds.

Electrical Review, 1 April, 1887.

THE IMMISCH MOTOR.

WHEN in November last we gave some details of the construction of the motor patented and manufactured by Mr. Immisch, we promised to return at another time to the subject of their applicability to tramway purposes, a field in which we are convinced there will be within a very short time an immense development. We were pleased to hear, on paying a second visit to the works recently started at Kentish Town, that, even during the few months they have been in operation, there has been a steady increase in inquiries for motors for a variety of purposes, and also that with respect to certain types the demand is even in excess of the present resources of the establishment. In fact it has been found necessary to increase the machinery to a considerable extent, the whole of which it is proposed to drive with a 40 horse-power motor now in process of construction.

Experiments have for some time been conducted here in relation to tramway requirements, such as improved reducing gear, simpler reversing arrangements, the increase of the efficiency of the motor, the reduction of its weight and dimensions, and its more perfect regulation. With respect to gearing, two systems have been tested in various ways, each appearing to possess certain advantages of its own calculated to lead to its preference over others in special circumstances. In one case the motor spindle is terminated at each end by a phosphor bronze pinion, which gears into a spur-wheel of the same metal attached to the driving-wheel with teeth on its inner side, the pinion having ten teeth and the wheel sixty-seven. The other system is that of a four-threaded worm on the motor shaft working into a corresponding wheel on the driving axle, similar to the arrangement illustrated on page 570 of the nineteenth volume of the *Review*.

Mr. Reckenzaun has advocated the latter kind of gearing for this particular purpose, contending that, with clean and well-fitting bearing surfaces, together with multiple threads so as to render the angle of the teeth proportionately large, it will furnish a durable, efficient, reliable, and silent mode of transmission such as is required for tramway propulsion. On the contrary, he considers tooth-wheeled gearing out of the question on account of the noise and vibration inseparable from it.

As far as one could judge under the circumstances, the examples at Mr. Immisch's works appear to bear out these contentions, and the fact that Mr. Holroyd Smith has lately adopted the worm and wheel gearing would tend to indicate that practical experience has led him also to give it a preference over others.

Mr. Immisch has recently contrived a new reversing gear in connection with his motors for tramway work, possessing novel points, and calculated to reduce the operation to the utmost possible simplicity.

With reference to the relation of efficiency to weight, it is claimed for these motors that they are unsurpassed. A motor developing 10 horse-power at 1,000 revolutions weighs $6\frac{1}{2}$ cwt., about 70 lb. per horse-power.

The Electrician, 17 June, 1887.

THE TELPHER LINE AT GLYNDE.

THE telfer line at Glynde has now been in operation for a period of over two years, and the time has certainly arrived when the question as to the success or non-success of this system of transport should receive a final answer. The question is admittedly one of no slight importance. If telferage can be demonstrated to be both technically and commercially practicable under the conditions of everyday service, it is not too much to assert that "the resources of civilization" will have been appreciably widened, while the electrical industries will be materially benefited to an extent which no one can at present foresee.

But is the Glynde line a success? So little definite information having appeared in the public prints on the subject, it is natural that remarks of an unfavourable character have not been altogether wanting. When, therefore, we received an invitation from the Telpherage Company to "come and see for yourselves what we are doing at Glynde," we did not hesitate—notwithstanding the torrid heat of the season—to undertake the expedition. Arriving at Glynde, after two hours' stewing on the London, Brighton, and South Coast Railway, we found the genial engineer of the Telpherage Company (Mr. C. S. E. Crakanthorp), who accompanied us on our tour of inspection. That the telfer line is by no means in a state of inanition was soon apparent. Scarcely had we crossed the fence by the side of the railway when a gentle rumbling announced the approach of a telfer train. On it came at a perfectly uniform speed over the river, round by the bend at the end of the first field, and on to the loop which brings the skips over the railway trucks, into which their contents are tilted. To one who has not seen it before, the first sight of a telfer train presents a very singular appearance. The peculiar cat-like way in which the skip in front climbs over the top of the poles and walks steadily over the inclines, while the wire rope sags beneath the weight of the train, is very striking. What is actually being done at Glynde may be summarised as follows:—Three trains are running continuously, each consisting of ten skips, and making on the average about fifteen journeys daily. Each train carries rather over 1 ton of clay, so that the total weight moved is about 270 tons per week. The engine plant and the capacity of the line itself are equal to a service of four trains, so that 360 tons per week could be carried with very little increase on the present working cost. That cost is at present £6 per week, a figure which enables the Telpherage Company to carry out their contract with the Sussex Portland Cement Company of Newhaven under remunerative conditions, even at the low contract weight of $7\frac{1}{2}$ d. per ton.

We have incidentally alluded to the fact that the trains run upon wire ropes; it will probably be remembered that the original plans (or, more strictly, one of the original plans) of the inventors of the system (the late Prof. Jenkin and Profs. Ayrton and Perry) contemplated the use of steel rods stretching from span to span. Until experiment had actually been made upon a working scale, it was confessedly difficult to determine which of these two methods would prove the

the better. On the one hand, the employment of rods on the "cross-over parallel" system necessitated the use of spans all of the same length, or at least not exceeding a certain length, and there was also the difficulty of jointing and insulation. On the other hand, that system of connection did not readily lend itself to the employment of wire-ropes, owing to the difficulty of securing it to the post-heads. It was therefore determined, in the first instance, to employ steel rods. The details of the construction of the line, together with the wonderfully ingenious devices for insuring the safety and regularity of the service, were fully described by Prof. Perry in a lecture delivered at the London Institution, and reported in this journal in February, 1886.

The "cross-over parallel" system, beautiful in conception as it is, has, however, one defect, which was pointed out by Prof. Perry in this lecture. Each time that the collecting wheel of the motor passed from one conductor to the other—that is to say, at every post—the current through the motor is reversed, a reversal which necessarily entails sparking at the bushes. It remained to be seen how far this drawback would in practice counterbalance the advantages of the system in the matter of economy, arising from the fact that only two (inter-crossed) conductors are required for both up and down lines.

After some experience, it became apparent that the motors at first adopted were unsuited to this particular class of work under the then existing conditions, and it unfortunately happened that the gentleman by whom the motors were originally designed was unable at the time to give his personal attention to the matter. We think it right to mention this fact because we are anxious not to give an unnecessarily unfavourable impression as to the merits of this particular motor, which, as Mr. Crakanthorp was himself careful to point out to us, has scarcely been able, under the circumstances, to receive a fair trial.

At this juncture, however, an Immisch motor was placed upon the line in parallel with one of the older type, and it at once became apparent that the former did the same work with exactly one-half the energy supplied—that is, one-half the number of ampères at the same volts. It is not therefore surprising that the Immisch motor has been finally adopted by the Telferage Company. The type at present in use has a 4-inch armature, weighs 105 lb., and develops one horse-power running at 1,700 revolutions.

Concurrently with the change of motors it was decided to make such alterations to the line itself as would allow a simple parallel system to be adopted, principally in order that steel wire-ropes might be substituted for rods, which were found to have a very much shorter life than had been anticipated. This has been carried out with great success. The steel ropes are $2\frac{1}{2}$ in. in circumference, and are anchored to cross-beams buried in the soil, with tightening screws for straining up when required. The alteration necessitated, however, the employment of a second wire on both up and down lines in order to convey the current. This wire, which also takes the form of a steel wire-rope of $1\frac{1}{2}$ in. circumference, is insulated throughout its length. The current is taken off by a jockey pulley made in copper with wide flanges, and the wire upon which the train runs is earthed throughout, as also is the negative terminal of the dynamo. The system, in fact, has now reverted very nearly to that described in one of the earlier patents of Profs. Ayrton and Perry.

The conditions under which a motor running upon a telfer line is worked are necessarily such as to submit the apparatus to an extremely severe test. The protection which can be given against the weather is very slender at the best.

It is under such conditions that the Immisch motors at Glyde are now working with complete success. This satisfactory result has not, however, been attained without a good deal of painstaking attention to matters of detail both on the part of the Immisch Company and of Mr. Crakanthorp. The Immisch Company at one time sent one of their representatives (Mr. A. Snell) to stay for some time upon the spot in order to study the working conditions as completely as possible. The results now attained will be appreciated from the statement that the motors frequently run for a fortnight without even having their brushes readjusted. The commutators receive a touch of vaseline from the switch-man at the end of every journey.

The average E.M.F. along the whole line is 170 volts, there being only a volt or two difference between the engine-house and the extremities of the line. The total current taken by the three trains amounts to 20 ampères; but owing to the admirable action of the automatic circuit-closers governing the speed of the trains (a feature which is due to the late Prof. Fleeming Jenkin) it is comparatively seldom that the full current is taken for more than a very short interval. The variations of current between 8, 14, and 20 ampères, as shown in the engine-room ammeter, follow one another in rapid succession. The loss by leakage is 2 ampères. The governors, it will perhaps be remembered, act by centrifugal force, entirely cutting off the current when the speed of the armature exceeds a certain point. The break is made first on carbon and afterwards on copper contacts. Although the gradients on the line are very slight, the trains sometimes run over 100 yards without taking current. The speed of the trains, as judged by the eye, is remarkably uniform, a velocity of about 4 miles per hour being maintained throughout the whole line, both by empty and by full loads. The trains are started at either end, through a set of resistances, which are cut out in four sections, so that the start is effected with great smoothness.

In the engine-house the Ruston and Proctor semi-portable engine and the Crompton compound-wound dynamo both look good for many years to come, although, owing to the continuous variations of the load (through the action of the motor governors), it may be assumed that the work is of a somewhat trying character.

We will only add, in conclusion, that the result of our visit has been to impress forcibly upon our minds the fact that, upon the technical side, telferage must no longer be looked upon as a scientific toy, but has become a thoroughly practical and efficient system of transport, combining the qualifications of cheapness, simplicity, and certainty—a system which, while not intended to compete with steam for heavy traffic, is yet capable of affording a complete solution of an important class of problems in the industrial development of old countries as well as of new colonies and of semi-civilized lands. We do not, however, anticipate, nor is it on the whole desirable, to see "a boom" in telferage; but that, under capable management, the business of the Telferage Company will steadily grow into industrial importance we regard as a certainty.

The Electrician, 15 July, 1887.

CONSTANT CURRENT MOTOR-WORKING.

ON the occasion of Mr. Wharton's lecture at Bath an Immisch motor was run on the arc circuit lighting the theatre and part of the city. The circuit was composed of thirty arc lamps, two batches of incandescent lamps in parallels of six, and the motor. The dynamo was a Thomson-Houston one, giving about 2,000 volts and 6.8 ampères. The motor was coupled by a belt to a 2-foot circular saw. The saw cut through some 4 in. deals with ease, and 2 in. and 3 in. cuts were made as fast as the wood could be fed. The torque of the motor was regulated by a centrifugal governor, which varied the ampère turns in the field. The motor weighed 350 lb., and absorbed about 350 volts at full load. This is, we believe, the first time a constant current motor has been run successfully on this side of the Atlantic.

MOTORS AND AIR PROPELLERS AT WHITELEY'S.

AT Whiteley's, in Westbourne-grove, where there is a large electric lighting installation, some trials of electric motors of the Immisch type have lately been carried out with results of such a satisfactory character that it is probable that extensive use will be made of these machines. The new buildings in Queen's Road are already partially ventilated by means of a large Blackman air propeller, and we understand that it is in contemplation to make use of these propellers in connection with small motors instead of the punkahs which are at present at work in some of the departments. During the last few days a half-horse-power Immisch motor has been in use for driving an ice-making machine, previously worked by hand. In six minutes the same amount of ice is turned out as previously required half an hour's grinding. The motor has so far been kept continually running from 6 a.m. to 7 p.m., and great satisfaction is expressed at its performance.

THE SOCIETY OF ARTS.

THE Society of Arts have recently laid down an "Immisch" series-wound motor for lecture and general purposes. The machine is one of the well-known "Immisch" type. The field connections are arranged so that the coils can be coupled in series or parallel. This arrangement is necessitated by the variety of work which the motor has to do. The maximum output is 3 brake horse-power at 950 revolutions per minute. The E.M.F. required is 110 volts, and so the motor can be run in parallel with the incandescent lamps used to light the large hall. It is found to be a valuable addition to the Society's plant, and enables many lectures to be illustrated in a very practical way.—*Electrician*, 13 May, 1887.

LIST OF SOME USERS OF "IMMISCH" ELECTRIC MOTORS.

Messrs Laing, Wharton, and Down, London	1st order	2 motors
Professor Ayrton, City and Guilds of London Institute	1st order	1 motor.
Messrs Linef and Jones, London	1st order	1 motor
Do do	1st order	1 dynamo.
The Telpher Company, Glynde	1st order	1 motor.
The E T Syndicate, Southwick	1st order	3 motors.
Messrs Laing, Wharton, and Down, London	2nd order	1 motor
Do do	2nd order	1 dynamo.
S. Norris, Esq, America	1st order	1 motor.
Messrs J. Thompson and Sons, London	1st order	1 motor.
The Yorkshire College, Leeds	1st order	1 motor
Professor Grylls Adams, King's College, London	1st order	1 motor
G C Taylor, Esq, Helsby, Cheshire	1st order	1 motor
Messrs Rowbottom and Worsley, Manchester	1st order	1 dynamo.
The Telpher Company, Glynde	2nd order	1 motor
Messrs Major and Field, London	1st order	1 dynamo.
The Polychromatic Printing Company, London	1st order	1 motor
Messrs Goulden and Trotter, London and Halifax	1st order	1 motor
McMillan and Co, Dumbarton	1st order	1 motor.
Do do	1st order	1 dynamo
The Society of Arts, London	1st order	1 motor
The E T Syndicate, Southwick	2nd order	1 motor
Walter Prince, Esq, Kaikorai, New Zealand	1st order	1 motor
The Telpher Company, Glynde	3rd order	5 motors.
W. Hermann, Esq, Lisbon	1st order	1 motor
Messrs Laing, Wharton, and Down, London	3rd order	1 motor.
Professor Garnett, Newcastle	1st order	2 motors
Messrs Nicholson and Jennings, at the Newcastle Exhibition	1st order	1 motor
McMillan and Co, Dumbarton	2nd order	2 motors
A Gray, Esq, London	1st order	1 motor
R. Weaver, Esq, Barberton, Tiansvaal	1st order	1 motor
Do do	1st order	1 dynamo.
Wm Whiteley, Esq (Universal Provider), London	1st order	3 motors
Do do	2nd order	
L J Crossley, Esq, Halifax	1st order	1 motor
H G Massingham, Esq, Bath	1st order	1 motor
Marquis of Salisbury, Hatfield	1st order	1 motor
Messrs Locke and Co, St John's Colliery, Normanton	1st order	1 dynamo
Do do do	1st order	1 motor
The Admiralty, H M Dockyard, Portsmouth	1st order	1 motor
Professor Géiard, University of Liege	1st order	1 motor

ELECTRIC MOTORS FOR POWER PURPOSES

THE various recent discussions of the electric motor question have already been remarkably beneficial, says the *New York Electrical World*. They have arrested attention on the fact that the motor is to day a practical, efficient, and economical machine, and they have led many people to consider their use who but a month or two ago had not the least idea that there was any such useful apparatus in existence. We speak on this point with full knowledge, having been ourselves applied to by a number of power users—principally printers—for information as to the manner in which they could avail themselves of the electric motor. On inquiry we find that most of them had not, until the present year, entertained any idea that their special necessities could be met by electricity, but having now satisfied themselves from what they have heard and seen they were anxious to get the services of a power so cheap, handy, and docile. We have ourselves spoken with a great many users of electric motors, and have yet to meet the man who did not prefer them to anything else he had tried—*Electrical Review*, 8th April, 1887.

APPLICATIONS OF ELECTRICITY TO MINING OPERATIONS

A VERY interesting paper was lately read before the Mining Institute of Scotland, by Mr F. J. Rowan, C. E., of Glasgow, in relation to the above, in which several instances of electrical haulage, winding, and pumping in mines and collieries were given. In this paper Mr Rowan, speaking of the "Immisch" motor, says—

A modern form of motor, which has so far proved superior to most of those which have been made. Mr Immisch has departed from the ordinarily received ideas on the subject of motor construction. He does not admit that the best dynamo is necessarily the best motor, but while admitting fully the theory of reversibility, he says that an efficient dynamo must from the nature of things be an inefficient motor. The dynamo in ideal has an enormously powerful field and a very weak armature, or in other words, the magnetic moments of the field and armature are as widely different as possible. This principle is carried out fairly well by all the best dynamo makers. Mr Immisch has, however, pointed out that the motor should have an armature and field with relatively equal magnetic moments—that is to say, that the armature and field should do equal work. This result can only be obtained by making the armature much larger in proportion to the total weight of the machine than is considered advisable in a dynamo. Strong evidence that this theory of motor construction is correct is derived from the high efficiency which the Immisch motor gives—an efficiency very nearly double that of motors made on the dynamo type. On a recent occasion an Immisch motor was tested against one of these others by a well known maker, when it was found that for the same work the Immisch motor used exactly half the current at the same E. M. F., thus giving double the efficiency of the other, and causing the commercial cost of the power developed to be reduced by one half.

Another point of great importance upon which Mr Immisch lays considerable stress, is that in his motors there is an absence of what is technically called "lead." From this it results that the motor may be run at any load within that for which it is designed without the brushes being adjusted and without sparking. The importance of this can readily be estimated for all cases in which the load varies rapidly.

This fixed position of the brushes is arrived at by a special method of winding the armature, which is applicable to either drum or cylinder armatures. The drum type is used for low tensions, and the cylinder for high tensions or extra low speed. The coils of the armature are so connected to a commutator of suitable construction that the coils lying along the diameter joining the brushes are cut out of circuit by being closed on themselves. The reason for this construction is that these coils, if active, would tend to induce poles in the armature at right angles to the axis of magnetism. This would weaken both the armature and the field, because in the motor the field and the armature tend to mutually strengthen each other. The chief advantage gained by this arrangement of coils is that the resultant axis of magnetism is formed beneath the short-circuited coils, and induced currents in these coils tend to keep it in a fixed position.

By following out these principles of design, Mr Immisch has succeeded in producing a motor which, with reference to weight, power, efficiency, or durability, is most successful.

Fig 1 shows an elevation of a 6 inch "Immisch" motor. Its weight is about 350 lb., and it will give 8 brake horse-power at a speed of 1,400 revolutions per minute. The efficiency, as tested by a Pony brake or dynamometer, averages 85 per cent. between 4 and 8 horse-power.

The

* The Telpherage Company experienced very considerable trouble on their line before "Immisch" motors were used, and were never able to get one continuous week's run. Now the whole line is operated by "Immisch" motors, cost of repairs is reduced to nil, and consequently the company have considerably increased their profits in working.

The efficiency of these machines ranges from 70 per cent. in a 1 horse-power motor to 90 per cent. in one of 20 horse-power. Measured by what is technically called "torque," which is the effort exerted to cause rotation, they show a very large amount of power in proportion to their weight. Mr. Immisch's electrician informs the writer that a machine of the same size as is shown will lift and maintain at its normal torque a weight of 14 lb. at the end of a lever of 2 ft. This is equivalent to a torque of 176 lb. ft., and is equal to a pull of 112 lb. on the periphery of a pulley of the same diameter as the armature, viz., 6 in. At the same time the motor could momentarily exert a maximum torque of about five times that amount without damage.

After giving an exhaustive *résumé* of electrical work already done in mines, Mr. Rowan says: The data given shows that electrical methods have no cause to fear competition either as to cost or efficiency. The longer the distance and the greater the amount of power to be transmitted the more favourably does electrical transmission compare with other systems, but for this reason it has had a worse chance in early attempts than it would have had if its efficiency were greater on a small scale of distance and power.

The methods of working which are adopted in each case must of course suit the circumstances of the mine. The naked conductors of the Zaukerode pit would not suit a fiery locality, and they are not necessary. An electrical locomotive can be worked by means of storage batteries carried on the engine, and the danger of sparks from exposed conductors when short-circuited can be thus abolished. For stationary motors the conductors can readily be so protected that nothing short of a fall of the roof would cut them, and the sparking at commutators is rendered quite harmless by surrounding the commutators with wire gauze, practically running them inside the case of a safety lamp. The sparks, being at any rate very different from a continuous flame, give much less opportunity for any ignition of gas, even if unprotected.

Since the foregoing was written, Mr. W. W. Mordey has communicated to the South Wales Institute of Engineers (Vol. XV, p. 125) some interesting experiments, undertaken to investigate the effects produced by breaking incandescent electric lamps in an explosive atmosphere, and also by the production of sparks at a contact-breaker or switch under similar conditions. An incandescent lamp of 10 candle-power showed that where the lamp was broken by a blow which broke the filament no explosion ensued. If the glass bulb merely was broken, and the glowing filament was exposed to the gases, an explosion was produced. Where the lamp was protected by water surrounding the bulb no explosion could be produced. No explosion was produced by sparks from a contact-breaker unless an induction coil was used in order to increase considerably the length and tension of the sparks. These experiments go far to prove that with ordinary electrical apparatus likely to be used in mining operations, no danger is to be apprehended which cannot be avoided by very simple precautions.

The Daily Telegraph, Monday, 26 September, 1887.

ELECTRIC LOCOMOTION.

For practical purposes it may be regarded as settled that an electric locomotive is one which, like the steam-engine, carries its motive power along with it; and the question whether it can compete with the iron horse or the living quadruped depends upon the amount of inevitable loss first in storing the electricity, and next in transmitting it from the accumulators to the wheels of the moving machine. The Electric Car Company, after a series of rather costly experiments, in which they have battled with difficulty at every stage, now claim that they have demonstrated the superiority from the financial point of view of electric over either horse or steam traction. On Saturday a small number of gentlemen representing America and the Australian Colonies accepted the invitation of Lord Bury, the Chairman of the Company, to inspect the experimental car running between Shoreham and West Brighton. Included in this party were Sir Saul Samuel, Sir Arthur Blyth, Sir Graham Berry, and the Hon. Adye Douglas—the Agents-General respectively of New South Wales, South Australia, Victoria, and Tasmania; the Hon. W. Forrest (Queensland), Mr. H. C. Russell (Government Astronomer, Sydney), Mr. A. W. Robertson, (Melbourne), Mr. Grosvenor Lowry, and Mr. Stetson (of New York), Sir H. Malet and Mr. L. M. Wynne. Starting from Shoreham the visitors were run in the electrically-propelled car to Southwick at the rate of about 12 miles an hour; then, as a further illustration of the principle, a heavily-weighted traction car, similarly propelled, was run towards Shoreham at a speed of from 15 to 20 miles an hour; and finally there was a smart trip to West Brighton. The automatic or self-contained car carries eighty cells stowed beneath the seats, and, as with the motor and the gearing beneath, all the apparatus of the invisible and mysterious agency that whirls it along is out of sight. Briefly, it may be said that starting and stopping are effected as rapidly as could be done with any conceivable species of traction. On these points the visitors on Saturday expressed themselves completely satisfied; but the inspection was made with the eminently practical view of discovering not only the efficiency of the apparatus, but its comparative cost, and upon these points Lord Bury himself, technically familiar with recent electrical progress, entered into careful explanations, stating exactly and frankly the conditions of the problem. At the present time horses and steam on tramways cost 6d. per car-mile. This, his Lordship said, they had taken as their basis, and they were actually running at 4d. per mile. The engineers stated the cost at even less. In order to be on the safe side he would not pledge himself to 4d., but he would assert that they could run at less than 6d., and that every improvement in motor or accumulator would be so much to the good. The Immisch motor, to which much of their success was due, was within 3 per cent. of theoretic perfection, and therefore they could not expect much advance upon that; on the other hand the accumulators would admit of amendment in some particulars. He claimed, as a net result, that working on a bad line, with a gradient amounting to 1 in 20, they had yet come considerably below the cost of horse or steam power. What is the significance of even a fractional saving in the car-mile will appear from the fact that last year the North Metropolitan Company's cars ran 5,927,451 miles, so that the economy of 1d. per mile would make a difference of £24,697 in the profits. In an interesting conversation which followed these explanations, Sir Saul Samuel expressed himself so satisfied with the demonstration that he should recommend the adoption of the car to his Government for use in Sydney, where steam propulsion has been found open to serious objections. Mr. Adye Douglas pointed out that in Tasmania, where a splendid water-power is at hand, stored electricity could be obtained cheaply, and doubtless applied to locomotion at a great advantage. The car actually in use at Shoreham is to be sent out for service in New Zealand.

Sir Arthur Blyth struck a note which awoke the entire sympathy of all present when he suggested that electricity on the Underground Railway would be an unmixed blessing to Londoners. It is now proved that trains might be driven on the Metropolitan system at not more than 10 per cent. extra cost in the item of propulsion alone than is now spent on steam power, and it is an open question if the added outlay would not be made up in extra traffic. The directors are fully alive to the loss arising from the foul and suffocating atmosphere that now fills their tunnels, and the experiment is at any rate likely to be made ere long of an electric train. Meanwhile, the new system is about to have a fair trial in London. A section of the North Metropolitan Tramway from Canning Town to Barking is to be equipped within the next two months with electric cars, and an experiment so made can scarcely fail to be decisive, and may have economical results of high importance. In London no car may have more than 2½ tons weight on a single wheel. The car used at Shoreham, with a load of twenty passengers, did not exceed 5 tons, including about a ton and half of the accumulator and machinery. A single charge supplied it with energy equal to 7 h.-p. over 35 miles of ground, and the accumulators can be taken out and put in as expeditiously as horses are changed or engines supplied with water.

APPROXIMATE Estimate for one Automatic Electric Tram-car.

Car	...	1 car, 40/46 passengers	...	...	...	...	...	£200	0	0
Accumulators	...	2 sets of 96 cells per car, 2 × 96 = 192 cells, 25s.	...	...	...	...	...	240	0	0
		24 battery trays, 10s.	...	...	...	...	...	12	0	0
Motor	...	1 S.M., 7	...	...	...	...	...	110	0	0
		Gearing switches, wiring, and instruments	...	...	...	...	...	60	0	0
								£622	0	0

1 dynamo for charging accumulators would cost £60.

Sir Saul Samuel, K.C.M.G., C.B., Agent-General, New South Wales.

Sir,

Sir,
 Electric Works, Maldon Crescent, Prince of Wales Road, London, 29 September, 1887.
 With reference to the conversation which we had with you when you honored us with a visit to our works, we now beg to confirm the proposal made to you as to sending out to your Government, on trial, an automatic electric car on our system. It is perfectly understood that your Government is not bound to take over the car unless it is approved of by them. We shall also be prepared to send out a competent electrician to superintend the running of the car. You are already in possession of the estimate for the car, but we beg to point out to you that in tendering for one car the price must necessarily appear high; but if a large number of cars were ordered we should be able to make a reduction in price. We need not point out the merits of our system, as you have witnessed the demonstration yourself. We take the liberty to enclose you two rough estimates for transmitting electrical power to a distance.

Trusting we may have the honor of entering into business relationships with your Government,
 We remain, &c.,
 IMMISCH & CO.
 Sir Saul Samuel, K.C.M.G., C.B., Agent-General in London for New South Wales, 5, Westminster Chambers.

[Sub-Enclosure.]

A.
 Electric Works, Maldea Crescent, Prince of Wales Road,
 London, 29 September, 1887.

From M. Immisch—Estimate 20-25 h.-p., 10 miles.

To Sir Saul Samuel, K.C.M.G., C.B., Agent-General in London for New South Wales.

	£	s.	d.
Dynamo—Type T Serie Dynamo 15; revolution 1,000-800 volts 2,700-2,100 ampères; 10 approximate horse-power absorbed 40-32 electrical horse-power given out 36-28; brushes, patent tangent	275	0	0
Motor—Type T Serie Motor 15; revolution 1,000-800 volts 2,300-1,700 amperes; 10 electrical horse-power put in 31-23; brake horse-power taken out 25-20; brushes, patent tangent	238	0	0
Cable—20 miles of No. 8 bare copper, £62 per ton; (Res. 40 ohms 400 volts loss; 5.35 h.-p. loss in cable)	240	0	0
Poles—20 poles per mile; iron poles, £1 7s. 6d.; 200 poles	275	0	0
Insulators—40 insulators per mile; 1s. 4d. each; 400 insulators	26	15	0
Terms—Delivery F.O.B., London. Packing about 2½ per cent.			
	£1,054	15	0

B.

Dynamo—Type T Serie Dynamo 17; revolution 850 volts 2,400 ampères; 20 approximate horse-power absorbed 71 electrical horse-power given out 65; brushes, patent tangent	390	0	0
Motor—Type T Serie Motor 17; revolution 850 volts 2,000 ampères; 20 electrical horse-power put in 54; brake horse-power taken out 50; brushes, patent tangent	330	0	0
Cable—20 miles of No. 4 bare copper, £62 per ton; (Res. 20 ohms 400 volts loss; 11 h.-p. loss in cable)	500	0	0
Poles—20 poles per mile; iron poles, £1 7s. 6d.; 200 poles	275	0	0
Insulators—40 insulators per mile; 1s. 4d. each; 400 insulators	26	15	0
Terms—Delivery F O B., London. Packing about 2½ per cent.			
	£1,521	15	0

Sir,
 3 Spring-street, 11 April, 1888.
 I have the honor to forward herewith memorandum for a suggested plan for electric tramways for Sydney and the suburbs, handed to me before my departure from London by Mr. H. Lee Smith, M.I.C.E.
 To the Honorable the Colonial Secretary.
 I have, &c.,
 SAUL SAMUEL.

[Enclosure.]

Electric Tramways suggested for the Suburbs of Sydney,
 5, Victoria Chambers, Westminster, London, S.W., 5 January, 1888.

TRAMWAYS worked by horses are open to many objections. Speaking of them as in London, the leading engineering journal says—"Tram-cars are a bye-word for want of speed, and will probably never be admitted into the city or west end of London, so that, except for local and suburban uses, they must land their passengers half a mile short of their destination." They are sometimes a danger and always an obstruction to all the other wheel traffic, and are cruelly severe on the horses.

On the other hand, electric traction, though still in its infancy, has already a great deal to recommend it. On the 28th July last a very successful trial was made at Southwick, near Brighton, of an automatic electric car, which made a run over a line 4¼ miles long at an average speed, out and in, of about 11 miles an hour.

The line is a trying one, having some sharp curves and stiff inclines, and another serious impediment resulted from the clogging of the grooves in which the wheel-flangers travel, with gravel, mud, &c.

The latter objection being inseparable from all lines laid on the surface of the ordinary roads, it is suggested for a city like Sydney, which is believed not to be pledged to any particular system (?) that it would be a great boon, in all the future, to the ordinary vehicular traffic, which has really the first claim to consideration if all the tramway rails were kept entirely clear of the ground surface by being suspended from 10 to 14 feet above it. Each tram-car would thus be suspended from the axles of its wheels, whilst its floor would be just such a height above the road surface (say 7 or 8 inches), as to give the easiest entrance and exit. It is not pretended here to specify the simplest method of fixing the suspended rails, as it might be different in each road or street in accordance with its width. In a new and wide suburban road it would be a trifling encroachment to make the supports a double line of cast iron columns about 10 feet apart, whereas if required to run down an existing and narrow street, the columns could be placed at the edge of the kerb, just as the lamp posts.

It ought not to be, as objected, that this project is somewhat akin to the overhead railway in New York. On that are run heavy trains, with all the noise and vibration inseparable from steam traction, the locomotive alone weighing at least four times as much as the electric tram-car with its full load of passengers.

Here may be mentioned a special advantage of the overhead system, viz., that it admits of the electric current being taken from a "lead" thereby dispensing with the weight of "accumulators."

A very high authority, the late Sir Wilham Siemens, has given it as his experience, that "rail conductors should never be placed upon the level of the ground, elevated railways alone being permissible on this system, whereas by employing the rails as conductors a greater locomotive force may be used."

Now in accordance with this ruling the use of the "lead" overhead is not only unobjectionable but beneficial. The rails being well insulated the current could be taken in at one set of wheels, and go out at the other, and in this manner the weight of the stored electricity (accumulators) may be entirely dispensed with.

In the Brighton car above alluded to, the weights were as follows :—Car, 1 ton ; motor, frame, &c., 1 ton ; twenty passengers, $1\frac{1}{2}$ tons ; cells, $1\frac{1}{2}$ tons ; total, 5 tons. One and a half tons for cells, *i.e.*, accumulators, may be looked upon as a trifle, but it is nevertheless 30 per cent. of the total moving load.

The weight, however, of these accumulators is justified upon the ground that it is required for adhesion,—of that more anon.

The conditions under which tramways are required or may be wanted in Sydney being unknown to the writer he must admit to be writing in ignorance of that subject. If therefore his premises are incorrect, this memo. will be best put in the fire, but before doing so it may be worth while to state the impression under which it has been written, *viz.*, that Sydney as regards its suburban expansion is still in its infancy, and that an immense amount of comfort and convenience which will otherwise be costly or impracticable may be secured to future generations by regulating the width and alignment of new streets and avenues, and by keeping constantly in view the certainty that at no very remote date, any one of them may be required to accommodate a railway or tramway of some sort, be it underground, overhead, or on the surface.

The cleanness, smoothness, noiselessness of electric traction have been proved, and seem to render it peculiarly tempting to any great city not already pledged too far to any other system ; whilst, in Sydney for example, the lightness of the moving load point to it as being so economical as to render a crossing to the North Shore from (say) Dawes' Point to Milson's Point within measurable distance.

Time will not permit of a description of the means by which adhesion can easily be obtained on overhead lines without the weight of accumulators.

If any further particulars are required they will gladly be supplied, and, if required, an examination made on the spot.

H. LEE SMITH, M.I.C.E.

[*Four plates.*]

Sydney : Charles Potter, Government Printer.—1888

[2s.]

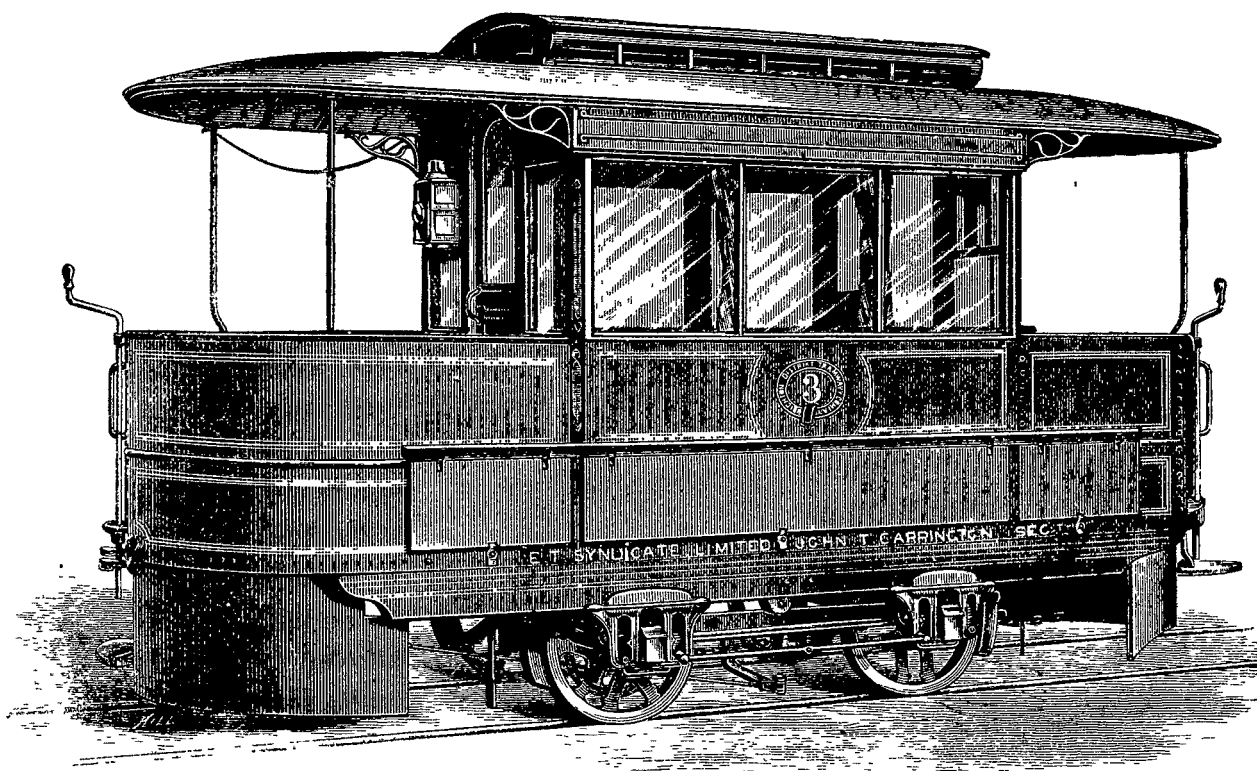


Plate 1.—Representing one of the Brighton District Tramway Company's Summer Cars, after conversion into an Electrical Automatic Tram-car by the E. T. Syndicate, [Limited.] This drawing is taken from a photograph of the car upon which all the experiments were carried out; and which was passed by General Hutchinson, for the Board of Trade.
(Sig 663-)

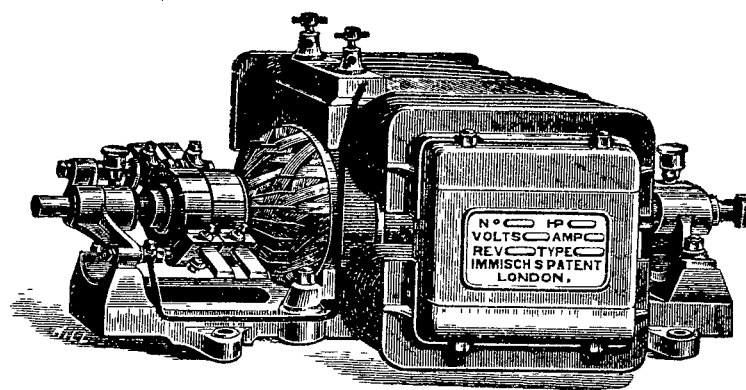


Plate 2

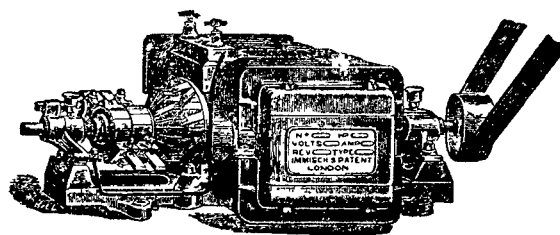
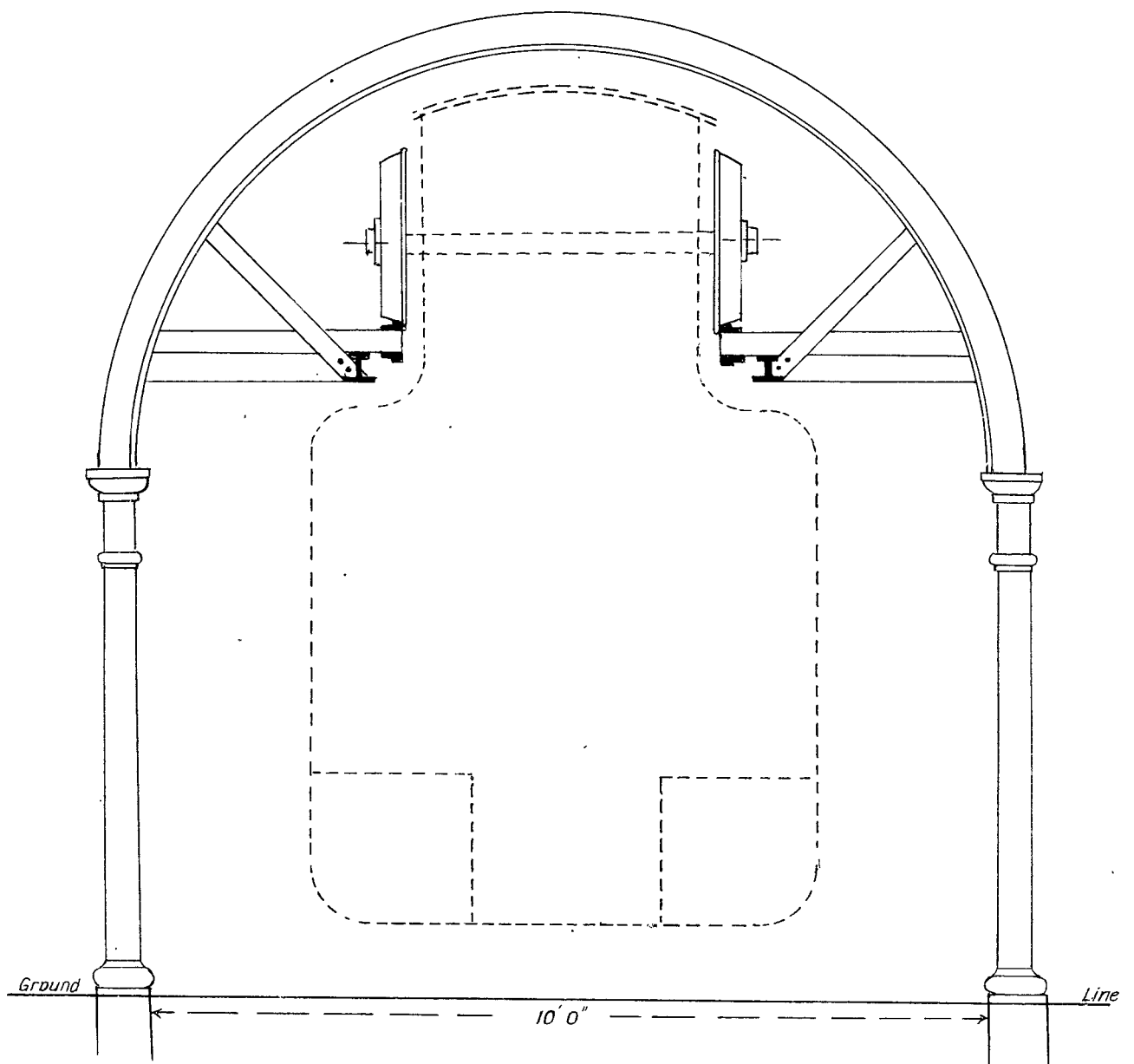


Plate 3.

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

Plate 4.



(Sig. 663)

1887-8.

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

THE GOVERNMENT TRAMWAYS.

(CORRESPONDENCE, &c, IN REFERENCE TO LEASING OF)

Ordered by the Legislative Assembly to be printed, 10 April, 1888

RETURN to an *Order* of the Honorable the Legislative Assembly of New South Wales, dated 29th February, 1888, That there be laid upon the Table of this House,—

“(1.) A copy of all minutes, letters, correspondence, documents, &c., between the Government and the Melbourne Tramway Company, or any other Company, or person or persons, in reference to leasing the Government Tramways of this Colony.

“(2.) Also, copies of all correspondence, minutes, &c., between the Government and any Company, or person or persons, in reference to using electricity or any other motive power to work the Tramways of this Colony.”

(Mr. McElhone.)

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No. 1.

Mr. A. Mackay to The Commissioner for Railways.

Town and Country Journal and Evening News Office,
148 and 150 Pitt-street, Sydney, 21 August, 1882.

Dear Sir,

I called at your office several times to-day. The object was to ask you if the Government would entertain a proposal such as the following—On behalf of a number of gentlemen of ample means, and who are desirous of seeing proper tram-cars and Tramway business in Sydney, I have to ask if the Glebe line, or any other line, would be leased to them. They would at their own cost put on the rolling stock, and provide the horses, &c, doing the business in the manner Tramway business is done in London—they paying a fair rent for the use of the road, and conforming to regulations that could be made with your Department.

I will be glad to afford you all further information necessary; meantime shall feel indebted for a reply to the question whether the Government are likely to entertain such a proposal as that stated. If so, formal application will be made without delay.

Respectfully yours,
ANGUS MACKAY,
Editor *Town and Country Journal*.

This is a question for the consideration of the Minister and may be forwarded to the Under-Secretary for submission. The Government have power to lease the Railways and constructively the Tramways also.—CHAS. A. G., 23/8/82.

Acknowledge receipt also and say his letter will be submitted to the Secretary for Public Works. Done, 24/8/82.

No. 2.

Mr. A. Mackay to The Commissioner for Railways.

Town and Country Journal and Evening News Office,
148 and 150 Pitt-street, Sydney, 12 September, 1882.

Dear Sir,

Has anything transpired touching letter to you *re* Tramways on August 21st. The gentlemen with whom I am connected in this matter are very much in earnest, and feel sure that arrangements could be made that would prove advantageous to the public, the Government, and themselves.

Would you please therefore give a reply whether the Government are disposed to lease one or more of their lines, in order to introduce a better system of carrying on the traffic, as proposed in previous communication to you.

Respectfully yours,
ANGUS MACKAY,
Editor *Town and Country Journal*.

Inform that I have submitted the matter for the Minister's consideration. He will consider the question.—CH. A. G., 13/9/82. Done. The question cannot be entertained at present. Let Mr. Mackay be informed.—H.C., 26/1/83.

No. 3.

The Secretary for Public Works to Mr. A. Mackay.

Sir, Department of Public Works, Sydney, 29 January, 1883.
Referring to the proposal contained in your letter of the 21st August last for the leasing to a Company one of the lines of the Government Tramways, I am directed to inform you that the question cannot be entertained at present.

I have, &c.,

JOHN RAE.

No. 4.

Mr. A. Mackay to The Secretary for Public Works.

Sir, Sydney, 15 January, 1885.
On behalf of a number of gentlemen, several well acquainted with Tramway business, as developed in European and American cities, and men of means ample to carry out the after-mentioned proposal, I have the honor to offer to take over from the Government (on fair and equitable terms to be arranged) the Glebe or other tram line or lines, and work it or them upon the London system.

Similar rolling stock to that used in London would be employed, and such a system introduced in Sydney as would carry all the passengers who offered, and at rates certainly not higher than the rates now charged.

If the Government should be disposed to entertain this proposal, and an interview were arranged, such information would be given as I feel assured would convince you that the tramways could be worked by the gentlemen referred to, in a manner that would relieve the Government of all further trouble with them, and afford the rapid and ample facilities for street traffic which is characteristic of the Tramways of London, New York, and other great cities.

Trusting, therefore, you may entertain the proposal hereby made, and grant an interview at your earliest convenience,

I have, &c.,

ANGUS MACKAY.

I have written semi-officially to Mr. Mackay informing him that the only offer that would be taken notice of would be one to lease the entire Tramway system.—F.A.W., 10/2/85.

No. 5.

Mr. A. Mackay to The Secretary for Public Works.

Dear Sir, Sydney, 3 February, 1885.
In reply to yours of January 29, the changes contemplated by the gentlemen mentioned in former note is the adoption of the London system, with horses and light cars in the streets of the city. As a system it is the most perfect yet devised for street traffic purposes. The change could be made gradually, and all the requirements of the public met without break or hitch. We could commence with (say) the Waterloo line, and would put on a service with 2½-minute intervals to the railway station; thence to toll-gate, a 5-minute service, or oftener if the traffic required; from the toll-gate to Botany motors might be used with advantage.

Were the Government agreeable, this service could be commenced at very short notice, and it would solve the problem, and give time for taking over all the other lines.

The situation has been considered very carefully in relation to the engineering aspect, what is necessary to make the business effective, popular, and remunerative; and also looking to the substitution of the London system for what Sydney has now.

We would require permission to lay down a line from the Railway Station to York-street, to Wynyard Square; from there we could connect, *via* Circular Quay, with Elizabeth-street, and then work out the whole into a complete system.

Such is our scheme, and it could be made as effective as Tramways are in other cities. We would hope to develop the street traffic in the true sense, which has never yet been done in Sydney.

The matter is in strict confidence so far as the gentlemen with whom I am co-operating are concerned. Trusting for favourable consideration of our proposals,

Very truly yours,

ANGUS MACKAY.

I cannot advise any leasing of the Tramway by piece-meal in the way proposed; if it be the pleasure of the Government that the lines should be leased, the whole should be leased. As regards the proposal to have a combined horse and motor service, I am satisfied it would not answer public requirement; but I believe that a cable road inside city boundaries and motor service outside would do. Mr. Mackay's scheme for having a circular line to run round Circular Quay, joining the present system at Parramatta-street bridge, is my scheme, which the Minister thinks it unwise to carry out. I am satisfied that it is a good scheme, and the only one to meet—as Mr. Mackay points out—the requirements of the street traffic as distinguished from through traffic.—CH. A. G., 6/2/85.

My dear Sir,

7 February, 1885.

In reply to yours of the 3rd instant, *re* leasing trams, I have to say that it will be impossible for the Government to sanction any partial lease, as it would to a certain extent unhinge the present system, and I doubt if the steam and horse service could be run satisfactorily in conjunction, because the kind of cars you would use for horse-traction would be altogether useless for the steam service.

If the Company you represent should be disposed to go into the whole matter, and will submit proposals to lease the entire system as at present existing, and to work the traffic under a fixed schedule of rates, I shall then have something to go upon.

Personally, I should be disposed to recommend the proposal, if fair and equitable, to my colleagues, as I am under the impression that a private Company could work the trams more satisfactorily than the Government.

Of course this is my private opinion, and should not be made public; but I am satisfied were the trams in the hands of a private Company, who would be free from political influence in dealing with their staff, and who would not be influenced so much by the pressure of public opinion, the whole thing could be made a great success.

Believe me, &c.,

A. Mackay, Esq., *Town and Country Journal*.

F. A. WRIGHT.

No. 6.

Messrs. A. Mackay and W. Fleming to The Secretary for Public Works.

Sir,

13 February, 1885.

In accordance with understanding come to with the Minister for Works, at interview in Works Office this morning, we make the following offer to the Government:—

To take over all the Sydney Tramway, permanent-way workshops, &c., mentioned in the Commissioner for Railways' Report, under the heading "Construction," and such portions of the rolling-stock as may be efficient for City tramway business, and to pay the Government for the same:—

For the first ten years from date of delivery to us, 4 per cent. per annum; for the ten years following, 5 per cent. per annum. And such payments for extension of time beyond twenty years as may be arranged.

Also, to pay 5 per cent. per annum upon the cost for any additional permanent-way laid down by the Government, in order to make the service as efficient in Sydney as Tramways are in London, New York, and other cities.

To carry out the service, in order to make it really effective, we are prepared to put on at least 50 per cent. additional cars, thus materially shortening the time between the passing of cars at all points in the City.

To arrange for the due maintenance of the permanent-way, rolling-stock, &c.

To arrange for a time schedule for passing of cars at all points on the lines now laid down and to be constructed.

To arrange for schedule of fares which shall not exceed the rates now charged, but possibly be much less.

To give sufficient guarantee for the due fulfilment of contract based on the foregoing.

We have, &c.,

ANGUS MACKAY.
WM. FLEMING.

No. 7.

Messrs. A. Mackay and W. Fleming to The Secretary for Public Works.

Sir,

10 April, 1885.

In accordance with suggestions made yesterday by the Commissioner for Railways, Mr. Goodchap, in interview with him *re* leasing the Sydney Tramways as per our proposals to you on the subject, we have the honor to further explain the said proposals.

Our intentions are, should proposals be accepted, to lower the fares, at least, to the rates charged before the recent advances in fares were made.

For some sections, and in order to increase the numbers of short distance passengers especially— as we would have more cars running—we would have still lower fares, and sections on which one penny would be the amount charged.

We are quite prepared to incorporate this feature of the fares with our proposals as made to you, and now in the hands of the Commissioner.

We have, &c.,

ANGUS MACKAY.
WM. FLEMING.

Will Commissioner let me have his report on paper at an early date.—F.A.W., 11/4/85.

The proposal is to lease the Tramways for twenty years at least; the power to lease is given by the Act, but the time is limited to three years; before the question is discussed it might be well to ascertain whether Messrs. Fleming and Mackay would consent to the lease being limited to three years.—CH.A.G., 21/5/85.

No. 8.

Mr. W. P. Walker to The Secretary for Public Works.

Sir,

22 January, 1886.

I herewith, on behalf of myself and others, offer to lease from the Government the Tramways and all connected therewith, for a term of twenty-five years, on the following conditions:—

1st. That the rent be equal to 4 per cent. interest per annum on the capital expended.

2nd. That 2 per cent. per annum be paid as liquidation of the said capital.

If you think the above offer worthy of attention I shall be glad to arrange details with you on an equitable basis. Waiting your reply,

I am, &c.,

W. P. WALKER.

Railways for report. Is there any record of similar offer?—J.G., 23/1/86.

Yes. Mr. Fleming made an offer, but on learning that, under the provisions of the Act, the Government could not lease the Tramways for a longer period than three years, he proceeded no further with the proposal. Papers herewith.—CH.A.G., 27/1/86.

No. 9.

Mr. J. Woods to The Secretary for Public Works.

Dear Sir,

Fairlight, Manly Beach, 28 January, 1886.

From a paragraph in this day's *Telegraph* I am led to believe that an offer has been submitted to you to lease the Tramways. Will you please inform me if you are prepared to dispose by sale, or to lease the Tramways, and upon what, or as near, conditions as may be equitable, and I, with others, will be and are prepared to make you an offer.

Yours, &c.,

JOHN WOODS.

Inform Mr. Woods that I am prepared to give due consideration to any proposal he may make for the purchase or lease of the Tramways.—J.G., 28/1/86.

No. 10.

The Commissioner for Railways to Mr. J. Woods.

Sir,

Railway Branch, Sydney, 29 January, 1886.

In reply to the inquiry contained in your letter of the 28th instant, I have the honor, by direction of Mr. Secretary Garrard, to inform you that he is prepared to give due consideration to any proposal you may make for the purchase or lease of the Tramways belonging to this Department.

I have, &c.,

C. A. GOODCHAP,

Commissioner for Railways.

No. 11.

LEGISLATIVE ASSEMBLY.—THURSDAY, FEBRUARY 4TH, 1886.

(2.) Tramways:—Mr. W. J. FERGUSSON (for *Mr. Melville*) asked THE SECRETARY FOR PUBLIC WORKS,—

(1.) What are the names of the Syndicate who have made the offer to purchase or lease the Tramways?

(2.) What amount have they offered?

(3.) What are the terms on which they offer to purchase or lease?

(4.) What security for the payment of rent, &c., do they offer?

Mr. GARRARD answered,—Three separate offers have been received at various times during the last twelve months. If it be determined to sell or lease the Tramways, tenders will be invited, and the conditions will be drawn up by the Government. Until the question is finally settled it is not considered fair to those who have submitted offers to make known their terms.

No. 12.

Mr. J. Woods to The Commissioner for Railways.

Sir,

Fairlight, Manly, 15 February, 1886.

Referring to your letter of the 29th January, it would be undesirable at this time for me to make any definite offer, as I am at present without information as to what there is to purchase.

If you can supply me with an inventory of the plant, the mileage of Tramways laid, divided into routes, the cost to date and the returns, and will indicate the nature of the offer you would be willing to negotiate upon, I will at an early date submit proposals.

I am, &c.,

JOHN WOODS.

Acknowledge receipt, and say that if the Government determine to lease or sell the Tramways the fullest information will be afforded.—CH. A. G., 19/2/86.

No. 13.

The Commissioner for Railways to Mr. J. Woods.

Sir,

Department of Railways, 22 February, 1886.

With reference to your letter of the 18th instant, respecting your offer to lease the Government Tramways, and asking that you may be supplied with particulars regarding the plant, roads, &c., I have the honor to inform you that if the Government determine to lease or sell the Tramways the fullest information will be afforded.

I have, &c.,

C. A. GOODCHAP,

Commissioner for Railways.

No. 14.

Mr. M. Bury to The Commissioner for Railways.

Sir,

Sydney, 27 January, 1886 (Box 899).

You may perhaps remember my name in connection with the North Shore cable tramway. As I am still in hopes that your Government may see that the adoption of the cable system is the only method whereby the Sydney trams can be made to pay, and being fully convinced that the system in which I am interested, viz., the duplicate cable system, is the only one the Government can adopt with any degree of reliability and safety, considering the heavy traffic on the Sydney trams, I have much pleasure in giving herewith copy of minutes of the Directors of the Third Avenue Railroad Company, New York, as to the working of the duplicate cable which has been constructed by Mr. Miller, and which you requested the consulting engineer (Mr. Towle) to advise you upon more than twelve months ago.

The money that is proposed to expend on a new permanent way would, I believe, be sufficient to convert the whole, or at any rate a very large proportion, of your existing tram lines into the cable system. My friends, Findlay and Miller, would be prepared to come to Sydney and advise the Government generally on the system if they were secured against loss. If anything is likely to be done with your tram system I would beg to offer you their services.

I am, &c.,

MAXWELL BURY.

Copy of Minutes.

Office of the 3rd Avenue Railroad Company,
3rd Avenue, 65th and 66th street, New York.

EXTRACT from the Minutes of the meeting of the Board of Directors, held Monday, November 9, 1885.

"Findlay and Miller's duplicate cable system.—Whereas the 3rd Avenue Railroad Company, of the city of New York, have constructed a cable railway on 10th Avenue, in this city, and whereas said road has been running steadily and uninterruptedly since the opening of the same on the 31st August, 1885, therefore be it resolved that we, the Board of Directors of said Company are highly pleased with the system of cable railroads which it represents, and express our entire satisfaction with the same.

ALFRED LAZARUS, Secretary."

The estimate given for reforming the Tramways was £200,000. Surely Mr. Bury is in error in stating that this amount would be sufficient to convert the whole, or at any rate a very large proportion, of our existing tram lines into cable system.—CHAS. A.G., 2/2/86. Mr. Cowdery, B.C.

Yes; Mr. Bury must be in error.—G.C., 3/2/86.

Mr. Bury has since written to say that he and his friends are prepared to purchase or lease the Tramways. This communication may be placed with the offer.—CHAS. A.G., 5/2/86.

No. 15.

Mr. M. Bury to The Secretary for Public Works.

Sir,

Sydney, 4 February, 1886, G.P.O. Box 899.

Having lately received letters from England and America with reference to leasing and working the Sydney trams, I have the honor, on behalf of myself and some gentlemen in London and New York, to state our views and make proposals on the subject, trusting that business may result therefrom.

In the first place I have to state that in the event of the Government leasing or selling the lines to us, we purpose laying down cable trams on the routes named herein, on the system patented in this Colony by Messrs. Findlay and Miller, of London and New York. The system is that known as the "Duplicate Cable System," which is working most satisfactorily on the 3rd Avenue, 65th and 66th streets, New York. This system is considered by leading American engineers to be the most efficient, economical, and safe method yet constructed for working tram lines where the traffic is heavy and continuous.

It is proposed to confine the cable system for the present to the following sections, viz. :—

From Bridge-street to the Railway Station.

From Liverpool-street to Queen-street, Paddington.

From Darlinghurst to Randwick Tram Workshops.

From Oxford-street along Crown-street to terminus.

The tram service to Leichhardt, Glebe Point, Forest Lodge, Newtown, Marrickville, and Botany to be worked by the present steam motors, which will be timed to run in connection with the cable tram, terminating at the Railway Station.

A grand terminus station and waiting-room is also to be erected contiguous to the Railway Station for the accommodation of passengers who there change for their several points of destination.

The Randwick and Coogee section is likewise to be worked by steam motors starting from the tram workshops to Coogee.

From Queen's-street, Paddington, the Woollahra line and the Waverley line and the new section on to Randwick, as also the Bondi section, are also to be worked by the present steam motors.

At the Queen's-street junction a commodious waiting-room will be erected for the accommodation of passengers who have to change here to the motor lines.

It will thus be seen that by adopting our plan for working the tram service the steam motors will work only in the outlying districts.

It is hardly necessary to say, as it will be evident, that if the trams are worked in the manner indicated, a very great saving will be effected in the cost of wear and tear to the permanent way and the steam motors. It is believed that the first year's working on this plan will show a very handsome return on the outlay, and by removing the steam motors from the crowded streets a great boon will be conferred on the general public. I therefore beg to make the following proposals for the consideration of the Government :—

1. The syndicate agree either to lease or purchase the entire tram system, workshops, sheds, &c., &c., subject—
 - (1.) In case of leasing, the terms and conditions of lease to be framed on a basis which will induce capitalists to invest their money.
 - (2.) In the event of a purchase, the price to be paid for the line, plant, rolling-stock, shops, &c., to be arrived at by duly qualified valuers.
2. If a lease be determined upon, the term to be twenty-five years.
3. If a sale is effected, the Government to have the option of repurchasing the lines at any time within twenty-one years from date of sale, on due compensation being paid for the goodwill—if any—and the line, plant, rolling-stock, &c., to be taken over at a valuation arrived at as per sub-section 2, clause 1.
4. The Government to supply the syndicate with a plan of the city and suburbs served by the present tram system, and also to supply a section of the streets showing the gradients.
5. If a lease or a sale is concluded, the syndicate to be at the entire cost of converting those portions of the tram system named into cable trams.
6. In the event of the Government assenting to the foregoing method of working the tram system, the syndicate will immediately give instructions to have plans and specifications prepared for constructing the cable trams, which plans shall, if possible, be in readiness for the consideration of Parliament before the close of the session.

7. In the event of Parliament not agreeing either to sell or lease the trams, the syndicate will be prepared to enter into a contract to construct and equip the cable lines in accordance with the plans and specification which they submit for adoption, and will enter into a bond to keep the system in efficient working order for a period of three years, or forfeit the sum of £20,000.
8. In the event of Parliament deciding against either leasing or selling the tram lines, and the Government do not conclude a contract with the syndicate for the construction of the cable trams, then the Government to pay the costs and charges incurred in preparing the plans, specifications, and estimates, which plans and specifications shall then become the property of the Government.

Waiting the favour of an early reply,—

I have, &c.,

MAXWELL BURY.

Will the Commissioner for Railways please report on these propositions?—J.G., 4/2/86. Please let me have all the papers, especially the offer made recently by Mr. Bury to transform our roads into cable-ways.—CHAS. A.G., 6/2/86. (Papers herewith.) Make a *précis* of each offer received.

No. 16.

Minute by The Commissioner for Railways.

Let me have papers about leasing the Tramways. I think some reference must be made in the report to the various offers in this respect, without perhaps disclosing names and prices, but stating generally that the negotiators for the lease or purchase of the lines quite recognized the fact that the country was to be at no loss.

CHAS. A.G., 7/7/86.

Papers herewith.—12/7/86.

I have inserted a paragraph in the report as under:—"That the Tramways are considered to be a source from which large profits may be made is evidenced by the fact that more than one responsible offer has been received to purchase them from the Government at cost price, or to lease them on terms which would not only pay interest upon the capital invested but realize a profit beyond."

No. 17.

Mr. M. Bury to The Secretary for Public Works.

Sir,

6, Norwich Chambers, Hunter-street, Sydney, 18 March, 1887.

I notice by the papers that Sir Henry Parkes, as well as other members of your Government, have expressed a desire to introduce the cable system of tramway. This is a matter that I have repeatedly urged upon the Government at various times, and have made proposals to the Government of the day on the subject, but hitherto I have not been able to induce the departments to give the matter that consideration which the subject merits. As the present Government appear desirous of dealing with the trams in a manner to make them pay, I will state what I have repeatedly stated before, that I and my friends in New York and London are prepared to lease or purchase the Sydney trams, and immediately commence constructing several lines of cable trams, and otherwise so reorganize the working of the lines that they shall return a fair interest on the capital invested, and no longer be deemed a public nuisance.

I may say that I have lately secured the concession for constructing a cable tram in the borough of Balmain, and I am the owner of a patent cable tram system, known as Miller's Duplicate Cable System which is largely used in America, and that it is the most perfect cable tram system yet invented, as no breakage of a cable or injury to the machinery affects the working of the tram.

I beg to draw your particular attention to the enclosed printed matter.

If the Government are disposed to entertain the question of leasing or purchasing, or the adoption of a cable system, I shall be glad to meet you and discuss the several points connected therewith, and point out generally the manner in which it is proposed to alter and work the system with the minimum of inconvenience to the public.

I have, &c.,

MAXWELL BURY.

[Enclosures.]

(Extract from an article entitled the "Balmain Tramway.")

In connection with the above, a special interest attaches to the latest and most perfect development of the cable system, known as the "Miller" or duplicate cable system, which is to be adopted here for the first time in Australia. In this plan the motive power is duplicated. Two cables run side by side under the track, propelled by a double set of winding machinery, driven by double engines. Both engines and both sets of machinery can be used together or separately; and the gripping apparatus on the cars is so arranged as to take either cable at will. While it may seem at first sight an unnecessary outlay to duplicate the system for the emergency of accident to a single cable, which might never occur, the advantages are obvious on explanation. The greatest wear and tear is of course on the cable, and constant inspection and repair are necessary. A slight bruise or wear, if not attended to at once, will work into a serious injury in time. In the duplex system, while one cable is working the other can be inspected at leisure in the daytime and any needed repairs made, and the life of the cable is thereby indefinitely prolonged; while in case of accident to the engine or winding machinery of one, the other is ready at a moment's notice. For purposes of inspection, a pair of small engines moves the idle cable along at a slow rate.

The duplicate system has made its way rapidly. First introduced in Chicago, a line $3\frac{3}{4}$ miles long was laid in 10th Avenue, New York City, a line $2\frac{1}{2}$ miles long in Kansas City, and during 1886 the system has been adopted by eight railroad companies.

With a view of presenting the latest information on a number of points of interest a representative of this paper waited on the contractor, and by the courtesy of his agent, Mr. Montgomerie Severn, the following information was elicited.

Mr. Maxwell Bury, the contractor, is an engineer of world-wide experience, and he has the sole control of the agency for the colonies of the Miller duplicate cable system.

* * * * *

CABLE TRAMWAYS.

The *Mining and Scientific* press of San Francisco, in which city the cable road was first introduced, in speaking of cable trams, says:—"Once in operation these roads are run much more cheaply than when operated by horse, although the first cost of the road is greater with the cable system. These cable roads, without exception, have been profitable from the beginning,

beginning, no cable road yet built having been a losing operation. In every instance the stock is worth from 25 per cent. to 60 per cent. more than it cost, which is a very important point for capitalists. All those portions of the city which the road or its branches tap have already felt the good influences of rapid communication. In the cable road the bed is solid, and the rails so well jointed that the whole road is smooth. The cars are well lighted by end and centre lights, and brilliant head lights are used in front which light up the street far ahead."

Cable cars can travel at the rate of 10 miles per hour, or they may be made to slowly press and inch their way through a crowd in sympathy with all its movements.

The advantages of the cable system of trams may be briefly enumerated as follows:—

1. Steep grades are as easily worked as levels.
2. The cars can be stopped instantly or gently slowed at any point of the line, and can be started with promptness, ease, and gentleness.
3. Any desired rate of speed can be obtained, and varied on any portion of the road to accommodate it to obstructions in the way.
4. Perfect cleanliness is secured.
5. The working of the road is noiseless and even, and no annoyance whatever is experienced.
6. And as a further advantage, when operated upon by the duplex method it is impossible for delays to be occasioned by a break anywhere in the system, as the duplicate cable immediately takes up the work of the disabled cable, or the duplicate engine does the same service for its mate.

Please acknowledge and submit with papers. I should like to see him in about ten days or so.—
J.S., 19/3/87. Acknowledged.

No. 18.

Mr. M. Bury to The Secretary for Public Works.

6, Norwich Chambers, Hunter-street, Sydney, c/o A. M. Severn,
or Box 899, G.P.O., 8 May, 1887.

Sir,

I have the honor, on behalf of myself and a Sydney syndicate, to address you respecting the reconstruction and working of the Sydney tram system.

I am led to take this step from the fact that the Government have expressed a desire to make some change in the working of the trams by adopting the cable system.

We also learn that overtures, having this object in view, have been submitted to your Government by gentlemen or syndicates outside this Colony.

As I feel convinced that local men and local capital can execute this work as well, if not better, than others outside the Colony, I beg to submit proposals to this end, which please find appended to this letter.

Having stated this much, I have to mention that the local syndicate have identified themselves with the best known system of constructing and working cable trams, viz., "Miller's Duplex System," a system which is in great favour in America, and is being largely adopted in that country; and where the traffic is heavy and continuous, as in Sydney, it is the only reliable mode of working cable trams.

The duplex system means double machinery and duplicate cables. By way of explanation I may say that those who are intimately connected with cable trams have found, from practical experience, that the breakage of, and damage to, cables is the chief objection urged against this mode of traction, as a broken or damaged cable means the stoppage of traffic, and consequently serious inconvenience to the public. This liability to interruption in the traffic, where single cables are used, has hitherto prevented the more general adoption of the principle to street traffic. This particular defect in the cable system was brought prominently before Mr. D. J. Miller (who has built more cable trams than any other engineer living) whilst constructing and working cable trams in Chicago. Mr. Miller, after studying the subject, and experimentalizing for two years, invented the double-cable system.

The Tenth Avenue line, New York, was the first line built on his principle, and it has worked for twenty-two hours out of the twenty-four without stoppage for nearly two years, and no single-cable line can or has worked for that number of hours per day the year round.

With the duplex system all requisite inspection and repairs are made leisurely during the day. With the single cable these have to be effected at night.

If a breakdown occurs in the machinery of the duplex system, the disabled engine is at once disconnected, and its duplicate put into service. Likewise, when a cable in that system shows signs of weakness the second rope comes into service, and the weaker one is repaired at leisure and then put into use till it shall break down again, to be again patched up; and this process is continued till the rope is absolutely worn out.

Having given a short outline of some of the peculiar merits of Miller's system, I beg to draw your attention to the terms appended, and on which the syndicate are prepared to enter into an agreement with the Government to reconstruct and work the Sydney trams on Miller's duplex system.

I have, &c.,

MAXWELL BURY.

THE SYDNEY TRAMWAYS.

THE following are the terms on which the syndicate referred to in my letter dated 8th May, 1887, are prepared to take over the trams:—

The syndicate are prepared—(A) To purchase the Sydney Tramway rolling stock, &c.

(B) To lease do do do

1. In the event of a purchase, the syndicate will pay the sum of £ for the same, which sum is to include the permanent way, rolling stock, land, buildings, &c.

2. In the event of a lease, the syndicate will pay 5 per cent. on the sum of £ for the first twenty years, and 6 per cent. for remainder of term.

3. In the event of a purchase or lease being granted, the Government to assign all the powers and privileges held by them under the Tramway Act.

4. The syndicate agree, within six months after purchase is effected, or lease granted, to commence the construction of cable tramways, and within sixteen months from commencement of such works to have cable

cable trams substituted for the steam motor system on the lines running within the city boundaries. They also agree to maintain (under conditions to be agreed upon) the existing traffic undisturbed during the construction of the city cable tramways.

5. The syndicate to have the exclusive right, if the trams are purchased or leased, of laying down cable trams within the city, on requisition from inhabitants, and the same receiving the sanction of the Government, or Municipal Councils, as the case may be.

6. The maximum fares not to exceed 2d. per mile.

7. If a purchase is effected, the Government, on giving six months' notice, shall have the right of resuming the tramways, rolling stock, &c., together with any new works executed by the syndicate, on the Government repaying the purchase money, together with all outlay in the construction of new works, with 25 per cent. added thereto.

8. If the Tramways are leased, the Government shall have the option of resuming the same at any time on giving six months' notice, and on recouping the syndicate all outlay on the Tramways, with 33 per cent. added thereto.

9. If the Government grant a lease for fifty years, at the rate of 5 per cent. for the first twenty years, on the sum of £ and 6 per cent. on the same amount for the remaining thirty years, the syndicate will reconvey the Tramways to the Government, together with all new works, rolling stock, land, &c., free of cost or charge to the Colony.

10. The syndicate are prepared to take over the Tramways immediately, and commence reconstructing them on the cable system, on the Government granting them a lease for as long a period as they legally can, and agreeing immediately to submit a Bill to Parliament authorizing the leasing or the selling of the Tramways to the syndicate on the foregoing basis.

11. As a guarantee of the *bona fides* of the syndicate, on the Government agreeing to sell or lease the trams to them, they will deposit the sum of £20,000 with the Treasurer, which sum shall be forfeited in case they fail to perform all they hereby agree to in the reconstruction and conversion of the motor system within the city into cable tramways, on Miller's duplex or any other approved cable system.

MAXWELL BURY.

8th May, 1887.

To be put with other papers on this subject for Cabinet.—J.S., 28/5/87.

No. 19.

Mr. M. Bury to The Secretary for Public Works.

Sir,

Sydney, 10 May, 1887.

I am desirous, on behalf of a Sydney syndicate, to lay before you certain proposals with reference to taking over, reconstructing, and working the Sydney trams; I shall therefore feel obliged if you will kindly name a day and hour when Mr. Rutter and myself can see you on the subject.

I have, &c.,

MAXWELL BURY.

The Minister will see Mr. Bury on Wednesday, at 11 a.m.—H.M'L. (Mr. Bury asked to call.)
Mr. Bury called and saw the Minister. Papers can be put by for the present.—H.M'L., 19/5/87.

No. 20.

Mr. M. Bury to The Secretary for Public Works.

Sir,

Sydney, 28 June, 1887.

Box 899.

On the 8th May I addressed you, on behalf of myself and a syndicate of wealthy and influential local gentlemen, on the question of the purchase or lease of the Government trams.

From the daily papers we learn that the Government have decided not to lease the trams, and from the same source we find that some particulars are given as to the nature of our offer. We had hoped that unless the Government had been prepared to open negotiations with us that our terms would have been considered private.

The syndicate, however, are still prepared to treat with the Government for the purchase of the trams, and the introduction of the duplex cable system within the city boundaries on the terms contained in clauses 4 and 7 of our offer.

The working of the trams has been carefully considered, and estimates have been prepared (which amount to nearly £250,000) for the partial introduction of the cable system. This amount, if added to the price to be paid for the trams and rolling stock, will make a total of over £900,000, upon which amount interest will have to be earned. On that capital we have calculated that by careful and businesslike management the interest we offered to pay on the public money invested may be secured. We feel certain, however, that the rate of interest named is dependent solely upon good management.

Should your Government determine not to sell the trams, I am authorized to say that some members of the syndicate are prepared to lay down the duplex-cable system for the Government under contract, and should they be allowed to take the management of the tram system when thus improved they will earn the return named.

You will oblige myself and the syndicate by favouring us with an early reply to this second communication.

I have, &c.,

MAXWELL BURY.

To be placed with Mr. Bury's letters.—H.M'L., 30/6/87.

Saturday, September 4.

MR. HOLROYD SMITH, of Halifax, then read a paper on "The Blackpool Electric Street Tramway," of which he has been the engineer. He stated that the difficulty of applying electricity for Tramway working lies in the fact that other vehicular traffic passes over the same road, and therefore the necessary conditions of safety to the public, and practical and economical efficiency, have to be considered. This is accomplished by constructing an underground channel in the centre of the track, having a narrow slit or opening in its surface for communication between the electric motor on the car and electric conductors within the channel. The general conditions are three—(1) safety to the public, (2) efficiency, (3) economy. With some reservations the first condition may be accomplished by the employment of secondary batteries, which are destined to play an important part in the progressive development of electricity for tractive purposes; but it must be admitted that they occupy only a secondary place when it is shown that electricity can be used direct, and then can not only fulfil the first condition but the other two conditions also. The employment of rails as lead and return conductors is out of the question, for in all installations it must fail in regard to all three conditions. Side fence rails or overhead conductors, though fulfilling the conditions of efficiency and economy, are inadmissible for street purposes. There seems, therefore, but one course, and that is to place the electric conductors underground. Many carefully worked-out details are necessary to carry this into effect. The channel is formed strong enough to support the ordinary traffic of the road, and so as to be easily flushed and cleansed. Its surface consists of steel troughing filled with wooden paving blocks, and forms a good roadway; the sides of the channel are partially formed of creosoted wood, holding porcelain insulators, which carry electric conductors of specially drawn copper, so formed that they can be readily and securely fixed, and the different lengths secured by expansion joints. Two conductors are supplied—(first) that they may be hidden under either side of the surface and so be protected from injury by any substance falling through the slit in the surface of the channel; and (secondly) to make it possible to deal with points, loops, and crossings. Only the positive electricity passes along these conductors; the return is made by means of the rails, which are electrically connected one with the other. Communication is made with the cars by means of a collector which runs upon the copper conductors within the channel. Insulated copper bands, protected by steel plates, pass through the slit or opening in the surface of the road, and by a flexible insulated cord attached to an electrical terminal underneath the car, so that when the car moves the collector is drawn along with sufficient force to clear away any ordinary obstruction; but should an absolute block occur, then a special clip releases the collector, and a breakage is avoided. From the terminal underneath the car the current passes to the switch-box, where the quantity and direction of the electricity to and within the motor is regulated, and thereby the speed and direction of the car is controlled. Switch-boxes are placed at each end of the car, and are provided with removable handles, without which it is impossible to operate them. The driver, who has charge of these handles, can cause the car to move backwards or forwards at will. From switches the current goes to the motor, and there produces mechanical energy. The motor running at a high speed, a combination of spur and chain gear is employed to communicate the power to the wheels and drive the car. The gear is specially designed to run smoothly and silently; from the motor the current passes by way of adjustable clips to the axle, and by them through the wheels to the rails and back to the station, where the electricity is generated. The electricity is generated at a station situated near the centre of the line. The engines and dynamos are in duplicate, and are capable of supplying a force of 250 volts and 300 amperes when required. The arrangements are such that the supply is equal to the demand, viz.—If one car is running, enough current to drive it, and no more; if ten cars, sufficient for them. The practical success of the undertaking is proved by the continued working of the line. Nine cars run daily during the present season; they are always crowded, and most of the passengers ride the full 2 miles. Over 42,000 have been carried in one week of six days, there being no Sunday traffic. The cost of coal burnt being under £5, gives thirty-five passengers carried the mile for a half-pennyworth of coal.

MR. R. HORSFALL, the Chairman of the Blackpool Company, said that for the last four weeks their receipts had been £330 per week, and the cost of working had been £45. They hoped to pay the cost of working during the winter, and to make a nice profit for the shareholders during the summer. He believed there was a great future for electric tramways in this country if they were properly constructed; but the misfortune of the Blackpool line had been that it had cost for the 2 miles as much as £30,000.

CAPTAIN DOUGLAS GALTON, speaking with reference to the Brussels and Antwerp tramways, said that they were worked by accumulators on the cars, and at first sight that system, if it could be shown to be economical, seemed to be preferable to others, because it did not involve a large outlay in the plant or maintenance. But as yet the experiment in neither city gives much light.

PROFESSOR PERRY said that the most valuable thing a mechanical engineer could go in for was the construction of a motor which should have no mechanical defects. The electrical engineer made his motor perfectly electrical, but its nuts and keys were always getting loose.

MR. GUIBERT KAPP and other gentlemen having also spoken, MR. SMITH replied. He denied that accumulators could be economically carried, on account of their weight, and mentioned that the cost of working of the Blackpool cars was 3s. 1d. * per car mile.

Register this. Mr. Larsen, from England, has recently brought this system under my attention.—
CH.A.G., 2/12/86.

* This must be a misprint—3s. 1d. per car per mile. More likely 3½d. The road is 2 miles long. At 3s. 1d., each journey would cost 6s. 2d. The return journey the same, equal 12s. 4d. a double journey. The expenditure, the Chairman said, was £45 a week. Well, at 12s. 4d. the double journey, this expenditure would be reached on seventy-five double journeys, or 150 single journeys. The cars will hold thirty-five passengers, and in 150 single journeys 5,250 passengers would be carried, but they say they carried eight times that number in a week. The cost of working was probably 5d. a car mile. I offered

offered to consider a proposal from Mr. Larsen to supply the motive power for 7d. a car mile for vehicles carrying sixty passengers, and for a guarantee of that he would make any lines to run on an electric principle. We could run 1,500,000 per annum, which, at 7d., would give £43,650 a year. This would pay for his working expenses, and give probably 20 per cent. on his outlay. We would have to expend about £150,000 to £180,000 to get the lines remade.—CH. A. G., 2/12/86.

See Mr. Larsen's letter of 3/12/86. I must have misunderstood him, or he does not express in that letter what I gathered at our personal interview. I do not know what the cost of running tram-cars worked by electricity up grades 1 in 20 would be. Mr. Larsen puts it down at 9d. for grades 1 in 25, while it is 6½d. on the level. Nor does he explain what the 9d. includes. If he will lay down the apparatus complete, that is the underground conductor, the proposal might be worthy of consideration. He says it does not include rolling stock, or engine-house, or land.—CH. A. G., 8/12/86.

No. 22.

Mr. J. D. Larsen to The Commissioner for Railways.

Sir,

Reform Club, Sydney, 3 December, 1886.

Referring to my interview I had the honor to have with you on the 1st instant, I beg to offer some further remarks relating to the working of Tramways by electricity, direct from the dynamo or direct system, with underground conductors.

There is also a system by which the current can be transmitted through the rail, or by a third lighter rail, but this can only be adopted where the rails and road are not interfered with by the public or otherwise. It is the least expensive in regard to first cost of all the electric systems for propelling tram-cars.

The storage battery system, which is very good where the direct current cannot be applied to the road, but it is more expensive and liable to get out of order, and the same installation would be required as in the first-named direct system for the number of cars required.

I would also mention that the underground conductors can be laid in a wooden channel, which would reduce the first cost considerably, and would answer very well for a time.

The cost to propel a car constructed to carry 40 passengers, and a dummy to carry eighteen, at 6 miles an hour, will be at the following rates per car mile:—

On a level road	...	...	...	...	...	...	6½d.
On a road of 1 in 50	...	...	...	...	...	...	7¼d.
On a road of 1 in 25	...	...	...	...	...	...	9d.

The cars not to exceed 35 cwt. empty, and the dummy 18 cwt. The above rates are based on the installation for 35 cars, whereby 30 will always be at work, and 5 in reserve, and each car not to do less than 75 miles per day.

The above mentioned prices do not include cars, dummies, land, or engine-house. Should there be any other information required I shall be pleased to give same.

Yours truly,

J. D. LARSEN.

Acknowledge and resubmit early.—CH. A. G., 6/12/86. Aekd., 7/12/86. Mr. Larsen makes no proposal, as I understand.—CH. A. G., 8/12/86. Mr. Larsen merely says what can be done, but makes no definite proposal. Are we to ask him to make one?—D. C. McL., 8/12/86. No; he will probably communicate further with the department.—CH. A. G., 9/12/87.

No. 23.

Mr. J. D. Larsen to The Commissioner for Railways.

Sir,

Sydney, 29 December, 1886.

Being for some time in Sydney, and having observed the Tramways and their working, in the city and suburbs, and, from this observation, I have been able to form an opinion that they could be made a benefit to the Government instead of a loss, which I have been given to understand they are now; but this benefit can only be obtained by a considerable outlay of further capital, and, in consideration of this, and my knowledge of construction and the working of Tramways, and being in communication with parties in London, whose knowledge of this business is well known to the public, and able to find capital for any legitimate undertaking, I take the liberty to offer to lease the Government Tramways in Sydney and suburbs, on such conditions and terms as may be agreed on, should the Government feel disposed to lease same.

In the first instance, on behalf of others and self, I beg to offer to the Government to lease the Sydney and Suburban Tramways for a period of twenty-one years or longer, at a rental of 7 per cent. per annum on the capital expended up to the end of the last financial year, 1885.

It is further proposed that a capital of £300,000 should be expended (principally in Sydney) for the reconstruction of the lines, for the working of same by cable or electricity, this capital to be repaid to the lessees at the termination of the lease; also the Government to provide land for the erection of buildings and machinery necessary for working the lines, but the lessees to erect all buildings and machinery at their cost.

An undertaking as this, where a capital of at least £400,000 would be required, could not be undertaken by a few. It is proposed to form a Company in London, with a directory and secretary of the leading Tramway Companies, who have experience and confidence of the public.

I should also mention that no promotion will be paid to anybody.

I am, &c.,

J. D. LARSEN,

Mem. I.M.E. Asso. M.I.C.E.

The

The capital referred to herein is £708,109, which, at 7 per cent. will return £50,000 a year. We are paying for interest about £28,000 a year, and consequently the balance, £22,000 a year for twenty-one years, invested at 4 per cent., would realize £757,000, out of which £300,000 would have to be returned to the Company, showing net £457,000, and a Tramway handed over at the end of twenty-one years very much better than the one we have now. If the Government are disposed to lease the Tramways, I think the terms offered are certainly the best that have been made.—CH. A. G., 31/12/86.

No. 24.

Mr. J. D. Larsen to The Commissioner for Railways.

Sir, Sunnyside, Woolwich Road, Hunter's Hill, 1 March, 1887.

Allow me to call your attention to my letter of 29th December last, regarding my offer to lease the Sydney and Suburban Tramways, and I should be much obliged if you will bring the said letter under the notice of the Hon. the Minister for Public Works at your earliest opportunity.

I would also mention, that from further observations, I find it will be necessary to have four cables in the main lines to carry the traffic, and to give the public the benefit for which Tramways are intended. By adopting the four cable system an unlimited traffic can be carried on.

It should also be mentioned that in reconstructing the Tramway for cables, I propose to construct the tubing or channel in cast-iron, and to adopt other improvements, which experience has proved to be necessary.

Considering the Tramways and the state they are at present, in and about Sydney, that the Government will soon have to expend a large capital for repairs, without being of any permanent benefit for the future, it would be better to at once take such steps as to lead to the reconstruction of the lines of a permanent and durable system.

There is another matter you will allow me to call attention to. There is at present a large number of men out of work, and as the year advances their number will, I should say, increase. Now, by reconstructing the Tramways, a large number of hands would find employment for at least 18 months, and Sydney will have as good a Tramway as any in the world, if not better.

Yours, &c.,

J. D. LARSEN, C.E.

See my minute of 31/12/86, on papers herewith. If it be decided to lease the Tramways for twenty-one years, a Bill would have to be passed through Parliament; the present law permits only of a lease for three years. I should not advocate the acceptance of any private offer, but when the Bill is passed specification and conditions of lease for twenty-one years should be prepared, and tenders publicly invited. These private offers are useful as showing that remunerative prices could be obtained.—CH. A. G., 8/3/87.

I concur with Commissioner, but matter must stand over for the present.—J.S., 12/3/87.

No. 25.

Mr. J. D. Larsen to The Commissioner for Railways.

Sir, Woolwich Road, Hunter's Hill, Sydney, 29 March, 1887.

On the 29th of December last I presented an offer to the Commissioner for Railways to lease the Sydney and Suburban Tramways. I also forwarded a further communication to Mr. Goodchap on the 1st instant relating to the same matter. I take the liberty to ask you if those letters have been laid before you and the Cabinet; if not, I would ask you to call for same and take same under your consideration and lay them before your colleagues. I would also ask you to grant me an interview at your earliest convenience.

Yours, &c.,

J. D. LARSEN.

Please inform Mr. Larsen that I have received letters and am gathering information on the whole subject to submit to Cabinet.—J.S., 30/3/87.

No. 26.

The Commissioner for Railways to Mr. J. D. Larsen.

Sir, Department of Railways, Sydney, 31 March, 1887.

I have the honor, by direction of Mr. Secretary Sutherland, to acknowledge your letter of the 29th instant, and to inform you that your communications offering to lease the Sydney and Suburban Tramways have been duly received, and as soon as certain information which he has called for is available the whole subject will be submitted to the Cabinet.

I have, &c.,

CHAS. A. GOODCHAP,
Commissioner for Railways.

No. 27.

Farmer Bros. to The Secretary for Public Works.

S'r, 313 George-street, Sydney, N.S.W., 15 March, 1887.

By this morning's papers we learn that the Cabinet gave protracted consideration to the question of abolishing steam motors and the substitution of "cable tramways."

We had intended some time since approaching your predecessor upon this subject, but owing to the election we deferred our correspondence.

As

As the representatives of the firm of Messrs. Bullivant & Co., the largest firm of wire-rope manufacturers extant, we have given this question of cable trams a great amount of consideration, the rope now running at the North Shore line being one of Bullivant's make, while the firm will not be unknown to several eminent Colonial visitors who were in England last year and witnessed the operation of making one of the largest ropes ever turned out in one length without splices; amongst the visitors were the Hon. T. Garrett, the Hon. G. Coombes, Mr. R. Burdett Smith, Mr. R. H. D. White, Major P. B. Walker, and others, any of whom could give you information as to the extent of our friend's works and their capability of carrying out any works of this class.

They would be prepared to take over the existing stock, lines, &c., &c., and to substitute cable lines and to lay in any additional roads that may be necessary.

Our Mr. Bullivant, senior, is chairman of the Cable Tramways Co. of England, and he would be the head of any Company undertaking the Tramway construction, working, and maintenance in this city, through ourselves.

May we ask the favor of an appointment at an early date.

We are, &c.,
FARMER BROTHERS.

I shall be glad to see these gentlemen when they can make it convenient to call.—J.S., 16/3/87.

Dear Sir,

Sydney, 23 March, 1887.

We have to acknowledge your favor of 21st instant, *re* Sydney Tramways.

Our Mr. Wm. N. Farmer, who has lately returned from England, will do himself the pleasure of waiting upon the Minister at 10:30 a.m. to-morrow. If this hour is convenient we ask you to let us know by our messenger.

We are, &c.,
FARMER BROS.

Commissioner for Railways.

No. 28.

Farmer Bros. to The Secretary for Public Works.

Sir,

313, George-street, Sydney, N.S.W., 21 June, 1887.

Referring to our letters of March 15, 1887, and March 23, 1887, also to the interview our Mr. W. N. Farmer had with you on the behalf of our friends, Messrs. Bullivant & Co., cable-rope manufacturers, we trust that you will include Messrs. Bullivant's name amongst those who are to be permitted to submit propositions for the carrying out the alterations in the Sydney tramway system.

As mentioned in ours of 15/3/87, Messrs. Bullivant, in conjunction with a wealthy English syndicate, representing about one and a quarter millions sterling, would be prepared to take over the existing lines, stock, plant, &c., &c., at a valuation, and to lease the roads laid down by them for a term of years to be arranged.

So far as we can gather, the scheme to be submitted to you by Messrs. Bullivant & Co. would be the gradual substitution of cable tramways throughout the existing steam lines, combined with extensions into such districts and streets as may be necessary from time to time, and the whole system proposed to be submitted for approval by the Government.

We are, &c.,
FARMER BROTHERS,
Sole Agents for BULLIVANT & Co.,
72, Mark Lane, London, C.E.

No. 29.

Messrs. A. Towns & Co. and A. Morris to The Commissioner for Railways.

Sir,

Sydney, 22 February, 1886.

We have the honor to submit to you on behalf of A. S. Hallidie, Esq., of San Francisco, and others, the accompanying memoranda of inquiries in relation to the Government system of Tramways within the city of Sydney and its suburbs.

Mr. Hallidie is willing, in conjunction with resident capitalists, to entertain your proposition for the sale of the Government Tramways, but desires to receive replies to the accompanying memoranda of inquiries, and also such other information in respect to the same as may be in your power to give.

It is requisite that you should clearly state that the steam motors are to be removed from the populous streets of the city, and that the cable system or some system equally as good be substituted.

In any offer the Government propose to make or entertain for the purchase or sale of the Tramways now existing, the syndicate should have power to lay new lines on routes they may deem desirable, and of changing existing routes to meet the public demands.

If the inquiries which are herewith submitted are satisfactorily replied to Mr. Hallidie and his friends will be prepared at once to entertain the proposal for the purchase of the Government Tramways, and to construct within the city within one year, 2 miles, and within three years 8 miles of a double line on the cable system.

An early reply is respectfully requested.

We have, &c.,
R. TOWNS & CO.
AUGUSTUS MORRIS.

[Enclosure]

[Enclosure.]

THE GOVERNMENT TRAMWAYS—MEMORANDA OF ENQUIRIES.

Number of miles of double track ?
 Do single track ?
 Total miles reduced to single tracks ?
 Gauge of tracks ?
 Weight and kind of rail ?
 Distance of sleepers apart ?
 Number of motors in use ?
 Do in reserve ?
 General condition of motors ?
 Weight of motors ?
 Size of cylinders ?
 Names of makers of motors ?
 Number of passenger cars in use ?
 Do in reserve ?
 Dimensions and carrying capacity of cars ?
 General condition of cars ?
 Routes now operated, marked on map ?
 Grades ?
 Stations, and quantity of land to each ?
 Total average of land in stations and depôts ?
 Buildings ?
 Shops ?
 Tools ?
 Stores ?
 Number of fares collected in 1885 ?
 Do miles traversed do
 Revenue derived do
 Expenses of operating do
 Comparison of revenue with former years ?
 Reason for losses ?
 Present valuation ?

Privileges.

Are present routes to be transferred ?
 May present routes be extended and curtailed ?
 Will privilege be granted to construct cable roads on such streets as may be determined by syndicate ?
 Will the syndicate be permitted to reconstruct the present lines within and without the city by substitution of the cable system ?
 Will it be incumbent to lay cable lines in substitution within the city within a time to be specified ?
 Will it be required that cable lines be laid in central streets within a specified time ?
 Will the regulation of fares and speeds and intervals of departure be left to the syndicate ?
 Will non-paying lines be allowed to lay dormant ?
 Will the property taken over or to be acquired be exempt from taxation ?
 Will new lines constructed be subject to security to the Government ?

Mode of Payments.

At what periods are interest and sinking fund to be paid ?
 What time will be given for consideration and completion of purchase of the Tramways ?
 Will the Government receive and invest the sinking fund so as to compound at same or better rate of interest than the 4 per cent. to be paid by the syndicate as interest on purchase ?
 Will the Government permit payments on account of the sinking fund at option of the syndicate ?
 Will the Government pass Bill so soon as the purchase money is paid ?

No. 30.

The Commissioner for Railways to Messrs. R. Towns & Co. and A. Morris.

Gentlemen,

Department of Railway, Sydney, 22 February, 1886.

In reference to your letter of this day's date, submitting, on behalf of Mr. A. S. Hallidie, of San Francisco, and others, a memoranda of inquiries in relation to the Government system of tramways within the city and suburbs, and stating that Mr. Hallidie is willing, in conjunction with resident capitalists to entertain "my proposition" for the sale of the Government Tramways, I have the honor to inform you that there is some misapprehension in this matter. Mr. Hallidie and Mr. Augustus Morris had an interview with me on the subject of the Tramways, and Mr. Hallidie, as I understood, wished to know whether the Government would entertain a proposal for the laying down of cable lines within the city boundaries.

In reply, I stated that propositions had been made to the Government to lease or purchase the Tramways, and that the Minister for Works had intimated to those making the propositions that he would be prepared to have stated to him, in detail, what the proposals were. I added that Mr. Hallidie, if he desired to do so, could submit, in common with others, any proposals he had to make, but I could not say what the intention of the Government was in the matter.

The memoranda of inquiries submitted extend far beyond the scope of the information which could be afforded, and converts an intimation given by me, that Mr. Hallidie would be at liberty to submit his proposition, into suggested terms and conditions upon which the Government would be prepared to dispose of the Tramways.

Upon that head I can only say that Mr. Secretary Garrard intimated, in reply to a question asked in the House of Assembly,—“That if it be determined to sell or lease the Tramways, tenders will be invited, and the conditions will be drawn up by the Government.”

I have, &c.,

C. A. GOODCHAP,

Commissioner for Railways.

No. 31.

MEMORANDUM of certain particulars *re* working of the Government Tramways, Sydney, New South Wales:—

Number of motors in stock	...	...	...	...	...	96
do do in use daily	...	...	...	...	...	50 (average No.)
Number of cars in stock	...	...	...	...	...	110
do do in use daily	...	...	...	...	...	90 do
Weight of motors, size of cylinders, and length of stroke:—						
Number.	Weight.	Cylinders.	Stroke.			
9	30,000 lb. each	11 inches	16 inches.			
50	27,000 "	11 "	16 "			
2	26,880 "	11½ "	18 "			
2	24,640 "	10 "	16 "			
19	22,000 "	10 "	14 "			
7	18,000 "	9 "	12 "			
1	14,560 "	7½ "	12 "			
6	18,900 "	9 and 12 "	compound	12 "		

Total mileage run in 1885, 1,473,626 engine miles.

Passengers carried (*vide* Commissioner's Report for 1884) = 30,202,303 fares collected.

Returns for 1885 not yet made up.

Average speed of trams, 8½ miles per hour.

Passenger

Passenger capacity of cars, and weight of same:—

Number.	Passenger capacity.	Weight each car.
37 cars	90 passengers each	16,240 lb.
1	80	11,200
7	80	13,440
2	70	12,320
5	70	11,200
49	60	11,200
7	56	13,440
1	50	8,960
1	48	15,680
<hr/>		
Total...110 cars	7,890 passengers.	
Length of single line	... ..	8 miles 1 chain.
Do of double line	... ..	19 „ 30 chains.
	Total	27 „ 31 „
Acreage of stations and depôts, about 20 acres.		GEO. DOWNE,
		23/2/86.

No. 32.

Messrs. C. F. Stokes and A. Morris to The Secretary for Public Works.

Sir,

Sydney, 24 March, 1887.

Referring to our interview with you respecting the purchase or lease of the Government Tramways, we have now the honor, on behalf of Mr. A. S. Hallidie, of San Francisco, to submit, for the consideration of the Government, the following propositions:—

First,—

1. To purchase from the Government the whole of the present tramway system of engines, cars, &c., with all plant appertaining thereto, at such price and upon such terms as to privileges, &c., as may be agreed upon.
2. Mr. Hallidie to pay to the Government interest upon the agreed price at the rate of 4 per cent. per annum.
3. Also to pay not less than 2 per cent. each year upon the amount of principal which may be due to the Government at the end of each year—which payment of 2 per cent. the Government shall receive and place to the credit of the purchaser on compound interest at the rate of 4 per cent. per annum, and shall apply in liquidation of the purchase money.
4. The purchaser to have the option of paying in liquidation such further sums as he may from time to time see fit, such sums to be held and applied in like manner by the Government.
5. So soon as the whole of the purchase money shall be paid off then the Government shall transfer to the purchaser the whole tram system of the city and suburbs, which shall then become the property of the purchaser, with a proper transfer also of the tramway lines and roads upon which the tram lines may be then or thereafter laid, the purchaser having the right to use such roads for tramway purposes only.
6. The Government to grant a full franchise to the purchaser to lay cable tramways, or tramways upon any other improved and approved system, wherever he or they may in their discretion choose.
7. The purchaser not to exceed a fixed maximum rate of fare to be charged on the various lines, and to substitute “in the city” within one year from completion of purchase two miles (2 miles), and within three years eight miles (8 miles), of a double line, on the cable or other approved or improved system, and the present motors to be used in the suburbs only until the cable or other system can be adopted.

Second,—

1. To lease from the Government, on a capital value to be agreed upon, for a period of (say) fifty years, the whole of the present tramway system in city and suburbs, paying on such capital value as may be fixed upon interest at the rate of 4 per cent. per annum.
2. The Government to grant to the lessee a full franchise to lay cable or other tramways wherever he may choose, as in condition 6 of first proposition.
3. The lessee not to exceed a fixed maximum rate of fare to be charged on the various lines, and to substitute in the city the cable or other approved system as in first proposal.
4. At the expiration of the term of fifty years the whole of the tramway system to be subjected to a valuation by valuers mutually appointed in the usual way, and should the Government decide to take it, they are to have the option to do so upon paying to the lessee such amount as may be awarded to him under such valuation,—payment to be made in such manner as may be mutually arranged.
5. In the event of either of the above propositions being accepted by the Government, six months to be allowed the purchaser or lessee to complete arrangements to purchase or lease, as the case may be.

We wish you to understand that we make the above propositions as a basis upon which Mr. Hallidie will be prepared to purchase or lease the Tramways, and that these propositions are open to modification on either side; or should the Government themselves deem it desirable to formulate conditions for sale or lease, we shall be glad to hear from you.

We have, &c.,

CHAS. F. STOKES, } Attorneys for
AUGUSTUS MORRIS, } A. S. Hallidie.

The Minister wishes this to be acknowledged and put with other papers.—H.M.L., 29/3/87:
(Acknowledged.)

No. 33.

No. 33.

Mr. H. Bastings to The Secretary for Public Works.

Sir,

Molesworth Chambers, 75, Little Collins-street, Melbourne, 25 April, 1887.

On behalf of the Cable Tramway Construction Company of New South Wales I have the honor to submit the proposals hereinafter noted for the purchase and reconstruction of the Sydney Tramways.

At the interview I had with you on the 24th March ult., when introduced by Mr. Slattery, the Company's proposals were indicated by me in a general way, and they are now formulated and presented to you for the favourable consideration of your Government.

The proposals are as follows:—

First,—

- (a) To purchase at a valuation fixed on an equitable basis the whole of the Tramway lines now constructed and running, inclusive of equipments.
- (b) To remodel the existing system of Tramways in regard to the city routes, permanent ways, equipments, and substituting the cable system of traction where practicable; together with the providing of a frequency of car-service which shall meet the present and future requirements of the city and suburbs of Sydney.

Second,—

2nd. The Government to grant to the Company the sole right of running tram-cars in the city and suburbs for a term of years, which shall be determined on the following basis:—

- (a) On the amount of capital which the Company guarantee to expend in the purchase and remodelling of the existing lines, and the completing of the system noted in No. 1 proposal.
- (b) The annual payment required by the Government for the sole right of running the cars.
- (c) The terms on which the complete system, in full working order, shall be handed over to the Government when the concession shall cease, *i.e.*, with or without valuation.

3rd. An alternative proposal, whereby the Government can provide all the necessary capital.

- (a) The Company to design, remodel, and construct a complete system of cable tramways at a price per mile to be arranged, or any other equitable basis.
- (b) The Company to work the lines for a period of years, guaranteeing a minimum annual payment of seven (7%) per cent. on the total amount expended on the construction of cable tramways.

The Consulting Engineer to the Cable Tramway Construction Company, Mr. G. S. Duncan, is the Engineer to the Melbourne Tramway Trust, and he has designed and supervised the whole of the works connected with the Melbourne scheme of tramways, which has been so successfully inaugurated. This will be a guarantee of the capacity of the Company to carry to a successful issue any works undertaken.

In the event of your Government deciding to accept either of the proposals submitted, I am prepared to give a substantial bond for the fulfilment of such obligations, and I shall be glad to know your decision at an early date.

I have, &c.,

HORACE BASTINGS,
Chairman.

Acknowledge and submit with papers.—J.S., 26/4/87. Done.

No. 34.

Mr. W. Shenstone to The Secretary for Public Works.

Sydney Tramway and Omnibus Company (Limited),

Sir,

No. 66, King-street, Sydney, 10 May, 1887.

In view of the contemplated alterations in the administration of the Government Tramways, I have the honor, on behalf of the Sydney Tramway and Omnibus Co., Limited, to intimate that they are prepared to negotiate for purchasing or taking over the said Tramways and working the same.

I may state that this Company, prior to the Government determining to construct and work tramways, introduced a Bill into Parliament for the same purpose, involving a large outlay, and that the routes therein laid down were identical with those adopted by the Government; this, together with the large experience possessed by the Company of the requirements for the street traffic of Sydney and the suburbs in connection with their long-established business, and the large resources at their command, will be some guarantee of their ability to maintain and carry out the undertaking.

It would be premature to attempt to set forth any proposition in a letter, but I trust you will be pleased to recognize our claim to some consideration, and favour us with an opportunity of discussing the matter in detail.

Awaiting your reply,—

I have, &c.,

WM. SHENSTONE,
Secretary.

Please acknowledge, and include in schedule of offers.—J.S., 11/5/87.

No. 35.

LEGISLATIVE ASSEMBLY, THURSDAY, 17 MARCH, 1887.

Mr. MELVILLE asked the SECRETARY FOR PUBLIC WORKS,—Is it the intention of the Government to introduce the cable system on our Tramways?

Mr. SUTHERLAND answered,—The Government have called for information on the subject, and as soon as it is obtained the whole question will be considered by them.

Please see Mr. Secretary Sutherland's reply. Is any further action to be taken?—D.C.McL. 28/3/87. Mr. Bury has been asked to call upon the Minister; we must await his reply.—A.R., 29/3/87.

No. 36.

Précis.

SALE OR LEASE OF THE TRAMWAYS.

So long back as August, 1882, Mr. Angus Mackay made a proposal to take over the Glebe Point or any other section of Tramway on such terms as might be agreed upon, with a view to work it on the London system. MESSRS. MACKAY AND FLEMING.

The Commissioner referred the proposal to Mr. Secretary Copeland, remarking that the Government had power to lease the Railways, and therefore, constructively, the Tramways also.

The Minister minuted that the offer could not be entertained for the present.

Under date of 15/1/85, Mr. Mackay, on behalf of a syndicate, addressed Mr. Secretary Wright, making a somewhat similar proposal, and on the 3rd February furnished fuller details of his scheme.

The Commissioner minuted that he could not advise the leasing of the Tramways, except as a whole; that the proposal made by Mr. Mackay to have a combined horse and motor service would not answer, but he believed a cable-road inside city boundary, and a motor service outside, would be the proper thing, and that the proposal to run round Circular Quay and join the present system at Parramatta-street bridge was his (Commissioner's) own scheme, and was the only one to meet the requirements of the traffic.

The Minister minuted that the only offer which would be accepted would be to lease the entire system of Tramways.

A few days after Mr. Mackay had an interview with Mr. Secretary Wright on the subject of the leasing of the Tramways, and on the 13th of that month Messrs. Mackay and Wm. Fleming addressed the Minister, proposing to take over the Tramway permanent-way and workshops, and such portions of the rolling-stock as might be required for the city tramway business, they paying Government for the same. For the first ten years they proposed to pay 4 per cent. on capital expended, for the succeeding ten years 5 per cent., and thereafter such percentage as might be agreed upon.

Messrs. Mackay and Fleming subsequently had an interview with the Commissioner, and under date of 10/4/85 they again wrote to the Minister urging the matter, and stating that if their proposals were accepted they would reduce the fares, and incorporate this as a condition of any arrangement that might be entered into. The fares at this time had been increased; they have since been reduced.—Ch. A.G., 3/3/86.

Hereon the Commissioner minuted that the proposal was to lease the Tramways for at least twenty years, that the Act limited the power to lease to three years, and that before taking action it would be well to ascertain if Fleming and Mackay would accept the lease for three years.

What action, if any, was then taken the papers do not disclose, but there is a minute by Mr. M'Lachlan to the effect that the papers were found in the Minister's room after that gentleman relinquished office.

UNDER date of 28 January, 1886, Mr. John Woods addressed Mr. Secretary Garrard stating that he had been led to believe that an offer had been received to lease the Tramways, and that he would be glad to know if Government would sell them, and if so upon what terms. MR. JOHN WOODS.

Mr. Woods was informed (20/1/86), by direction of the Minister, that the latter was prepared to give due consideration to any proposal that might be made to lease or purchase the Tramways.

On the 15th February Mr. Woods wrote to the Commissioner stating that he could not make a definite offer, as he did not know what there was to purchase, and asking to be supplied with an inventory of the plant, the mileage laid, the cost, and the returns.

The Commissioner replied, by letter of 22/2/86, that if the Government determined to lease or sell the Tramways the fullest information would be given.

UNDER date of 22/1/86, Mr. J. P. Walker addressed a letter to the Minister proposing to lease the Tramways, with all plant and appliances, for twenty-five years, on the following conditions:— MR. J. P. WALKER.

1. Rent, a sum equal to 4 per cent. on capital expended.
2. A payment of 2 per cent. for liquidation of capital (sinking fund).

The Minister called for a report, and asked if there were any other similar offers.

The Commissioner replied that Mr. Fleming made an offer, but that on learning that Government could not lease for any period over three years he did not proceed with the proposal.

UNDER date of 27th January, 1886, Mr. Maxwell Bury wrote to the Commissioner stating that the cable system was the only one under which the Sydney Tramways could be made to pay, advocating the introduction of the duplicate cable system invented by Mr. D. J. Miller, and now in successful operation in New York, and expressing a belief that the money which it was proposed to expend in renewal of permanent-way would be sufficient to meet the cost of converting the whole, or a large proportion, of the existing lines to the cable system. MR. MAXWELL BURY.

The Commissioner minuted that the estimate for reforming the Tramways was £200,000, and that Mr. Bury must be in error in stating that that sum would suffice to convert all the lines to the cable system.

On the 4th February Mr. Bury wrote to Mr. Secretary Garrard proposing on behalf of a syndicate in London and New York, and giving the following details of the scheme they had in view:—

1. The trams to be laid on the duplicate cable system patented in this Colony by Messrs. Findley and Miller.
2. The cable system to be confined for the present to the following sections:—
 - Bridge-street to Redfern Station.
 - Liverpool-street to Queen-street, Paddington.
 - Darlinghurst to Randwick Workshops.
 - Oxford-street along Crown-street to terminus.
3. The service to Leichhardt, Glebe Point, Forest Lodge, Newtown and Marrickville, and Botany to be worked by the steam motors timed to run in connection with the cable trams. The following also to be worked by the motors:—Randwick and Coogee, from Queen-street the Woollahra line, the Waverley line, the new section to Randwick, and the Bondi section. It will be seen that the motors will work only in the outlying districts.

4. A grand terminal station and waiting-room to be erected at Redfern for the accommodation of passengers changing there.
5. A commodious waiting-room to be erected at the Queen-street junction for the accommodation of passengers changing to or from the motor lines.
6. The syndicate will either lease or purchase the entire Tramway system, workshops, sheds, &c., &c. If leased, the terms and conditions to be such as will induce capitalists to invest. If purchased, the price to be paid to be arrived at by valuation. If leased, the term to be twenty-five years. If a sale be effected, the Government to have the option of repurchasing at any time within twenty-one years, with compensation for goodwill (if any), and line, plant, &c., to be taken, as before, at a valuation.
7. The Government to supply the syndicate with a plan of the city and suburbs served by the present tram system, also a section of the streets showing the gradients.
8. If a lease or a sale be effected, the syndicate to bear the entire cost of converting the portions named into cable-trams.
9. In the event of Government accepting the foregoing proposals the syndicate will have plans and specifications prepared for constructing the cable-trams, and have them ready, if possible, for the consideration of Parliament this Session.
10. In the event of Parliament not agreeing to sell or lease the trams the syndicate will be prepared to enter into a contract to construct the cable-lines, and will bind themselves in £20,000 to keep them in working order for three years.
11. In the event of Parliament so deciding against the sale or lease of the Tramways, and the Government does not conclude a contract with the syndicate, the Government shall pay the expenses incurred in preparing the plans, specifications, and estimates, which plans, specifications, and estimates shall thenceforth become the property of the Government.

C.A.B., 22/2/86.

Since the foregoing was written the following further offer has been received.

Under date 22/2/86, Messrs. R. Towns & Co. and Augustus Morris wrote to the Commissioner submitting on behalf of Mr. A. S. Hallidie, of San Francisco, certain memoranda of inquiries in relation to the New South Wales Tramways, stating that Mr. Hallidie, in concert with a syndicate, is prepared to entertain the Commissioner's (assumed) proposal for the purchase of the tramways, that it is necessary that it should be clearly stated whether the motors are to be removed from the streets of the city proper and the cable or other system substituted, that it is essential if an arrangement be made that the syndicate should have power to lay new lines and to change existing routes; and that if their proposals are entertained they will construct within the city within one year two (2) miles and within three (3) years (8) eight miles of double-cable Tramway.

The Commissioner replied, 23/2/86, stating that there was some misapprehension, that when Mr. Hallidie and Mr. Augustus Morris had an interview with him, they, as he (Commissioner) understood, wished to know whether the Government would entertain a proposal for laying down cable lines within the city, that he told them that inquiries had been made whether the Government would lease or sell the Tramways, and that the Minister for Works had informed those who inquired that he was prepared to receive proposals; that he (Commissioner) further told Mr. Hallidie that he did not know what the intention of the Government was, but that Mr. Hallidie could submit any proposal he might have to make. The Commissioner further wrote that the memoranda of particulars extended far beyond the scope of the information which could be afforded, converting Commissioner's intimation that Mr. Hallidie would be at liberty to submit his proposition into suggested terms and conditions which the Government might entertain; and that Mr. Secretary Garrard, in reply to a question asked in the House, had stated that in the event of the Government deciding to sell or lease the Tramways, tenders would be invited and conditions drawn up.

C.A.B., 27/2/86.

MINUTE Paper on Sale or Lease of the Tramways.

IN continuation of the *précis* which is on the file respecting the several proposals which have been submitted to either lease or purchase the Tramways, the following additional offers have been received, viz. :—

On the 29th December, 1886, Mr. Larsen, in conjunction with some gentlemen in London, offered to lease the Government Tramways in the city and suburbs on such conditions and terms as may be agreed on, and submitted the following proposals for the consideration of the Government :—

“To lease the Sydney and Suburban Tramways for a period of twenty-one years or longer at a rental of 7 per cent. per annum on the capital expended up to the end of the last financial year, 1885; and further, that a capital of £300,000 should be expended principally in Sydney for the reconstruction of the lines, for the working of same by cable, this capital to be repaid to the lessees at the termination of the lease; also, the Government to provide land for the erection of buildings and machinery necessary for working the lines, but the lessees to erect all buildings and machinery at their cost.”

Mr. Larsen stated that in the event of these proposals being entertained by the Government, a Company would be formed in London with a directory composed of gentlemen of experience and possessing public confidence, for the purpose of carrying the project into effect.

On the 31st idem the Commissioner calculated that the capital referred to herein is £708,109, which, at 7 per cent., will return £50,000 a year, that we are paying for interest about £28,000, and that consequently the balance, £22,000 a year for twenty-one years, invested at 4 per cent., would realize £757,000, out of which sum £300,000 would have to be returned to the Company, showing net £457,000, and a Tramway handed over at the end of twenty-one years very much better than the existing one, and that if the Government are disposed to lease the Tramways he (Commissioner) thinks the terms offered herein are certainly the best which have been made.

On the 1st March, 1887, Mr. Larsen again wrote respecting the above proposals, and stating that from further observation he found it would be necessary to have four cables in the main lines to carry the traffic, which system would admit of an unlimited traffic being maintained, and that in reconstructing the Tramways for cables he proposes to construct the tubing or channel in cast-iron, and to adopt the improvements

improvements which experience has proved to be necessary. In his (Mr. Larsen's) opinion it will soon be necessary for the Government to expend a large sum for repairs without being of permanent benefit, and that for the future it would be better to take such steps as to lead to the reconstruction of the lines of a permanent and durable system.

Hereon Commissioner stated (referring to his previous minute of 31/12/86) that if it be decided to lease the Tramways for a period of twenty-one years a Bill for the purpose would have to be passed by Parliament, as the existing Act limits the time for which the lines can be leased to three years, and that under such amended Bill specifications and conditions of lease for twenty-one years could be prepared and public tenders invited, as he was not an advocate of the acceptance of private offers, which however were useful as indicating that remunerative prices could be obtained.

In the views expressed by the Commissioner Mr. Secretary Sutherland concurred.

Subsequently Mr. Larsen again addressed Mr. Secretary Sutherland on the subject, and was informed that information relating to whole matter was being collected, and would be submitted to Cabinet for consideration.

Messrs. Farmer Bros.—as representatives of Messrs. Bullivant & Co., wire-rope manufacturers—FARMER BROS intimated that they would be prepared to take over the existing stock, lines, &c., &c., and substitute cable lines, and lay in any additional roads that may be required, but no specific or formulated terms have been submitted.

Mr. Bullivant, senr. (Messrs. Farmer Bros. state), of the Cable Tramway Co. of England, would be the head of any Company undertaking the Tramway construction under this representation.

Mr. Bury (whose previous proposals for the purchase or lease of the Tramways will be found in *précis* on file) addressed Mr. Secretary Sutherland on the 18th ultimo relative to the introduction of the cable system of Tramway and to proposals submitted to the previous Government on the subject, to either lease or purchase the Sydney trams and immediately commence constructing several lines of cable trams and otherwise reorganise the working of the lines, so that they will return a fair interest on the capital invested; that he is the owner of a patent cable tram system, known as "Miller's" duplicate cable system, which is largely used in America and which he represents is the most perfect cable tram system yet invented, as no breakage of cable or injury to the machinery affects the working of the line, and that if the Government are disposed to entertain the question of leasing or selling the trams, or the adoption of the cable system, he will be glad to meet Mr. Secretary Sutherland and discuss the several points connected therewith and point out generally the manner in which it is proposed to alter and work the system with the minimum of inconvenience to the public. MR. MAXWELL BURY.

Mr. Bury was then requested to call on Mr. Secretary Sutherland.

On the 24th March, 1887, Messrs. Stokes & Morris, on behalf of Mr. A. S. Hallidie, of San Francisco, addressed Mr. Secretary Sutherland relative to the lease or purchase of the Tramways, and submitted for the consideration of the Government the following propositions:—CHAS. F. STOKES AND AUGUSTUS MORRIS

First,—

1. To purchase from the Government the whole of the present Tramway system, engines, cars, &c., with all plant appertaining thereto, at such price and upon such terms as to privileges, &c., as may be agreed upon.
2. Mr. Hallidie to pay to the Government interest upon the agreed price at the rate of 4 per cent. per annum.
3. Also to pay not less than 2 per cent. each year upon the amount of principal which may be due to the Government at the end of each year, which payment of 2 per cent. the Government shall receive and place to the credit of the purchaser on compound interest at the rate of 4 per cent. per annum, and shall apply in liquidation of the purchase money.
4. The purchaser to have the option of paying in liquidation such further sums as he may from time to time see fit, such sums to be held and applied in like manner by the Government.
5. So soon as the whole of the purchase money shall be paid off then the Government shall transfer to the purchaser the whole tram system of the city and suburbs, which shall then become the property of the purchaser, with a proper transfer also of the Tramway lines and roads upon which the tram-lines may be then or thereafter laid, the purchaser having the right to use such roads for Tramway purposes only.
6. The Government to grant a full franchise to the purchaser to lay cable Tramways or Tramways upon any other improved and approved system, wherever he or they may in their discretion choose.
7. The purchaser not to exceed a fixed maximum rate of fare to be charged on the various lines, and to substitute in the city, within one year from completion of purchase, 2 miles and within three years 8 miles of a double line, on the cable or other approved or improved system, and the present motors to be used in the suburbs only until the cable or other system can be adopted.

Second,—

1. To lease from the Government on a capital value to be agreed upon for a period of (say) 50 years, the whole of the present Tramway system in city and suburbs, paying on such capital value as may be fixed upon interest at the rate of 4 per cent. per annum.
2. The Government to grant to the lessee a full franchise to lay cable or other Tramways wherever he may choose, as in condition 6 of first proposition.
3. The lessee not to exceed a fixed maximum rate of fare to be charged on the various lines, and to substitute in the city the cable or other approved system, as in first proposal.
4. At the expiration of the term of fifty years the whole of the Tramway system to be subjected to a valuation by valuers mutually appointed in the usual way, and should the Government decide to take it they are to have the option to do so upon paying to the lessee such amount as may be awarded to him under such valuation. Payment to be made in such manner as may be mutually arranged.
5. In the event of either of the above propositions being accepted by the Government six months to be allowed the purchaser or lessee to complete arrangements to purchase or lease as the case may be.

These

These propositions are submitted (Messrs. Stokes and Morris state) on the understanding that they are to be a basis upon which Mr. Hallidie will be prepared to purchase or lease the Tramways, and that such propositions are open to modification on either side. Or should the Government deem it desirable to formulate conditions for sale or lease they will be glad to be advised.

The particulars of the previous proposals, made on behalf of Mr. Hallidie by R. Towns & Co. and Mr. A. Morris, in respect of the lease or purchase of the tramways, are contained in the *précis* already referred to.

PROPOSAL TO LEASE THE KOGARAH TO SANS SOUCI TRAM-LINE, ETC.

Mr. D. E.
BLACKE.

UNDER date of 28 March, 1887, Mr. Blacke addressed Commissioner, wishing to know whether the Government are disposed to lease the above Tramway for a term of ten years at 4 per cent. per annum, all the outlay in the matter, and if so would Government furnish him with a statement of the cost incurred in connection with the line.

SYDNEY TRAMWAY
& OMNIBUS CO.
(LIMITED).

Mr. Blacke was informed that the question of leasing the Tramway has not yet received the consideration of the Government. G.A.S., 16/4/87.

For proposal to lease Tramways see summary on file.

SUMMARY of proposals to lease or purchase Tramways.

Name.	Proposal in brief.
J. D. Larsen	To lease tramways for 21 years or longer, paying 7 per cent. per annum on capital expended to end of 1885. £300,000 to be expended on reconstruction, for working lines by cable system, such sum to be repaid to lessees on termination of lease. Government to provide land for erection of buildings and machinery, but lessees to erect buildings and machinery at their expense.
Farmer Bros.....	On behalf of Mr. Bullivant, rope manufacturers, are prepared to take over existing stock, lines, &c., &c., and substitute cable lines, and lay down any necessary additional roads. No formulated terms submitted.
Maxwell Bury ...	Will either lease or purchase tramways, and immediately commence constructing several lines of cable trams on the duplicate cable system, which at present would be confined to the following sections :— Bridge-street to Redfern station ; Liverpool-street to Queen-street, Paddington ; Darlinghurst to Randwick workshops ; Oxford-street, along Crown-street, to terminus ; and other lines to be worked by motors in conjunction with the cable system. A grand terminal station to be erected at Redfern, and a commodious waiting-room at Queen-street junction. If leased, terms and conditions to be such as will induce capitalists to invest—terms, twenty-five years. If purchased, price to be arrived at by valuation ; Government to have option to repurchase at any time within 21 years, with compensation for good-will, to be arrived at by valuation. If purchased or leased, syndicate to bear entire cost of converting sections named into cable trams. Or the syndicate will construct the cable lines for the Government and keep them in working order for three years.
Messrs. C. F. Stokes and Morris, on behalf of Mr. Hallidie.	Will purchase or lease the Tramway system, engines, cars, &c., and all plant. If the former, the lessees to pay 4 per cent. per annum upon price agreed upon, and 2 per cent. per year on principal due to Government at end of each year to be placed to credit of purchasers on compound interest at 4 per cent. per annum, and shall apply in liquidation of purchase money. The purchaser to have option of paying in liquidation such further sums as they may see fit to hold, and applied in like manner by the Government, who shall hand over to the purchasers, when the whole purchase money is paid, the whole tram system of city and suburbs which shall become the property of the purchasers, the purchasers having the right to use roads, &c., for tramway purposes only. Purchasers not to exceed a fixed maximum rate of fare to be charges on various lines. To lay within one year from completion of purchase 2 miles, and within three years 8 miles of double line, on the cable or other approved or improved system. The present motors to be used in the suburbs only until the cable or other system can be adopted. 2. If leased on a capital value to be agreed upon (time fifty years), paying on such capital value interest at the rate of 4 per cent. per annum, with similar powers and limitations in respect of laying lines and fares to be charged as mentioned in conditions of purchase. After the expiration of the term of lease (fifty years), the whole system to be subjected to a valuation, and should Government decide to take it, they are to have the option, paying the lessees such amount as may be awarded. These proposals are open to notification on either side.
Mr. D. E. Blacke.	Is prepared to lease the Kogarah to Sans Souci Tramway for a term of ten years at 4 per cent. per annum on the outlay.
Messrs. Mackay and Fleming.	Offered to take over the tramway, permanent way workshops, and such portions of rolling-stock as may be required, paying Government for same. For the first ten years they propose to pay 4 per cent. on capital expended, for succeeding ten years 5 per cent., and thereafter such per centage as might be agreed upon. The lessees would reduce the fares.
Mr. John Woods.	Per letter of 28 January, 1886, wished to know if Government would sell the tramways, and if so, upon what terms, but could not make a definite offer as he did not know what there was to purchase. Mr. Woods was informed that if Government determined to lease or sell the tramways, the fullest information would be given.
Mr. J. P. Walker	Under date of 22/1/86 proposed to lease Tramways, with all plant and appliances, for twenty-five years, on the following conditions, viz. :—To pay 4 per cent. on capital expended, and a payment of 2 per cent. for liquidation of capital (sinking fund).
Sydney Tramway and Omnibus Co. (Limited.)	Intimate that they are prepared to negotiate for purchasing or taking over the Government Tramways ; that it would, they state, be premature for them to set forth any proposition in a letter, but trust the Secretary for Public Works will be pleased to recognise their claim to some consideration, and favor them with an opportunity of discussing the matter in detail.

No. 37.

Report of interview accorded by the Cabinet to Mr. Rowan, Mr. Cain, and others, with reference to a proposal to take over the Sydney Tramways.

SIR HENRY PARKES said that in any statement made by Mr. Rowan with regard to any change that might take place it would be best to keep in mind the question of affording tram accommodation to the whole city of Sydney—what he meant was having tram accommodation, not merely along one street from north to south, or two or three streets, but at the right-angular sections from east to west. He would also like to know whether Mr. Rowan would be prepared to take the trams as they exist, gradually changing the present system to one of wire cable, or other form of tramway ; what length of time would be required to complete the conversion of the one system to the other, and whether, in the plan proposed by Mr. Rowan, he would be identified with capitalists in Sydney.

Mr.

Mr. ROWAN said:—In the first place I may tell you that I was one of the five original promoters of the Melbourne Tramway Company, which up to the present time has spent about a million of money in completing that system. The same promoters are still in Melbourne, and hold together as a party. We see that you contemplate some change here, and it occurred to us that we might be of some service to you, and to ourselves. We are now prepared to undertake this work, but it will be necessary for us to associate ourselves with some local people in Sydney, and we think that the assistance of the people who control the traffic of your streets here, such as the Omnibus Company, would be essential to us during the transition from the present system to the cable tramway system, which we find much better and cheaper to work. We purpose—if you deem it desirable—to let the Tramway system pass into the hands of private people, as a preliminary step to buying the present system right out.

Sir HENRY PARKES: When you say you would buy it right out, would you be prepared to pay cash for it?

Mr. ROWAN: Yes. It would be necessary for us to get the control of your trams at once, or as soon as we can enter into arrangements, and gradually convert it from its present form into the new form. It would be necessary in the interests of the community that we should have control of the other Tramways, so that we could run from east to west, and have new streets running in the same direction as the present trams, and thus ease off the traffic. The cable trams, with the aid of the Omnibus Company, would, we think, take the people out to their present destinations without greatly disturbing the traffic. We contemplate a capital of at least one million shares of £1 as a first issue, and after we had made our issue we would pay you whatever we agreed upon. In the meantime, however, we would like a little more information from you as to the cost of constructing the present Tramways, the value you put upon them, whether you would expect to be paid the cost of construction, and whether you would charge what has been expended on construction and maintenance. But as regards the price we contemplate entering into, I may tell you at once that £40,000 or £50,000 would not be allowed to stand in the way of an agreement. We also contemplate that this Government should grant power to municipalities and shires to make light country lines of railways as feeders, otherwise the present motors would be simply useless to any party who might purchase the tramways. We think that if a system of light railways were authorised under the Local Government Act, it would give us a market for this material, and we might be able to offer you more for the trams than otherwise, while we would be prepared to go to work at once. If you grant permission for the scheme to pass into private hands we will give you our *ultimatum* very quickly. We do not contemplate dealing with this entirely in Melbourne. It would be in the interests of all concerned to have five promoters in Melbourne and five in Sydney.

Sir HENRY PARKES: Do you represent English capital?

Mr. ROWAN: To some extent. It would be necessary for some of the leading men here, such as the directors of the Omnibus Company, to co-operate with us for the purpose of regulating the traffic during the period of transition. We contemplate working from the two centres.

In reply to various questions, Mr. Rowan said:—We would like to take all the land the Government may own for the purpose. We would have to purchase sites for the engines, and probably some other sites.

It would, we estimate, require two years to convert the present lines into the cable system.

We hold the Melbourne streets under a lease of 30 (thirty) years, but we had no land to buy there. We formed a Tramway's Trust; that represents the city and the surrounding municipalities. That Trust borrowed money in London, and guaranteed the amount. We have a sinking fund of 1½ per cent. for the first ten years; 2½ per cent. for the second ten years; and 3½ per cent. for the third period. We have the use of the Tramways for thirty years. In the case of New South Wales, we propose a very long lease, of perhaps fifty years, and at the end of that time the Tramways would revert to the Government.

The gentlemen in Melbourne with whom I am connected are Mr. Clapp, Manager of the Tramway and Omnibus Company, Mr. Caine, Mayor of Melbourne, Mr. Collier, Mr. A. W. Robertson, Mr. Wm. McCulloch, and myself. There is another way of managing if you take the place of the Tramways Trust in its executive capacity. Much would depend upon the price asked for the present system.

This is the first intimation the Government has received from any of our party. I may say that when we first commenced we were set upon on all hands by bogus Companies trying to get an interest in us, but we refused; and you will find the same thing here if the scheme once becomes known. Can you give me any idea of the cost of the Tramways?

Sir HENRY PARKES: We could not do that now; but we will, after you leave us, consider the matter, and will give you an answer within a very short time, stating whether we are disposed to fall in with your views.

June 24, 1887.

No. 38.

Minute by The Secretary for Public Works.

Sydney Tramways.—Various proposals made for the management of the Tramways passing into private hands, with a view to their conversion into Cableways, &c.

Minute for Cabinet.

BEFORE considering any of the offers submitted for purchasing or leasing the Tramways, it will be proper that we should correctly ascertain what it is we have to dispose of, and what the difficulties are that are in the way of the Government dealing with the matter.

The Tramways have been constructed under an Act of Parliament which gives the Government the power to lease them for a period not exceeding three years. No power is given to sell the Tramways.

It is therefore clear that any negotiations entered into at the present time must be subject to the passing of a Bill through Parliament, enabling the Government to lease the Tramways for a longer period than three years or to sell them right out.

The Tramways in the city and suburbs of Sydney (omitting the North Shore cable line and the motor line from Kogarah to Sandringham) have cost the capital sum of £742,112 to the end of 1886.

There

There has been some additional expenditure, in 1887, in the construction of the line from Waverley to Randwick, and incidental capital outlay, but £13,000 will cover that outlay. This expenditure, to the end of 1886, has been distributed as follows :—

Construction of 27 miles of Tramway	... ..	£468,342
Erection of workshops, supply of machinery, &c.	... ..	62,023
Tramway rolling stock	... ..	211,747
Total	... ..	£742,112

The Government has taken the use (upon which no money value has been fixed, but which would have to be valued in the event of the Tramways being sold) of several portions of land, for instance :—

- The portion of land forming the terminus station in Bridge-street.
- The portion of land in Pitt-street known as the Tramway cleaning-yard.
- The land at Randwick, upon which the workshops, &c., have been erected.

The Tramway transactions for 1886 give the following results as regards the city and suburban lines referred to :—

Gross revenue	... ..	£226,367
Working expenditure	... ..	203,247
Net revenue	... ..	23,120
Capital expended	... ..	742,112
Return which the net revenue gives to the capital invested,		3·12 per cent.

The following is the return made to capital for the past four years :—

Year.	Capital.	Interest upon capital.
1883	£544,105	2·22
1884	643,111	0·76
1885	708,109	2·17
1886	742,112	3·12

It will thus be seen that year by year the Tramways have been approaching closer to a self-supporting result, and I am informed by the Commissioner for Railways that the transactions of the present year will, if certain amended time-tables which are now before us are adopted, return a profit in excess of the interest upon which the capital has been borrowed.

This being the case, it does not seem imperative that the Government should surrender the management of the Tramways into private hands because of its inability to make them profitable.

It seems, however, to be generally admitted that the motive power employed in working the Tramways should be some other power than that of steam, especially within the city boundaries.

When the Tramways were first inaugurated in Sydney in the year 1879, there were only two powers in general use for such services, viz., animal power and steam. Since that date cableways have been introduced, and also Tramways worked by electric power.

It is one or other of the two systems referred to, which those who seek to take over from the Government the city and suburban Tramways, proposed to convert them to the use of.

The first question to be determined is whether the requirements of the travelling public will be better met by the substitution of either cableways or electric tramways for Tramways worked by steam power.

By either of the systems proposed to be substituted the average number of passengers that will be taken by any single tram will be thirty. As there are at the lowest computation 26 millions of passengers travelling on the cars between Bridge-street and Liverpool-street, 13 millions on the up and 13 millions on the down journeys annually, it follows that if either cableways or tramways worked by electricity be adopted, other approaches to the terminus than that given by Elizabeth-street must be afforded. If not, to accommodate the travelling public, a tram would have to leave Bridge-street every twenty seconds, and more frequently during the busy parts of the day, and even if the traffic could be worked with such precision that an equal distance between each car could be kept, the interval of space would be only 28 yards. The stream would be so continuous that it would be almost an impossibility for vehicles to cross Elizabeth-street at right angles. It may be mentioned that the average number of passengers to the mile of line on the Tramways of Great Britain does not exceed per annum, 450,000, while on the city and suburban Tramways of Sydney the average is 1,127,000 per mile, and on the particular mile of Tramway between the points mentioned the number travelling is simply unprecedented.

It is true the difficulty might be met by continuing the line in Phillip-street by that street to King-street, and from thence down College-street to Oxford-street, and so take the eastern Tramway traffic out of Elizabeth-street altogether; but, with the exception of one, the applicants who seek to purchase or lease the Tramways contemplate only the working of the present routes, and their conversion from steam lines into cableways, &c.

America is the mother country of Tramways. At first, of horse tramways, then steam, then cableways, then electric ways, or Tramways worked by electric power; though this last seems to have taken, as yet, a stronger hold in some of the cities of the continent of Europe than it has on the American continent. Rumours, however, are prevalent that cableways in America have been condemned, and in some places have been abandoned—that recourse is again being had to steam-power.

A few more months will, I understand, determine this particular question. By private enterprise the merits of the electric system as applied to Tramways is to be practically tested in the neighbourhood of Sydney. As there would seem to be no immediate necessity for an alteration in the present system of working the Tramways, I would suggest to my honorable colleagues that the question be postponed for twelve months. In the interval we shall be acquiring information which will enable the Government to determine it with riper judgment and experience.

If, however, the Cabinet decide that a measure should be prepared at once for submission to Parliament taking powers to lease the Tramways for a longer term than is now provided or to dispose of them altogether, it will be necessary to make provision that before this great monopoly is handed over to a private Company certain restrictions be introduced for the protection of the general interests of the public.

One of the reasons given at the time for the construction of tram lines by the Government was that a Company would not construct a line unless assured that it would yield an immediate return upon its outlay, and thus tramway accommodation would be denied to many places, the future prosperity of which might be dependent upon increased means of communication.

There can be no question that several such lines have been constructed in the past, and it has been only by degrees, as the population increased, that they have recovered from the non-paying stage of their existence—indeed many of them are not yet self-supporting, and it may take some years to make them so. Unless, therefore, provision be made to the contrary this condition of affairs might offer a temptation to a private Company to abandon these non-paying lines, and by depriving residents of the localities to which they have been extended of Tramway communication depreciate the value of their properties, which they were perhaps led to acquire by reason of the existence of this means of conveyance. If not abandoned altogether the amount of accommodation afforded might be so limited as to practically deprive the residents of their benefit. It will therefore be necessary to provide that all Tramways made over to the Company shall be worked, and the service of trams bear some reasonable proportion to that in operation at the time of transfer.

Again, the benefit of Tramway communication might in a large measure be neutralized by the infliction of higher rates of carriage than those now obtaining. If, as with the Tramways of Melbourne, the minimum charge were made 3d., the purchasers of the Sydney and Suburban tramways would, to the injury of the travelling public, obtain a return which would give a very large per centage of interest upon the whole capital outlay; it will therefore be necessary, I think, to stipulate that the present fares shall be the maximum fares chargeable by the Company who may acquire the right to control the Tramways.

The wages of the employes and their hours of labor are matters which should be regulated by the market conditions of supply and demand; but it is proper to point out that if the lessees or purchasers of our Tramways should adopt the wages ruling on the Melbourne Tramways, the amount of saving effected would represent a sum equal to 4 per cent. per annum upon the purchase money.

It would be contrary to sound public policy to legislate for the retention of the present, or any rate of wages which, as I have said, should be regulated by the condition of the labor market; but the probability of a large class of public servants, who have grown with the tramway service, suffering a diminution in their wages should not be left unconsidered in determining the question of the transfer of the management of the Tramways from Government to private control.

Having placed all aspects of this question thus fully before the Cabinet, I will now leave it to their determination.

JOHN SUTHERLAND.

6th July, 1887.

No. 39.

Mr. A. Armstrong to The Colonial Secretary.

Sir,

Land Agency Office, 26, Bridge-street, Sydney, 28 March, 1887

Understanding that your Government has in contemplation the abolition of existing system of steam tramway-motors, I respectfully beg to submit for your consideration the advisability of adopting the Julian Patent Electric Tramway, which has the following advantages:—

1. All cars have powers self-contained.
2. Light grooved rails may be used, exercising no interference with ordinary street traffic.
3. The patent can be adopted to existing cars and rails.
4. Accumulators (fitted under seats, and consequently occupying no space) can be adopted to existing cars at a cost of £40 each.
5. Electric power sufficient to run light cars up a grade of 1 in 15 can be provided.
6. Cars, including a double set of accumulators, can be supplied at a cost of £600 each.
7. Speed up to 20 miles per hour obtainable.
8. If adopted on Government lines, no change necessary in existing roadway.
9. System could be adopted on existing lines using present cars.
10. New lines could be laid down and furnished with rolling stock at £6,000 per mile.

The patent rights to all Australia are secured by a Sydney syndicate, of which I am the agent, and, in order to obtain full opportunity of demonstrating the advantages, Parliament will be invited to pass a private Bill, allowing construction of a line up William-street, Woolloomooloo; and I have the honor to request that your Government will delay effecting any important change in existing Tramway system, pending full opportunity of seeing the Julian Tramway system demonstrated.

I have, &c.,

A. ARMSTRONG.

Secretary for Public Works.—H.P., 5/5/87. Under Secretary for Public Works.—C.W., 5/5/87.
Railways.—J.R., 9/5/87.

[NOTE.—Although this paper bears date prior to the date of *précis*, immediately preceding, it was not received in the Railway Department till May, 1887, when *précis* had been written in ignorance of the existence of this proposal.]

No. 40.

Mr. J. Chaplin to The Colonial Secretary.

Sir,

Brown-street, Paddington, 10 June, 1887.

This evening I have received a cable from Europe to the effect that my correspondent has purchased the entire right for the colonies to use Julian's patent electric tram motor and car. One will be shipped for Sydney in five weeks from date, and I would ask you to use your influence to prevent the trams in and around the town being leased or other way disposed of until you have seen the electric tram motor and car tried here. It is an immense success in Germany, France, and America, and will entirely

entirely supersede steam and horse power, it being much cheaper and free from noise or dirt. I trust you will excuse my troubling you, but any change in the proprietorship of the trams might so complicate things that it would be impossible to come to any satisfactory arrangement for its use.

I have, &c.,

JOHN S. CHAPLIN.

This should be referred to the Engineer-in-Chief for Railways for report.—C.W., 16/6/87. Secretary for Public Works.—H.P., 18/6/87. Under Secretary for Public Works.—C.W., 18/6/87. Railways.—J.R., 23/6/87.

The Julian method of working is not, I believe, the best of the electrical processes. I understand, however, that Mr. Armstrong, who, with others, is the proprietor of the Gordon Tramway, North Shore, proposes to adopt the Julian system on that line, and we shall gain our knowledge of its usefulness by that experiment.—CH.A.G.

For Minister's information. Seen.—J.S., 24/7/87.

No. 41.

Mr. L. Könneritz to The Commissioner for Railways.

Sir,

St. Cloud, Glenmore Road, Paddington, 7 July, 1887.

With reference to a paragraph which appeared in yesterday's papers, concerning a French system of electric tramways, which Mr. Pritchard intends to submit for the consideration of the Government here, I venture to inquire whether a German firm, who have made electric tramways a speciality, would be allowed to compete also?

I have, &c.,

L. KÖNNERITZ.

In a week.—A.R., 9/7/87. Submitted, 18/7/87. Inform that this must be left to their own discretion. Mr. Pritchard has asked for no assistance or support.—CH.A.G., 18/7/87.

No. 42.

The Commissioner for Railways to Mr. L. Könneritz.

Sir,

Railway Department, 21 July, 1887.

I have the honor to acknowledge the receipt of your letter of the 7th instant, relative to the leasing of the Government Tramways, and asking that a German firm, who have made electric tramways a speciality, may be allowed to compete.

In reply, I have to inform you that it has not been decided that the Tramways are to be leased to private firms; but if any arrangement is made in this way, the question of sending in a proposal must be left to the discretion of the firm you represent. Mr. Pritchard, who has submitted an offer, and who is referred to in your letter, has asked for no assistance or support in the matter.

I have, &c.,

CHAS. A. GOODCHAP,
Commissioner for Railways,
(per A.R.).

No. 43.

Mr. L. Könneritz to The Commissioner for Railways.

Sir,

St. Cloud, Glenmore Road, Paddington, 22 July, 1887.

I have the honor to acknowledge the receipt of your letter of the 21st instant, informing me that it has not been decided that the Tramways are to be leased to private firms, but if any arrangement is made in this way the question of sending in a proposal must be left to the discretion of the firm I represent; also that Mr. Pritchard, who was referred to in my letter, has asked for no assistance or support in the matter.

In reply, I have to inform you that the only question I wished to determine in forwarding to you my letter of the 7th instant was whether the Government intended to have the trial of the electric tramways to which the papers of the day referred confined exclusively to the engine, &c., shipped by Mr. Pritchard, or whether there would be no objection on their part of permitting a German firm to enter into competition with a train of their own make. In doing this I scarcely could imagine that my words would tend to impress you with the suspicion that I was asking for assistance or support.

I have, &c.,

L. KÖNNERITZ.

Let me see letter.—CH.A.G., 29/7/87. Herewith.

Write a letter to Mr. Koennertz explaining matter, expressing regret, and say that he will be allowed the same facility for demonstrating on our tram-line the merits of the system he represents as Mr. Pritchard will be.—CH.A.G., 8/9/87.

No. 44.

The Commissioner for Railways to Mr. L. Könneritz.

Sir,

Department of Railways, Sydney, 10 August, 1887.

I have the honor to acknowledge the receipt of your letter of the 12th ultimo, in which you point out that our communication of the 21st was not a direct reply to yours of the 7th idem.

I regret that there is good ground for your representations. Through a clerical error made in the press of business, your letter was misapprehended as referring to the leasing of Tramways, a question which was then being freely discussed in the daily newspapers, and which was under consideration by the Department, a reply being sent accordingly.

With

With regard to the inquiry contained in your communication of the 7th instant, as to whether the Government intend to have the trial of Electric Tramways confined exclusively to the engine, &c., shipped by Mr. Pritchard, I have now to say that you will be allowed the same facility of demonstrating on our tram lines the merits of the system you represent, as Mr. Pritchard will be.

I have, &c.,

CHAS. A. GOODCHAP,
Commissioner for Railways.

No. 45.

Mr. F. C. Brown to The Commissioner for Railways.

"Grand Hotel," Sydney, 4 August, 1887.

Dear Sir,

On Tuesday last I had the honor of an interview with you, respecting electric tramway motors, but was unable to fully explain as you were called away by the Minister. Would you, therefore, be good enough to grant me another interview at your earliest convenience?

I am desirous, on behalf of the Electric Locomotive and Power Co. (limited), of London, of obtaining permission to place one or more of their electric motors on the Government Tramways here, by way of trial, at the cost of the Company, and of ascertaining under what conditions such permission would be accorded; and also, in the event of such trials proving perfectly satisfactory to your Department, whether the Company could reasonably receive such an order as would warrant their undertaking such preliminary trials here.

Your attention is specially invited to the following special advantages of this Company's system:—

1. This motor has been adopted by the North Metropolitan Tramways Co.—the largest in London—after months trial on their lines, and in preference to all other systems, and is now in actual operation in the most densely populated portion of London.
2. It meets the requirements of the Board of Trade, and has passed inspection by Major-General Hutchison and Major Hornstrong, the Board's official advisers.
3. It requires no alterations whatever to existing permanent way and rolling stock, needs one attendant only, who need not be an electrician, and is always perfectly under control.
4. Cars can be illuminated and brakes applied by the same current that actuates the motor.
5. Entire absence of noise, smoke, steam, dirt, and smell.
6. Absolute safety—the low tension current employed being perfectly harmless.
7. These motors are much lighter than steam ones of similar power.
8. Cost of haulage is only 3½d. to 4d. per car per mile—nearly 50 per cent. under cost of horses.

I have, &c.,

FRED. C. BROWN.

The test of an electric motor will be to take (beyond its own weight, which must not exceed 8 tons) 20 tons up a gradient of 1 in 17 at a speed of 8 miles an hour. If he can meet this condition with the electric power at his command I shall be glad to see him to further discuss question.—CHAS. A.G., 14/8/87.

No. 46.

The Secretary for Railways to Mr. F. C. Brown.

Sir,

Department of Railways, Sydney, 18 August, 1887.

With reference to your letter of the 4th instant, stating that you are desirous, on behalf of the Electric Locomotive and Power Company of London, of placing one or more of their electric motors on the Government tram lines in this city, I have the honor, by direction of the Commissioner for Railways, to inform you that the test for an electric motor will be to take (beyond its own weight, which must not exceed 8 tons) 20 tons up a gradient of 1 in 17 at a speed of 8 miles an hour.

I am to say that if you can meet this condition with the electric power at your command, the Commissioner will be glad to see you to further discuss the question.

I have, &c.,

A. RICHARDSON,

(For the Secretary of Railways).

No. 47.

Mr. F. C. Brown to The Secretary for Railways.

Dear Sir,

Australian Chambers, Queen-street, Brisbane, 17 September, 1887.

I am in receipt of your letter, 87-3,081, having reference to Elieson's Patent Electric Tram Motors, and in reply thereto have the honor to state that there would be no difficulty in building these motors to comply with the prescribed tests and conditions. I am of opinion, however, that it would be desirable to slightly increase the weight of the motor above 8 tons to ensure sufficient adhesion to rails in greasy weather, and for this purpose only since the requisite power can be electrically obtained on even less weight. I shall be glad to wait on the Commissioner at any time for the purpose of further discussing this matter, and shall be greatly obliged if favoured with an early interview.

I may add that I have been accorded several interviews with the Hon. Sir Henry Parkes, K.C.M.G., on this subject, and at the last he was glad enough to inform me that he had placed my proposals before the Cabinet, and that they had been favourably entertained.

I have, &c.,

FRED. C. BROWN.

Inform that all questions affecting the use of electricity are reported upon for the information and guidance of this Department by the Superintendent of Electric Telegraphs, and therefore I think it would better serve his purpose if he were to place himself in communication with Mr. Cracknell, to whom his letter has been forwarded.—CH. A. G., 23/9/87.

Mr. Brown informed.—R. D., 28/9/87. The Superintendent of Electric Telegraphs, B. C., 28/9/87. Urgent.

No. 48.

The Secretary for Railways to Mr. F. C. Brown.

Sir, Department of Railways, 28 September, 1887.

With reference to your letter of the 17th instant, further respecting the subject of electric tram motors, I have the honor, by direction of the Commissioner for Railways, to inform you that all questions affecting the use of electricity are reported upon for the information and guidance of this Department by the Superintendent of Electric Telegraphs, and he thinks, therefore, that it would better serve your purpose if you were to place yourself in communication with Mr. Cracknell, to whom your letter has been forwarded.

I have, &c.,

D. VERNON,

Secretary of Railways.

No. 49.

Ganz & Co. to The Superintendent of Telegraphs.

Imperial Chambers, 77, Collins-street West,
Melbourne, 27 October, 1887.

Sir,

Your favour of the 18th instant came duly to hand.

It is our intention to submit to you description of our system of electric tramways, together with prices, and for this purpose we would like to have all particulars of what is wanted to send them to our head office, where all estimates for such work are being prepared.

We have, &c.,

GANZ & CO.

Previous papers. The Department have not any proposals to make.—E. C., 31/10/87.

Copy of Reply.

1 November, 1887.

In reply to your letter of 27th ultimo, I have the honor to inform you that it will be better for the proposals having reference to electric tramways to emanate from your firm.

I do not think that it is the intention of the Government to make any proposals in that direction, but I have no doubt that the most careful consideration will be given to any plan put forward by you for the introduction of electric tramways to this Colony.

I have, &c.,

E. C. CRACKNELL.

No. 50.

Ganz & Co. to The Commissioner for Railways.

Sir, Imperial Chambers, 77 Collins-street, Melbourne, 22 September, 1887.

Having noticed that it is the intention of your Government to construct an electric tramway, we have the honor to inform you that we would like to submit estimates for the necessary plant if this intention is to be carried out. To enable us to prepare estimates we would require plans and specifications.

The system we are offering has received the highest award at the International Exhibition at Antwerp, and is undoubtedly the best which has up to date been brought out in Europe. There is at present an electric tramway on this system being constructed in Budapest in consequence of the trials which were made being very satisfactory.

Should our offer be eventually accepted, fullest guarantees would be given with regard to efficiency, &c.

Awaiting the favour of your reply,

We have, &c.,

GANZ & CO.

Shall this gentleman be referred to Mr. Cracknell in the same way that Mr. Brown was recently so referred by the Commissioner?—A. R., 28/9/87. I should like to see papers. I do not think the cases can be identical.—CH. A. G., 28/9/87.

I do not think it necessary to refer this gentleman to Mr. Cracknell, as his proposal refers to a system which seems to be well known, and no doubt the Superintendent of Telegraphs is acquainted with the system. But this paper may be forwarded to Mr. Cracknell, who will perhaps be good enough to favor me with his views in the matter.—CH. A. G., 5/10/87.

B. C., Mr. Cracknell to Ganz & Co.:—Your letter, under date of 22nd ultimo, addressed to Mr. Goodchap, having reference to the introduction of electric railways to this colony, has been referred by that gentleman to me, as all electric matters connected with the Government are placed in my hands. I shall be glad to receive any particulars of the system advocated by you, and to furnish you with any information in my power with regard to it.—E. C. C., 17/10/87.

No. 51.

LEGISLATIVE ASSEMBLY, TUESDAY, 11 OCTOBER, 1887.

- (6.) MR. CAMERON (for *Mr. Thompson*) asked the COLONIAL SECRETARY,—
- (1.) Have any offers been made to the Government for the supply of electric motors for tramway purposes?
 - (2.) If so, by whom, and at what price?
 - (3.) Has the Government any intention of purchasing any of these motors for trial?
 - (4.) If so, is it intended to call for tenders, even though the motors are intended to be used for experimental purposes only?

Sir HENRY PARKES answered,—The question of working the electric motors has arisen before the Government, and there have been some propositions made to us, but as yet the Government are not committed either to purchase or do anything else beyond granting permission to the owners of some of these motors to try them on our lines at their own expense.

No. 52.

Mr. L. Könneritz to The Commissioner for Railways.

Sir,

"St. Cloud," Glenmore Road, Paddington, Sydney, 17 October, 1887.

Referring to your communication of 10th August last, in connection with my letters of the 7th and 22nd of July, I have the honor to request information as to whether the firm I had in view when making the application would be allowed to pass the necessary conductors, such as telegraph wires, through the streets, also where the engines and machinery would have to be erected in the event of the Government fixing upon a particular section of the tramway system to be singled out for conducting the experiments, when I would respectfully request to be furnished with some details of the section, such as gradients, &c.

I have, &c.,

L. KÖNNERITZ.

Pending Cabinet decision as to electric motors being obtained, it will not be possible, I imagine, to answer these questions.—A.R., 19/10/87.

Inform that all information on the subject will be supplied to all applicants when the question is decided by the Government.—CH.A.G., 19/10/87.

Mr. Koermertz informed.—20/10/87.

No. 53.

The Secretary for Railways to Mr. L. Könneritz.

Sir,

Department of Railways, Sydney, 20 October, 1887.

In reply to your letter of the 17th instant, in which you ask whether, in the event of portion of the tramway system being selected for a trial of electrical motor-power, the person or firm conducting the experiment will be allowed to pass the necessary conductors (telegraph wires) through the streets, and further soliciting data as to length of the section, gradients, &c., I am desired by the Commissioner to inform you that full information on the subject will be supplied to all applicants when the question is decided by the Government.

I have, &c.,

A. RICHARDSON,

(For the Secretary for Railways).

No. 54.

Mr. W. Prince to The Secretary for Public Works.

Sir,

Dunedin, New Zealand, 6 October, 1887.

With reference to the trial of my electric tram-car, at which (from recent cablegrams from London) Sir Saul Samuel, with other Agents-General, was greatly pleased and convinced, I beg to say that I shall be happy to furnish you with any particulars and details if honored with a request to do so, and if furnished with some idea of the particulars needed.

I have, &c.,

WALTER PRINCE.

Please inform of conditions under which others interested have sent in offers.—J.S., 20/10/87.
Mr. Prince informed.—27/10/87.

No. 55.

The Secretary for Railways to Mr. W. Prince.

Sir,

Department of Railways, Sydney, 27 October, 1887.

I have the honor to acknowledge your letter of the 6th instant, relative to the recent trial in England of your electric tram-car, and in which you offer to furnish particulars of the invention.

In reply, I am desired by the Commissioner for Railways to inform you that no decision has been arrived at in regard to the adoption of electricity as a motive-power; but as soon as a determination has arrived at you will be allowed the same facility for demonstrating on our tram lines the merits of the system you represent as other patentees will be.

I have, &c.,

A. RICHARDSON,

(For the Secretary of Railways).

No. 56.

No. 56.

Mr. B. James to The Secretary for Public Works.

EXTRACT from Commissioner's 88-1038, letter signed Benjamin James, of the Anglo-Australian Investment Finance and Land Company, Limited, 24, Hunter-street, city, dated 9 January, 1888.

* * * * *

Electric Tramways, Denver.

A "SERIES" system, which is claimed as the only principle that promises permanent reliable success as an electric motive-power.

The invention of Professor Short, of Denver University, and John W. Nesmith.

The patents number twenty, and are the property of the United States Electric Company.

The first car ran 1st July, 1866, and is now the longest electric railway in successful and regular operation in the world. From my observation the working is not satisfactory.

BENJAMIN JAMES.

Of what use is this—does Mr. James propose to move in the matter? Where is his letter?—A.R., 20/1/88. His letter. Commissioner's 88-1038 sent up-stairs for a letter to be written yesterday.—J.T.W., 20/1/88.

Sir,

Department of Railways, Sydney, 20 January, 1888.

I have the honor, by direction of the Honorable the Minister for Public Works, to acknowledge the receipt of your letter of the 9th instant, on the subject of railway and tramway communication in America, and to convey to you his thanks for the information afforded.

I have, &c.,

D. VERNON,

(Pro Commissioner for Railways).

Benjamin James, Esq., Anglo-Australian Investment Co.,
24, Hunter-street, city.

No. 57.

Mr. E. Pritchard to The Commissioner for Railways.

Dear sir,

Sydney, 10, Victoria Chambers, Castlereagh-street, 18 February, 1888.

Will you kindly let me know when I can have an interview with you. If you will appoint any day but Monday next, 20th instant, I shall wait upon you.

Yours, &c.,

E. PRITCHARD.

Will see Mr. Pritchard on Friday morning at 11.30.—C.A.G., 23/2/88. Write to-day.—A.R., 23/2/88. Done, 23/2/88. I have seen Mr. Pritchard.—C.A.G., 24/2/88. He will have his electric cars ready in a short time.

No. 58.

Mr. H. Craig to The Secretary for Railways.

California Branch.

New Zealand Fire and Marine Insurance Company of Auckland, New Zealand.

Dear sir,

San Francisco, 12 January, 1888.

I have had occasion to make some inquiries recently for friends in New Zealand as to the practicability of using electricity as motive-power for street railroads, in place of horse-power and cables.

In the course of my inquiries I have received a report from Mr. F. M. Speed, the patentee of the telpherage electric-railway system. It has occurred to me that possibly you may be making inquiries towards changing your Sydney street-car system from steam to electricity, and that the information obtained by me may be of service to you. With that in view, I have the honor to enclose a copy of Mr. Speed's report to me, and will also send diagrams which will make the matter more clear; and am authorized by Mr. Speed to say that in the event of your entertaining the matter favourably he would be prepared to proceed to Sydney, at your expense, and remain there at a salary of £1,000 per annum, and construct for you an experimental road of 1 mile in length, showing the advantages of his system, and its ability to do what he claims, and sell to you the right to construct a road at a royalty of £100 per mile. He stated to me recently that on close comparison of the power conveyed to the cars by his system and that by storage batteries he shows that the direct current as applied by him gives 32% against 16% furnished by the storage system, and that comparing power obtained from electricity with that by steam cable the percentage is as follows:—In Chicago, 18½% of the power conveyed to the movement of the car; in San Francisco, 32% by the most improved cable process, against 54% shown to be available by the telpherage system for the movement of cars. I am requested by Mr. Speed to ask you to consider this information confidential, and that it may not be used for the purpose of obtaining patents in the Colony of New South Wales, which he may at some future time feel disposed to make application for. I shall be glad at all times to serve you in this matter, and refer you to the Manager, in Sydney, of the New Zealand Insurance Company; the Manager of the New Zealand Loan and Mercantile Agency Company; Messrs. Amos and Taylor, railway contractors; Mr. Griffin, United States Consul.

Yours, &c.,

HUGH CRAIG,

Manager.

Telpherage Electric Railway Co., San Francisco, California, U.S.A.

Series System.—Speed & Jenkins' Patents.—Diagram of Circuit.

THE conductor on channel irons (shown in cross-section G.H.I.J.), placed in a conduit between the rails, in the relative position shown, and correspond to the line G.H.I.J. of the diagram below.

A is the dynamo for generating the current which operates the motor on cars CC.

B

B is the dynamo for generating the current operating the electro-magnetic switches for bringing the cars in series.

FF are electro-magnets with armatures and closing points pp $p'p'$ and c .

EE are the collector brushes, connecting the motors on the cars CC with the conductors, as the cars travel along the road.

The operation is as follows :—

- 1st. When no cars are on the road the current from the dynamo B passes by the conductor I through the coils of the electro-magnets FF and C (them, and drawing down their armatures closes the points pp $p'p'$ $p''p''$ and c) and then by return wire L in a single back road. The current from the dynamo A passes by the conductor G through the closed points of the switches PP and C by return wire K.
- 2nd. When there are two cars on the road the metal plate D of the collector establishes a shunt around the electro-magnets FF, the armatures are drawn up by the springs, and the points $p'p'$ and $p''p''$ are opened. Then the current from dynamo A will pass through the motors on the cars CC in series.

1.

The question of a more economical and acceptable method of street-car propulsion is agitating street-railway Companies in this country to an extent which clearly indicates thorough dissatisfaction with animal power, and timid reluctance to adopt cable. Gas, soda, and compressed-air engines are no longer considered. As between electric power and cables the issue is indirect. In some cases, where the traffic is congested, as on the Market-street lines of this city, and in cases where the grades exceed 7 per cent., the cable is supreme. Experience teaches that more than ordinary foresight and judgment is required to certainly foretell where cable will be remunerative. It is evident that there must be a certain initial amount of travel, as the cost of running a cable is the same for one car as for any greater number. Climatic conditions must be considered, as the cost of running the cable and maintaining the integrity of the slot varies very materially. For instance, the average absorption of engine-power on all the cable lines of this city, San Francisco (Hanscom's report), is 68 per cent.; in Kansas city, 75 per cent.; in Chicago, 81½ per cent. Here and in Chicago the cable lines are paying, while in Philadelphia, having three times greater population than San Francisco, they are reported to be losing money.

I am not arguing for or against cable roads. The above facts are given to emphasize the statement that there is an increasing hope and belief that electricity can perform better service than animals, and equal service to cables, at less cost.

It must be admitted, however, at the outset, that as yet no more than a few cars have been moved simultaneously on either electrical system, not, as electricians firmly believe and assert, that it is impossible or impracticable to do so, but solely for the reason that capital prefers waiting the outcome of smaller undertakings. This much can be specifically and certainly asserted, that electric railways have demonstrated their ability, beyond a doubt, to propel a few cars, heavily loaded, on steeper grade, at less cost and at greater speed than on railways worked by horses. The following roads, in daily operation, give incontestible evidence of the truth of this :—

2.

Location.	Miles.	Cars.	Power.	Cost of power per day of eighteen hours.
Windsor, Ont.	2	2	Steam	\$4
Detroit, Mich.	2	8	Steam	6
Appleton, Wis.	5	5	Water	4.50
Port Huron, Mich.	5	5	Natural gas	2
Binghampton, N.Y.	5½	6	Steam	10
Lima, Ohio	4	6	Steam	4
St. Catharine, Ont.	6	6	Water	3
Montgomery, Ala.	13	18	Steam	4
Baltimore, Md.	5	3	Steam	1.80 per day per car.

This list does not comprise all the electric railroads in operation in this country; but similar data of those not mentioned is not at hand. A road under construction in Richmond, Virginia, is to have forty cars. Three electrical cars are equal in service to four horse cars.

Though the greatest number of cars on any of the roads given is eighteen, it does not follow that the number is limited by inability to run more if warranted by the traffic.

The electrical and mechanical principles would be the same for a large as a small number. It is a question of first cost. About one half the cost of a first-class cable road would equip an electrical road with suitably arranged boilers and engines, duplicate dynamos and electric conductors to handle an equal traffic with as little probability of interruption.

There are two general methods of application :—

- 1st. By overhead wires supported on poles at short intervals. The poles and arms, derisively called gibbit, are unsightly, in fact inadmissible in the streets of a city, though available in small towns and on suburban lines. This method is used more than any other because it is cheaper for one thing, and the certainty of maintaining insulation without special attention. The conductors and supports cost from \$1,000 to \$1,500 per mile.

- 2nd. Conduits similar in construction and outward appearance to cable railways, containing electrical conductors connected with the car above through the slot.

An iron conduit of sufficient strength to withstand heavy vehicle traffic costs in San Francisco about per mile laid (in addition to track and paving).

3.

The only serious argument against the conduit system is the extra cost and the extreme care necessary to insulate the conductors. From ignorance of the subject and disinclination to incur the necessary expense to perfect and protect the insulation, several conduit roads have not been successful, notably one in Denver, Col. One of the very first conduit roads ever put down was the Blackpool, England, which is carrying 42,000 passengers per week at a cost of £45 (at 1d. each £175).

The

The transmission of electric energy from one source to a number of motors in the same circuit, each working independently, may be made on the parallel or series system.

In parallel the electro-motive force or pressure between the positive and negative conductors must be kept constant, the passing current being divided between all the motors at work.

In series the current in the conductors must be kept constant, and the pressure increased as the number of motors at work is increased, the passing current, traversing each motor at work. At constant pressure the weight of the conductors increases almost as the square of the current, so that to distribute electrical energy over any considerable area, or in other words operate a number of motors at considerable distances from the dynamo, it is absolutely essential to work at high pressure, otherwise the cost of the conductors will be inadmissibly large.

It is the prevailing delusion with electric companies that to gain public confidence they must offer a system. I know of no such thing, correctly speaking, as an electrical system except as above stated. Separate from these two methods of electrical transmission all the rest is good engineering. Success depends very much upon the men who plan and carry out the work.

The efforts of this company have been directed to the perfection of the details of a series high pressure system, having as a basis the patents of the late Fleming Jenkins, of Edinburgh, Scotland. We have devised practical electrical and mechanical means of carrying out his inventions from the point where he left them incomplete. All our trials on a road laid down for the purpose have convinced us that the directions indicated by him was the correct path to success.

We have gone further than any of our predecessors in securing insulation of conductor, and provision for the care of them in conduits.

This of course involves a greater outlay; the accompanying drawings show the form of the conduit and one method of laying in connection with the track. These general features may be varied subject to the conditions of the locality where put down. They show an iron tie which is an extension of the castings supporting the channel irons and conductors. Evidently the ties may be of wood and the rails laid on stringers in the usual form if preferred. Proper drainage of the channel-way must be maintained, a matter of no difficulty where access can be had to sewerage; experience proving that a small channel-way with frequent openings will answer.

I have here given a fair statement of the present condition of electrical railways. The number of electrical roads in the United States is increasing faster than any other kind, except those operated by horses, showing that confidence in them is well established. We are making motors of 30-horse power, under guarantees of commercial efficiency of 84 per cent. and actually attaining 90 per cent. For smaller sizes the efficiency is somewhat less; but we know that with a steam-engine of 100-horse power, driving a generating dynamo, we can deliver within a radius of 2 miles an aggregate of 60-horse power at six or sixty different points. This much being certain of accomplishment it remains only to perfect the mechanical details of application to ensure a like result in railway propulsion.

We are confident of having already done this, and unhesitatingly stand ready to equip a road of any magnitude when the opportunity presents itself.

Our trial line in Oakland was operated for some months. With the experience gained of the value and practicability of our appliances we know of no reason why we should not accomplish in every day service all that we promise.

I enclose drawing showing cross section of conduit. The Stevenson cars can be adapted to electric motors without material alteration.

We cannot furnish exact estimates of cost of construction and operation without full particulars of the road. We will require a map and profile of the route, plans of existing roads, size, weight and carrying capacity of cars, location of power station, contemplated extensions, present maximum number of cars and passengers at any hour of the day, and probable increase due to extension of the line. Having these presumably it would be preferably to submit plans to English manufacturers for estimates.

F. M. SPEED,

General Manager for the Telphorage Railway Company,
No. 405, Montgomery-street, San Francisco.

This is not being recorded because it is marked confidential.—A. R., 10/2/88.

Acknowledge receipt with thanks. Say that we shall be glad to get plans, &c., and he may rely upon no advantage being taken in regard to patent rights, &c. Say that we do not, owing to electricity as applied as a motive power for tramways, being in the experimental or initial stage, offer any inducement to patentees and others to bring their appliances to this Colony beyond this, that if they bring them at their own expense and demonstrate to us that electrical power for tramway working is the best system to adopt—for which purpose trials on the Government lines are given free of charge—we should be prepared to take the best of such systems. Add that on these terms persons interested have recently imported appliances to test the Julian system of working tramways by electricity, and a test of them will shortly be made. With regard to the statement that electric power cannot be made effective on 7 per cent. grades, or (say) 1 in 15, although none of our present grades are so steep, the steepest being 1 in 17, still there are some parts of the City requiring Tramway accommodation where the grades are 1 in 9 for a short distance. Our tramways are present worked by steam (30 miles). We have a short line, not 2 miles in length, worked by the cable; and there is to be a change in the system, the majority at present favouring cable lines, because the power of electricity, as applied to Tramway working, is not so established as to justify its adoption without further proof of its efficacy.—C.H.A.G., 10/2/88.

Mr. Craig written.—20/2/88. Put with other papers on the subject of electric tramways.—20/2/88.

No. 59.

The Commissioner for Railways to Mr. H. Craig.

Sir,

Department of Railways, Sydney, 20 February, 1888.

I have the honor to acknowledge your letter of the 12th ultimo, enclosing copy of Mr. Speed's Report on the Telphorage Railway System, and offering to furnish diagrams to make the matter more clear.

In conveying to you my thanks for your thoughtful attention, I may say that I shall be glad to receive the plans referred to, and you may rely upon no advantage being taken in regard to patent rights.

We

We do not, owing to electricity as applied as a motive power for tramways being in the experimental or initial stage, offer any inducement to patentees and others to bring their appliances to this Colony, beyond this, that if they bring them at their own expense and demonstrate to us that electrical power for tramway working is the best system to adopt—for which purpose trials on the Government lines will be given free of charge—we should be prepared to take the best of such systems. On these terms, persons interested have recently imported appliances to test the Julian system of electricity, and a test of them will shortly be made.

With regard to the statement that electric power cannot be made effectual on 7 per cent., or (say) 1 in 15 grades, although none of our present grades are so steep, the steepest grade being 1 in 17, still there are some parts of the City requiring Tramway accommodation where the grades are 1 in 9 for a short distance. Our Tramways are at present worked by steam (30 miles). We have a short line, not 2 miles in length, worked by the cable, and there is to be a change in the system, the majority at present favouring cable lines, because the power of electricity as applied to tramway working is not so established as to justify its adoption without further proof of its efficiency.

I have, &c.,
CHAS. A. GOODCHAP,
Commissioner for Railways.

No. 60.

Messrs. Stokes & Morris to The Secretary for Public Works.

Sir,

Jamieson-street, Sydney, 17th January, 1888.

On the 24th March last we had the honor, on behalf of Mr. A. S. Hallidie, of San Francisco, to submit to you, for the consideration of the Government, certain propositions for the purchase or lease of the whole tramway system. To these propositions we are as yet without reply.

As we are anxious to write to Mr. Hallidie on the subject, we would be glad if you can inform us if there is a probability of the propositions made by us, or which may be made by others, being entertained by the Government; or if, in the event of the Government determining to sell or lease the tramway system, public competition will be invited.

We have, &c.,
CHAS. H. STOKES,
AUGUSTUS MORRIS,
Attorneys for A. S. Hallidie.

Please inform that the whole matter is having consideration, but nothing definite has been decided.—
J.S., 19/1/88. Messrs. Stokes & Morris informed, 21/1/88.

No. 61.

Mr. W. H. Jennings to The Secretary for Public Works.

Dear Sir,

Barker-street, opposite Barker-street,
Sydney, N.S.W., 8 February, 1888.

In reference to the expressed intention of the Government to sell or lease the present lines of Tramways in Sydney, may I request that when the terms and conditions are fully matured you will favour me with an early copy of same. I have the patent in my possession for the latest and most approved system of cable trams, and purpose making an offer for either purchase or lease of same.

I have, &c.,
W. H. JENNINGS.

Please acknowledge and put with papers.—J.S., 8/2/88.

No. 62.

Mr. M. Bury to The Secretary for Public Works.

Sir,

Box 899, General Post Office, Sydney, 22 February, 1888.

On the 8th of last May I had the honor, on behalf of myself and others, of addressing you on the subject of the Sydney trams, and enclosing in that letter certain proposals with reference to leasing or purchasing the same. On the 28th of June I again addressed you on the subject. We now learn through the public press that the Government contemplate making some change in the working of the Trams. Should such be the case, I beg to say that my syndicate are still prepared to treat with the Government on the basis of the proposals referred to. I addressed the Hons. F. A. Wright, W. J. Lyne, and Garrard during their terms of office on the subject of working the trams, and requested to be allowed to lay the peculiar features and requirements of the Sydney trams before my friends in New York, who are experts in tramway construction and management. If your Government apprehend difficulties in the way of leasing the Trams, I ask, through you, their consent to allow my friends in America to make an independent and impartial report on the whole question, for I am assured that, on my laying before them full particulars, and otherwise making them conversant with the present condition of the traffic, together with the existing wants and future requirements of the service, they will submit a full, comprehensive, and satisfactory scheme for overtaking the traffic and working the trams, and will also supply correct plans and estimates for any new work that they might consider necessary, either for cables, electric, or steam motors, or a combination of all those systems. They would also provide the Government with experienced and efficient traffic managers, who would give satisfaction to the Government and make the Trams pay if the alterations they might make were carried out.

I have, &c.,
MAXWELL BURY.

Please acknowledge and put with papers.—J.S., 22/2/88.

No. 63.

Minute by The Commissioner for Railways.

Electric Cars for Tramways.

MR. CRACKNELL, the Superintendent of Telegraphs, wishes to bring under the notice of the Minister, some electric cars for the Tramways, two or more of which he wishes to import for trial on these lines.

He would be glad if the Minister would appoint some day this week to see him, with plan and descriptions.

CHAS. A. G., 15/8/87.

I will see him on Tuesday, after lunch.—J.S., 27/8/87. Mr. Cracknell informed.—D.C.M'L., 29/8/87. Mr. Cracknell is at present out of town and will not return for ten days.—D.C.M'L., 29/8/87. In ten days.—A.R., 30/8/87. Mr. Cracknell had an interview with the Minister to-day, and he is to submit a proposal.—CHAS. A. G., 10/9/87. Resubmit with proposal. Proposal not yet received in records.—16/9/87. Since registered and sent on to Minister. Attach on return.—A.R., 16/9/87.

Minute by The Superintendent of Telegraphs.

I HAD the honor to submit to you in November, 1886, a report on Electrical Tramways, which, in my opinion, could be worked with great advantage on the existing tramway lines in this Colony. I now add some further information, which will serve to show that tramways, driven by electrical power, are now a pronounced success, both in Europe and America; and so far as I have been able to gather from authentic statistics, I believe would prove more economical in the working expenses per tram mile than the existing system here. The efficiency of tramways operated by electricity being thus placed beyond a doubt, the only question to be determined is, which system is the best adapted for this Colony. Whether the system which is based upon the production of the current by fixed dynamos at the end of the line and transmitted by means of the rails to the motor on the car, or that system which provides for accumulators to be carried in the cars.

It will be seen by the accompanying reports that I have dealt fully with each of these systems; the "Spragne" and other trials representing the former, and the "Reckengaum," at Antwerp experiments, representing the latter.

In view of the fact that by the adoption of the accumulator (storage) system the necessity for any alteration in the rails is obviated, I cannot but think that this system is the better one for use here, and as the "Reckengaum" system has now passed its experimental stage, I recommend that say eight or ten cars be ordered from the company at say £1,100 per car complete for the road, including steam engines, boilers, dynamos, motors, gearing and accumulators, fixings &c., and contingencies.

It may be added that the light cars might be admirably adapted for the smaller traffic during the middle of the day in the City.

There is a lighter car than the one I have recommended which could be obtained at a cost of £835, but I consider this too small for the requirements of the Colony.

E. CRACKNELL, 13/9/87.

The Commissioner for Railways.

Minute by The Superintendent of Telegraphs.

November, 1886.

I THINK I cannot do better in this direction than submit the following *resumé* of the competition carried out at the late International Exhibition at Antwerp, between different forms of mechanical motors on tramways for use in towns, &c.

The experiments were made on a specially constructed line 2,795 metres (2 miles 1,500 yards) long. Of this 2,295 metres were in a straight line, 189 metres in curves of $1\frac{3}{4}$ chains radius, and 313 metres in curves of one chain radius.

The experiments lasted four months, and there were five competitors. Of these, three systems were based on the direct action of steam, the "Krauss" locomotive, separate from the carriage; the "Wilkinson" locomotive, also separate from the carriage; and the "Rowan" engine and carriage combined. The fourth was the "Beaumont" compressed air engine, and the last a single electrical car.

A regular service was established according to a fixed time-table, to which each motor was required to conform.

The speed was fixed at about 9 miles an hour, and the motors were required to work four days out of six, and on one of the four days to draw a supplementary carriage.

In the electrical car the haulage was effected by means of accumulators, of which there were thirty-six, having a total weight of 1,584 lb. The process of charging occupied twelve hours, and, when complete, the batteries were able to work for fifteen hours and drive the car 46 miles, not counting stoppages.

The accumulators actuated a Siemens dynamo, having a normal speed of 1,000 revolutions, fixed on the frame of the carriage. The motion was conveyed from the pulley on the dynamo by means of a belt passing round a shaft fixed on moveable bearings; to regulate its tension, and thence to the axles by means of a flat chain of phosphor bronze. The chain was adopted as the means of moving the axles on account of its simplicity and facility of repair by unskilled labour.

The speed—about 9 miles an hour—was regulated by cutting out a certain number of accumulators. By breaking the circuit entirely the motive power ceased, and the vehicle might either be stopped by the brakes or allowed to run forward by gravity if the road were sufficiently inclined. The reversal of the motor was effected by means of a lever which reversed the position of the brushes of the dynamo. The dynamo could be set in motion and the carriage worked from either end as desired.

The weight of the tram-car was 5,654 lb.; the weight of the accumulators, 1,584 lb.; the weight of the machinery, including the dynamo, 1,232 lb. The car contained room for fourteen persons inside and twenty outside.

It was found that from 35 to 40 per cent. of the work given out by the steam engine must be taken as the utmost useful effect on the rail. It was estimated that to draw the carriage on the level 714-horse power was required, or if a second carriage were attached 848-horse power would draw the two together. This would mean that (say) 2-horse power on the fixed engine would be employed to create the electricity for producing the energy required to draw the carriage on the level. The

The electrical tram-car was quite equal in speed to those driven by steam or by compressed air, and was marked by its noiselessness and by the ease with which it was manipulated.

The original programme of the conditions which were laid down as those upon which the adjudication of merit would be awarded contained twenty heads, to each of which a certain value was attached, and in addition to these special heads there was also to be weighed the following general considerations, viz. :—

(a). The defects or inconveniences established in the course of the trials. (b). The necessity or otherwise of turning the motor or the carriage with the motor at the termini. (c). Whether one or two men would be required for the management of the engine.

As regards these preliminary points the compressed air motor, as well as the Rowan engine, required to be turned for the return journey, whereas the other motors could run in either direction.

In regard to this the electrical car was peculiarly manageable as it moved in either direction; the handle by which it was worked was always in front close to the brake.

All the motors were managed by one man.

The several conditions of the programme may be conveniently classified in three groups under the letters A, B, C.

The conditions under "A" were :—

- (1). Absence of steam.
- (2). Absence of smoke and cinders.
- (3). Absence, more or less complete, of noise.
- (4). Elegance of aspect.
- (5). The facility with which the motor can be separated from the carriage itself.
- (6). Capacity of the brake for acting upon the greatest possible number of wheels of the vehicle or vehicles.
- (7). The degree to which the outside covering of the motor conceals the machinery from the public, whilst allowing it to be visible and accessible to the engineer.
- (8). Facility of communication between the engineer and the conductor of the train.

In deciding upon the relative merits of the motors under these eight points, the electrical car, except possibly, as regards No. 3, surpassed all others.

Under letter "B" considerations of maintenance and construction are classed.

- (9.) Protection of the machinery against the action of dust and mud.
- (10.) Regularity and smoothness of motion.
- (11.) Capacity for passing over curves of small radius.
- (12.) The simplest and most rational construction.
- (13.) Facility for inspecting and cleaning the interior of the boilers.
- (14.) Dead weight of the train compared with the number of places.
- (15.) Effective power of traction when the carriages are completely full.
- (16.) Rapidity with which the motor can be taken out of the shed and made ready for running.
- (17.) The longest daily service without stops, other than those compatible with the requirements of the service.
- (18.) Cost of maintenance per kilometre.

It was assumed that, for the purpose of this sub-heading, the motor or carriage which gave the best results under the conditions relating to the paragraphs 9, 10, 12, and 13 would be least costly for repairs.

As regards the first of these, viz., protection of the machinery against dirt, the electrical car had no protection. It was not found in the experiments at Antwerp that inconvenience resulted from this; but it is a question whether in very dry localities, and especially in a locality where there is metallic dust, the absence of protection might not entail serious difficulties.

In respect of the smoothness of motion and facility of passing curves, the cars did not present any material differences.

In the case of simplicity of construction, it is evident that the simplest and most rational construction is that of a car which depends on itself for its movement, which can move in either direction with equal facility, which can be applied to any existing tramway without expense for altering the road, and the use of which will not throw out of employment vehicles already used on the lines. The electric car fulfilled this condition best, as also the condition numbered 13, as it possessed no boiler.

In respect to No. 14, viz. : The ratio of the dead weight of the train to passengers, if we assume 154 lb. as the average weight per passenger. The following is the result as regards the three cars in which the power formed part of the car :—

Electric car	$\frac{9,350 \text{ lb.}}{154 \times 34} = 1.78$
Rowan	$\frac{15,950 \text{ lb.}}{154 \times 34} = 2.30$
Compressed air	$\frac{22,000 \text{ lb.}}{154 \times 34} = 2.55$

The detached engines gave, of course, less favourable results under this head.

Under head No. 15 it was found that the tractive power of all the motors was sufficient; but, as the line was practically level, this question could only be resolved theoretically, and the table given before affords all the necessary data for theoretical calculation.

As regards the rapidity with which the motors could be brought into use from standing in the shed, the electrical car took place No. 1, followed by the compressed air engine.

The result under No. 17, viz., the fewest interruptions to the daily service, class the motors thus :—

Krauss
Electric
Rowan
Wilkinson
Compensation.

Under letter "C" are classed considerations of economy in the consumption of materials used for generating the power necessary for working.

Description of Motor.	Total number of Train Miles run.	Total Consumption of Fuel.	No. of lb. per Train Mile.
Electric	2,358.9	14,786 lb.	6.16
Rowan	2,616.9	14,498 "	5.42
Wilkinson	2,473.3	22,000 "	8.82
Krauss	2,457.8	22,726 "	9.10
Compressed air	2,259.1	90,420 "	39.48

Description of Motor.	No. of places indicated on the cars per mile run.	Consumption of Fuel.	No. of lb. of Fuel consumed per places indicated per mile run.
Electric	80,203.5	14,786 lb.	.18
Rowan	148,399.6	14,498 "	.09
Wilkinson	119,085.1	22,000 "	.18
Krauss	108,983.9	22,726 "	.20
Compressed air	128,189.3	90,420 "	.69

Description of Motor.	No. of Seats per mile run.	Consumption of Fuel.	No. of lb. of Fuel consumed per seat per mile run.
Electric	61,591.2	14,786 lb.	.23
Rowan	135,928.8	14,498 "	.10
Wilkinson	93,965.6	22,000 "	.23
Krauss	86,039.9	22,726 "	.25
Condensed air	132,732.7	90,420 "	.66

19. Minimum consumption of fuel (either coke or coal) in proportion to the number of kilometres run, and to the number of places, assuming for the seats a width of at least 16 inches for each person seated.

The conditions of the competition required that a second car should be periodically drawn by the motor. The above calculations include the total number of miles run, the total amount of fuel, &c., consumed, and the total number of passengers which could be conveyed by each motor during the total time that the experiments were being carried on.

As regards the figures in these tables, it is to be observed that the consumption of fuel for the electric car is to a certain extent an estimate, because the engine also supplied electricity for electric lights as well as for an experimental motor which was running on the lines of tramway, but was not brought into competition.

20. Minimum consumption of oil, or grease, tallow, &c. (The same condition as No. 19.)

Description of Motor.	Total number of miles run.	Total consumption of Oil, Tallow, &c.	Consumption of Oil, Tallow, &c., per train mile run.
Electric	2,358.9	99.0 lb.	.038
Rowan	2,616.9	106.7 "	.038
Krauss	2,457.8	188.5 "	.073
Wilkinson	2,473.3	255.4 "	.101
Compressed Air	2,259.1	585.2 "	.255

Of the electrical tramways already running in different parts of the world the Porttrust Giant's Causeway Line may perhaps be regarded as the most important. This line is 6 miles long, the gauge is 3 feet, the curves are very sharp, and the gradients as follows, viz., 1 in 44, 1 in 40, 1 in 33, 1 in 35, 1 in 30, and 1 in 45. The cars carry twenty persons each. Prior to the turbines being finished the dynamos were temporarily driven by a steam-engine. To provide the necessary force to propel the electrical car drawing a second carriage behind it 18 lb. of coke per mile were consumed on a 312-miles trial.

Then there is the Baltimore-Cleveland Line, where the electrical car hauls a full car 4 miles in twenty-five minutes, mostly up hill, and some of it steep. It has been calculated that the annual saving of electrical over horse power is 72,000 dollars, and of electricity over cables 40,000 dollars.

In the Bessbrook to Newry (Ireland) line the motive power is produced by electricity created by stationary dynamos driven by a turbine. A maximum speed of 15 miles an hour is easily attained. The gross load carried is 26 tons, the electrical loco. weighing 8 tons, and capable of carrying thirty-four persons. This load can be brought up inclines averaging 1 in 85 at 7 miles an hour, and can be started at any point of the line, even where there is a gradient of 1 in 50.

The Blackpool Tramway, worked by electricity, is a pronounced success, and has been leased to a Company, which will pay the Corporation 6½ per cent. on the total outlay, besides keeping the roadway over which the line passes in repair.

The

The Brighton Electric Railway has also been very successful, and during the six months ending February, 1885, the distance run by the cars amounted to 15,600 miles, and 200,000 passengers were carried, the total cost of traction being less than two pence a mile.

It will not be necessary to refer to the tramways of Berlin and Brussels, as they are well-known and successful systems.

Dr. Siemens, F.R.S., in a paper published in the Electrical Review of 1 September, 1883, says:—"The advantages of electrical propulsion are that the weight of the engine, so destructive of power and of the plant itself in starting and stopping, will be saved, and perfect immunity from the products of combustion will be ensured. For tramways within populous districts it will be more advantageous to resort to accumulators forming a store of energy carried under the seats of the car itself, and working a dynamo connected with the moving wheels."

In conclusion, whilst electrical tramways are still going through the process of development, and will, as time goes on, be largely improved, yet, there can be no doubt, they are already sufficiently advanced to justify their introduction into this colony.

I have received the following telegram having reference to the electric cars of Mr. Reckenzaum, of Berlin, viz.:—"Reckenzaum willing supply eight electric cars within three months from date ordered, complete outfit consisting of dynamos, motors, accumulators, three sets each, switches, mountings, transmission gear, complete tramcar, £835, for one horse car carrying thirty persons; this is calculated for gradients one in fifteen. Two horse cars 30 per cent more. Price understood f.o.b., London.

I am of opinion that electric tramcars could be run here at a cost of about twelve pence per mile run.
29/11/86. E. C. CRACKNELL.

Subject of communication:—Some further remarks as to Electric Tramways.

SINCE the foregoing was written advices continue to be received of the increased development of electric tramways in various parts of the world, more particularly in America, where the Bently-Knight system and the system of Mr. F. J. Sprague have been very successfully operated. On the 28th December last some severe trials of the latter system were carried out in New York in the presence of a large number of railway authorities, and as a practical evidence of the applicability of electricity in this direction the following condensed account of the trials will be interesting:—

Before making the experiments Mr. Sprague explained that they would be run over the road making ordinary trips, then a variety of experiments would be performed, and finally the machines would be put to some severe and very exceptional strains. At about 8:30 p.m. the stations at the Second and Third Avenues were brilliantly illuminated with a large number of Edison lamps, the current for which was supplied from the same source as supplied power for operating the car. Connection was then made with the track, and immediately car No. 293, which was standing in a pocket, became brilliantly illuminated. The switches being thrown over, the car was rapidly run out of the pocket on to the siding and switched over to the main track. It was then run toward Third Avenue, while the regular engine and car, which had been on duty, was run off the main track on to the siding. The first trips were uneventful. The car was smoothly and easily run between the ferry and Third Avenue, sometimes stopping at the Second Avenue Station. At this latter point there is a 95-foot grade, which is the maximum grade that occurs at any station on the elevated railroad.

After several trips had been made Mr. Sprague began to show some of the exceptional possibilities of his method of handling a car, the first of these being the starting and stopping without shock or jar on the 95-foot grade at the Second Avenue station, the car being controlled solely by the motors, and without the use of any hand or shoe brakes whatever. After some running of this character the speed of the car was increased until, when it was running on the upper grades, it was moving at about 10 miles an hour, and occasionally, when coming on the down grade, Mr. Sprague would allow the car to run at about 18 or 19 miles an hour.

The track on which the experiments were made presents difficulties, not only in that the middle station is on a heavy grade, but that just above this station, between it and Third Avenue, there is a double curve, on which the car leaves the straight track and runs into the Third Avenue Station. The curve is likewise on a grade. Notwithstanding this fact, the car ran smoothly and easily on every part of the trip. On one trip, in coming down, Mr. Sprague stopped the car at the Second Avenue Station, and then allowed it to creep at variable speeds down to the lowest perceptible rate of motion—a movement so slow that it would almost have been feasible to have gotten off the car and cracked a nut under the wheels, removing it before the wheels passed over it.

Later in the evening the car was run rapidly past the Second Avenue Station on the down track, and between the station and the ferry was brought to a speed of about 21 miles, and while on the maximum down grade the car was suddenly slowed down and brought to a rapid sharp stop in a distance of about 120 feet. In another experiment the car was run rapidly up the grade, the current was shut off, and the car allowed to run backward, when it was immediately stopped and run forward again, solely under the operation of the current.

On several trials the time was taken from starting to stopping between the ferry and the Third Avenue Station, a distance of nearly a third of a mile, and taking in the 95-foot grade and the double grade. On the down grades the time averaged 1 minute 14 seconds, and on the up grades 1 minute 25 seconds. The speed of the car was timed on the grade going up by counting the beats of the track on the rails, and it was found to be running at 12 miles an hour, which is the normal rate of speed on the elevated road on a like grade.

Just before the close of the experiments some very sharp strains were put upon the motors. These consisted in braking the car to its full motor capacity, which was done in going down grade and at the ferry end of the station. With his regulating switch in one position, Mr. Sprague threw over the brake lever, and instantly the car was brought up sharply and suddenly, with such a rapid gradation that the wheels on the trucks "skidded" in rotation on the tracks, and the car stopped in a fraction of its own length. These experiments were repeatedly tried, Mr. Sprague feeling that since this was the last of the present set of experiments it mattered little if the machines were actually wrecked. He would at least, he said, find out what was in them.

Similar experiments were made at starting. The car, when standing at a dead rest at the ferry station, had the current suddenly given to it. There was an instant continuous "skidding" of the wheels, and the car actually jumped away from the station with such suddenness of acceleration as to nearly take a person off his feet.

The

The whole experiment was a great success in every way, notwithstanding the extraordinary character of some of the experiments, and the sudden and great strains which were put upon the apparatus, there was not a hitch of any description. The commutators of the machines at the close of the run were bright and clean, the gears were in perfect condition, and the whole apparatus was in proper shape for another run.

By way of supplementing the foregoing, and to bring the information down to the present time, I have made some extracts from a paper read by Mr. Reckenzaum before the Society of Arts, London, on the 20th April last.

Speaking of the Berlin Electrical Tramway, he says that the "cars although in continuous operation for a period of six years, have exhibited no signs of deterioration, and there have been no mishaps worth mentioning." He had not been able to ascertain the working expenses of the line, but they must be very low since the engines and dynamos are in the house which also contains the pumping machinery of the district waterworks. One engineer and one stoker attend to both the hydraulic and electrical apparatus—the same boiler serving both purposes—and these men find time to attend to minor repairs. About 100,000 passengers are carried annually.

Referring to the Brighton line he says that the motive power is a 12 h.-p. gas-engine placed at one end of the line, driving a Siemen's compound dynamo. The average distance made by each last year was 23,475 miles, and the expenses per car mile amounted to only 2d. The number of passengers last year averaged 8.51 per car mile, and the total expenses amounted to 55 per cent. of the gross receipts.

Mr. Reckenzaum proceeds to say that the line between Moedling and Hinterbruehl, in Austria, over 2 miles in length, has been running since 1884, at an average cost of 3.42d. per car mile, inclusive of every item of expense. The generating station is situated at the Moedling terminus; it contains three portable engines each 12 h.-p. (nominal) and six Siemen's compound dynamos. When two loaded cars are running *i.e.*, one electric car to which is attached an ordinary car, the indicated h.-p. of one engine varies between 12 and 20 h.-p. according to the position of the vehicles relatively to the line during the outward journey. The track is not an easy one. It consists almost entirely of curves with radii of from 60 feet and upwards; moreover the terminus at Hinterbrenhl lies 120 feet above that of Moedling; thus the line consists of a series of gradients so that for the outward journey a considerable amount of tractive power is necessary, whilst on the return journey the cars run almost entirely by the force of gravity. The average speed is 9½ miles an hour.

The Frankfort Offenbach line, 4 miles, has been in operation since April, 1884. Last year 990,233 passengers were conveyed, and 292,269 car miles were run at a cost of 3.83d. per mile, including the following items:—

Wages, salaries of directors, clerks, &c.	d.
Fuel, 7.54 lb.; coal per mile	2.23
Oil, waste, &c. ... ..	.65
Repairs of machinery, cars, and permanent way ... ..	.13
	.82

The Portrush and Benbrook Lines have both been referred to, in the earlier part of my paper on this subject, so that it will not be necessary to add anything further with regard to them beyond giving Mr. Reckenzaum's figures of the working costs, which he puts at 3d. per car mile for the former and 4d. for the latter. As, however, water power is used in both cases, they are perhaps not applicable to the circumstances of this Colony.

The Blackpool Line, 2 miles, is worked by two steam-engines, each 25 h.-p. (nominal), driving Elwell Parker dynamos. It is quite a successful line, and is run at a cost of about 4d. per car mile.

Amongst the tramways run by means of accumulators, that of Mr. Elieson appears to be coming into favour, and is likely to be the first electric tram system to be adopted in London.

In America great progress has been made, and I think the subjoined list, showing the number of electric railways now running and in course of construction in that country, will form an appropriate conclusion to this paper.

From *The Electrician*, July 1, 1887.
ELECTRIC RAILWAYS IN EUROPE, APRIL, 1887.

Place.	Length.	Motors and Motor Cars.	No. of Passengers.	Freight.	Total Expense of Operation.	Car Miles Run Yearly.	System of Conductors.	Prime Power.
Lichterfelde-Berlin, 1881.	1½ mile.....	2	100,000 yearly..	.....	.....	.....	All rail.....	Steam engine.
Brighton, 1883..	1 mile (single track).	2	1,000,000 total..	.....	1.92 pence per car mile.	46,950	do	Gas engine.
Moedling-Hinterbruehl, 1884.	2.8 miles (single track and sidings).	12	340,000 yearly..	.....	3.42 pence per car mile.	91,002	Overhead slotted tubes.	Steam engine.
Frankford - Offenbach, 1884.	4.1 miles (double track).	14	990,000 yearly..	.....	3.83 pence per car mile.	292,269	Overhead slotted tubes.	do
Zankerode (mine) 1882.	790 yds. (double track).	1 loco., 16 waggons.	.....	300 tons daily.	.77 penny per ton.	660 waggons daily.	Overhead inverted rails.	do
Hohenzollern (mine) 1884.	820 yds. (double track).	1 loco., 15 waggons.	.....	300 tons daily.	.5 penny per ton.	660 waggons daily.	do	Steam engine.
Portrush, 1883..	6 miles (single track)	4	Over 100,000 up to 1885.	.....	2½ pence per car mile.	.....	Third rail	Water power.
Besspool, 1885..	3 miles (single track.)	8	300,000 yearly..	30,000 tons yearly.	4 pence per tram per mile.	60,000 train miles yearly.	do	do
Blackpool, 1884	2 m. (single and double track.)	10	Over 1,000,000 total.	.....	Less than 4 pence per car mile.	.....	Conduit	Steam engine.
Brussels, 1887..	.....	5	.....	.....	.....	.....	Operated by storage batteries.	
Hamburg, 1886.	.....	2	.....	.....	.....	.....	do	

NEW ROADS.—A special charter has been granted by the Austrian Government for a road in the Austrian Alps, to cost about \$350,000, and to be 15 miles in length.

A road is being built in the great salt mines at Stassfurt, Germany.

The North Metropolitan Tramway Company in London has several motors now ready for use with storage batteries on its line, awaiting powers from Parliament

ELECTRIC RAILWAYS IN AMERICA, MAY, 1887.

Place.	Length.	Motors and Motor Cars.	No. of Passengers.	Freight.	Expense of Operation.	Car Miles Run.	System of Conductors.	Prime Power.
*Baltimore, Md., 1885.	2 miles, single track with turn outs.	6	200,000 yearly..	.....	\$4 per car per day.	Each motor runs 73 miles daily.	Third rail and overhead wire.	Steam engine
*Los Angeles, Cal., 1887.	3 miles, single and double.	8	200,000 yearly..	.....	.....	.....	Single and double overhead wire.	do
*Port Huron, Mich., 1885-6.	4 miles, single track.	8	275,000 yearly..	.....	.....	.....	Single overhead conductor.	do
*Windsor, Can., 1885.	Nearly 2 miles, single track.	2	200,000 yearly..	.....	\$4 per day for power.	64 miles each car per day.	do do	Steam power from electric light station.
*Highland Park, Detroit, Mich., 1886.	3/4 miles, single track.	2	200,000 yearly..	.....	80 cents per day for fuel.	Each runs 13 hours daily; capacity, 30 passengers; speed, 15 miles an hour.	Sunken central rail ..	Steam engine.
*Dix Road, Detroit, Mich., 1886.	1 1/2 mile, single track.	4	300,000 yearly..	.....	.....	The trains run from 6 a.m. to 11 p.m.	Double overhead conductor.	do
*Appleton, Wis., 1886.	4 1/2 miles, single track and double.	8	400,000 yearly..	.....	For power, wages of one man, as they own their own water power.	17 hours daily ..	Double overhead wire	Turbine within wheels
*Scranton, Pa., 1886.	3 1/2 miles, single track, four sidings.	3	300,000 yearly..	.....	\$9 per day for power, but are putting in their own engine.	Each car runs 85 miles per day.	Overhead wire	Steam-power from electric light station.
Denver, Col., 1886.	3 1/2 miles, single and double.	7	500,000 yearly..	.....	\$1.50 per day for fuel.	.....	Conduit for series system.	Steam engine.
Montgomery, Ala., 1885-6.	11 miles, single and double.	18	This ran two cars one year. Have just started other cars (1,000,000 yearly).	.....	Fifty per cent. less than horse and mule traction -- General Manager's report.	.....	Overhead conductor..	Steam engine.
†Kansas City, Mo.	.....	.....	.....	.....	.....	.....	.....	.....
Orange, N.J., 1887.	1/2 mile built.....	1	.....	.....	.....	.....	Overhead conductor..	do
Boston, Mass. (sugar refinery), 1887.	Short track within the works.	1 locomotive, 3 cars.	.....	..... †	.....	.....	do do ..	Operated from the lighting dynamo.

* Extending line or increasing rolling stock. † No specific details received, line not being yet in regular operation. ‡ The cars in constant use all day; the loads averaging 10 tons per trip, and each trip averaging 5 minutes.

NEW ROADS.—Electric railways are now in course of construction, or under contract, at Pittsburgh (3 roads); Los Angeles; Binghamton, N.Y., 4 1/2 miles, 8 motor cars; Lima, O., 3 miles, 6 cars; San Diego, Cal., 9 miles, 4 40 horse-power motor cars; Ansonia, Conn., 3 1/2 miles (water power); New York city (for Fulton-street); St. Joseph, Mo., 20 cars; Mansfield, O.; Ithaca, N.Y.; Harrisburg, Pa.; Woonsocket, R.I.; Richmond, Va., 40 cars, 11 miles of track.

Companies have been formed or steps taken to build and operate electric roads at Flushing, L.I. (2); Lincoln, Neb.; Brookline, Mass. (2); East Cambridge, Mass.; Newton, Mass.; Boston, Mass.; Ashbury Park, N.J.; Pelham Park, N.Y.; New Brunswick, N.J.; Plainfield, N.J.; Bayonne, N.J.; Worcester, Mass.; Scranton, Pa.; Carbondale, Pa.; Philadelphia, Pa.; Reading, Pa.; Bangor, Me.; Biddeford, Me.; Westfield, Mass.; Chicopee, Mass.; Muncie, Ind.; Gratoit, Mich.; Tiffin, O.; Cincinnati, O.; Brooklyn, N.Y.; Coney Island, N.Y.; Rockaway, N.Y.; Winston, N.C.; Jacksonville, Fla.; Pensacola, Fla.; Birmingham, Ala.; Selma, Ala.; Atlanta, Ga.; Fort Smith, Ark.; Wichita, Kan.; San Francisco; San Jose, Cal.; Newton, Kan.

We want additional rolling-stock for the Plattsburg Tramway line, and also for the Kogarah and Sandringham line. A supply of eight of these electric cars will meet the requirements of both lines. The use of them on those lines will demonstrate whether it would be desirable to order them for all our lines. CH.A.G., 13/9/87.

Make short statement for Cabinet.—J.S., 22/9/87.

Electric Tram Cars.

Minute for the Cabinet.

Department of Public Works, Sydney 26 September, 1887.

I HAVE ascertained that tramways driven by electrical power are being used in Europe and America, with very great success and economy as compared with other means of locomotion.

There are two systems, the "Spragne" system which provides for the production of the current by fixed dynamos at the end of the line, and its transmission by means of the rails to the motor on the car; and the "Reckengaum" system which provides for accumulators being carried in the cars.

In view of the fact that by the adoption of the accumulator (storage) system the necessity for any alteration in the rails is obviated, I cannot but think that it is the better one for use here, and as the "Reckengaum" system has now passed its experimental stage. I am inclined to recommend the purchase of eight or ten cars from that Company, at (say) £1,100 per car, complete for the road, including steam-engines, boilers, dynamos, motors, and accumulators, fixing, &c., and contingencies.

Additional rolling stock is required for the Plattsburg Tramway, and also for the Kogarah and Sandringham line, and a supply of eight of these cars will meet the requirements of both lines.

The use of them on those lines will demonstrate whether it would be desirable to order them for all our lines.*

* This minute though prepared for Cabinet, was not signed by the Minister, and consequently was not submitted to Cabinet.

No. 64.

Minute by The Chief Secretary.

Re proposals for new routes of cable-ways and terms for leasing existing lines of tramways, &c.

From George-street, via Park-street.

William-street to South Head.

Dawe's Point to Newtown Road Junction, thence to Petersham, Leichhardt, Annandale, and to Five Dock; also to Newtown, Enmore, and Marrickville; also to Glebe Point.

From Hunter-street, along Castlereagh-street to Railway; thence to Redfern, Waterloo, and Botany.

Foot of King-street, via College-street, Oxford-street to Randwick, Coogee, and Bondi.

Balmain, via Harris-street to George-street.

Balmain to Field of Mars.

THESE

THESE suggested lines are only given as an indication ; but an experienced officer, who thoroughly knows the City and the tendency of traffic, must make a careful report suggesting for approval a complete system of lines.

The tenders must be invited not only for the right to construct wire tramlines, but for taking from Government the present rolling-stock on the steam-motor lines, together with the lines now existing.

The present system to be continued so as not to cause public inconvenience, until the new lines are open for traffic. The existing trams to be gradually taken off as the traffic is absorbed by the new system.—H.P., 8/2/88.

The Commissioner at once.—J.S., 8/2/88. Prepare skeleton map showing present routes, and how the proposed routes will intersect, and take over the traffic.—CH.A.G., 9/2/88. See minute of Commissioner for Railways dated 15/2/88. See also draft conditions of lease, maps, inventories, and specifications. Draft of Act also herewith.—CH.A.G., 18/2/88.

No. 65.

Minute by The Commissioner for Railways.

QUESTION of Leasing the Tramways under an undertaking for their gradual conversion from the motor system into the cable system, with certain modifications as to routes, and an increase in the number of main arteries or lines.

THE question upon which I am asked more particularly to give an opinion is as to whether the cable routes proposed can be improved upon. They are as under:—

1. From George-street, *via* Park-street, William-street, to South Head.
2. Dawes' Point to Newtown Road Junction; thence to Petersham, Leichhardt, Annandale, and to Five Dock; also to Newtown, Enmore, and Marrickville; also to Glebe Point.
3. From Hunter-street, along Castlereagh-street, to Railway; thence to Redfern, Waterloo, and Botany.
4. Foot of King-street, *via* College-street, Oxford-street, to Randwick, Coogee, and Bondi.
5. From George-street, *via* Harris-street, to Pyrmont, Balmain, and thence over the Bridges to Field of Mars.

The routes appear to me to have been carefully and judiciously selected, and those which supplement the existing routes are just those which seem necessary to complete the Tramway system, and give that full convenience to the travelling public which is at present lacking, owing to there only being one main line, and that through a thoroughfare removed, comparatively speaking, from the business centre of the city.

These remarks do not apply to such proposed extensions as those to Five Dock, Field of Mars, and South Head. I do not think such lines should be constructed under so expensive a system as the cable, as they can hardly be expected to return even a fair remuneration upon the outlay. We are not altogether without experience of cable lines, and our North Shore line should, I think, serve as a useful warning against the construction of such lines through sparsely populated districts. North Shore is not, comparatively, a thinly peopled suburb, and yet, up to the present time, this line has done little more than pay for the expenses of working.

Route No. 1.

George-street, *via* Park-street, William-street, to South Head. This line should, I think, either terminate at Woollahra at Ocean-street in a dead end or return by circular line from present 'bus terminus at Ocean-street through Point Piper Road, joining the existing line (if it be determined to convert that into a cable route), at the intersection of that road with the South Head Road. (The line to South Head can be otherwise provided for as will afterwards appear.)

The main objection to this line is that the Sydney terminus at Park-street would not be sufficiently central. The present Ocean-street omnibus traffic comes into the centre of the city by way of King-street, and the failure of the cable route to do this would probably keep alive the present 'bus system in competition.

If the existing motor route to Waverley, Woollahra, &c., be not interfered with, the remedy would be simple, and it would be to run this service from the foot of King-street, *via* College, Boomerang, William streets, &c., to Woollahra.

Route No. 2.

Dawes' Point to Newtown Road Junction, thence to Annandale, Petersham, and Leichhardt and Five Dock, also Newtown, Enmore, and Marrickville; also

Route No. 5.

may be included with this—George-street, *via* Harris-street, to Balmain, and Field of Mars.

I believe a cable line from Dawes' Point to the Railway Station, and thence by way of Harris-street to Pyrmont would give an excellent return. I could not, however, recommend the laying of a cable route beyond Pyrmont. The distance to Balmain and the Field of Mars is too great, and the prospect of traffic too small, and it would be impossible to compete successfully against the boat service for the bulk of the traffic from Balmain. With regard to the route between Dawes' Point and the Railway, it may be doubtful if at certain points of George-street there will be sufficient width for the laying of the necessary double line with due consideration for the safe conduct of the ordinary vehicular traffic, and if this be so the route could deviate from George-street at Charlotte-place, and pass along Church Hill by "Petty's Hotel," through York-street as far as the Town Hall, where it should re-enter George-street. In connection with this proposal, however, I may point out that when a double motor line was proposed some years ago for York-street, there was much agitation against it on the ground that York-street was specially devoted to large warehouses, against the entrances of which drays, carts, &c., were backed during the whole day for loading purposes and that there would not be room for a horse and cart so placed to stand clear of the tram track. Under these circumstances, and seeing that the Service would be a very frequent one if the existing lines were

were converted to cable ways, I am not sure that the making of the line through the entire length of George-street would not create less public risk and inconvenience. The traffic in George-street is essentially a light and fast traffic, and therefore that street could better accommodate a tram service than York-street; but, on the other hand, the tram service, if the motor line is to be abandoned, would be almost continuous.

Route No. 3.

Hunter-street, along Castlereagh-street to Railway, thence to Redfern, Waterloo, and Botany.

It will be well for this line to start at the Circular Quay, pass along Pitt-street to Hunter-street, Castlereagh-street, to Belmore Park.

I am not clear as to the direction which it is proposed that this line shall take on arriving at Belmore Park, whether it is intended that it shall take up the running of the existing route and reach the Railway Station by way of Pitt-street, and thence by Devonshire-street, through Castlereagh-street to Redfern and Waterloo, or that it shall cross Belmore Park in the other direction, and continue its course along Elizabeth-street through Castlereagh-street, or as far as Redfern-street, nor do I know that this is a matter of very great importance.

If the existing motor lines were not interfered with, this line would, I think, be almost unnecessary. It would be unwise in any case to extend the cable system beyond Waterloo.

Route No. 4.

Foot of King-street, *via* College-street and Oxford-street, to Randwick, Coogee, and Bondi.

There is nothing to be said against this route, if it be intended to substitute cable lines for the existing motor lines. I must, however, express my conviction that a cable line to Coogee will not pay expenses, and point out that the traffic on the first part of these lines (for it is presumed Paddington is to be included) is very great, and will involve a cable service in Oxford-street of a tram per minute nearly during the business hours.

If it be determined to take a line to the South Head, I think the best route will be from Bondi. The line to the beach at Bondi is already approved of; from thence to Rose Bay is an easy route; and if the present motor line is retained, the service can be better accomplished by that route than by way of Double Bay.

I have now done all that I was really asked to do; but the interests involved in this question are so large, and the determination of it so important—not only as affecting the terms to be realised by the Government in connection with the proposed leasing of the Tramways, but also as affecting the public convenience—that I shall no doubt be pardoned if I deal with the question in its larger and wider significance.

In doing this I propose to consider briefly the following aspects of the case:—

1. As to the suitability of Sydney for the general application of the cable system.
2. As to its great costliness, when added to its own cost is that of the waste of material and labour in converting the motor system to it, and the extreme difficulty of making such conversion without an actual stoppage of traffic on one or more of the routes.
3. A consideration of the feasibility or otherwise of applying the cable system to the City boundaries, and retaining the present motor system beyond; and
4. As an alternative proposition, the making of certain cable ways required for the better accommodation of the travelling public and for affording relief from the already overgrown and congested traffic of the main line of the present (motor) system, and the retention in its entirety of the present motor system.

I think no one who has given any attention to the subject will deny that Sydney is singularly ill adapted for the application of an entire system of Cable Tramways. Among several difficulties to be contended with is the narrowness of the main arteries of traffic through which such lines should pass in order to satisfactorily secure the traffic, and a still greater objection is the want of continuity of nearly all the main streets which should constitute these arteries. Beginning with the western boundary we have Sussex, Kent, Clarence, and York Streets, all incapable of carrying any line of communication to a satisfactory distance without the aid of (by merging into) George-street. Then eastward of George-street is Pitt-street, which merges into George-street before reaching the railway; Castlereagh-street terminating at Belmore Park; Macquarie-street, lost first in Hyde Park and later in Strawberry Hills by cross streets; while Elizabeth-street, which, after George-street, is the most continuous thoroughfare in Sydney, is bounded on the north by Hunter-street, and is not continued beyond that street.

I think this demonstrates the singular unsuitableness of Sydney from north to south at any rate for a general application of the cable, or, in fact, any tramway system, for not only is it desirable that tram routes should pierce several centres of population, but it is necessary, in order that the traffic should not become congested and liable in case of breakdown to complete collapse, that there should be several main lines or arteries.

The difficulty is greatly increased when the purpose is to convert the system already existing, and more especially when no cessation of traffic is to be caused thereby.

In the lines proposed, so far as those from Daves Point to the Railway Station, Harris-street to Pymont, and King-street to Oxford-street, Park-street to Double Bay, Castlereagh-street to Railway are concerned, no added difficulty of the kind obtains, as all the ground is new, but it is not easy to understand how the existing motor lines can be converted into cable ways without serious interruption to if not actual cessation of traffic.

To obviate this we are brought to a consideration of the feasibility of applying the cable system as far as the City boundary only, and retaining the existing motor system beyond that point. A careful consideration of the question, however, leads to the rejection of the scheme as impracticable, in view of the public convenience. The difficulty of working such a plan has been drawn attention to in the "*Herald*" in a very sensible and practical letter signed "John Williams," but I will give an example so that the inconvenience and delay which would be caused may be fully realized. I will take the populous suburb of Newtown. Residents leave that place in the morning at the busy times in tram-loads averaging 140 persons every 10 minutes. Would it be tolerated that 100 of these 140 passengers should be left standing at the junction until a sufficient number of cable trams should arrive to take them

to

to their destinations in the city; or on the return journey, as put by Mr. Williams, is the motor car to wait at the junction until sufficient cable trams, say, three or four, have arrived on the scene? The proposition unfortunately will not bear second consideration,—the inconvenience to the public would be intolerable.

This brings me to the alternative proposition to which I have referred, viz., that of retaining the present motor system, and applying the cable system to certain new routes only, say—

1. Dawes Point, *via* George-street, to Railway Station (if we are to have a motor service to the Field of Mars, it will be better to junction it with present motor service, and therefore the proposal for a cable way down Harris-street should be abandoned.)
2. King-street, *via* College, Boomerang, William Streets, and New South Head Road to Ocean-street, Woolahra; and perhaps—
3. From alongside Circular Quay, *via* Pitt and Castlereagh Streets, Belmore Park, crossing present tramway to Elizabeth-street, and on to Mount Lachlan Estate, Waterloo.

At the risk of propounding views which are opposed to that which is apparently in contemplation, I feel it incumbent upon me, as the officer under the Government who has been chiefly instrumental in introducing the present system, and who knows its advantages, its disadvantages, and its capabilities, to express my conviction that this alternative proposal is the one best adapted to meet the interests of the Government, whether as lessors or holders of the lines, and those of the travelling public. I cannot think that cable lines to such remote points as Coogee, Marrickville, Balmain, Field of Mars, Five Dock, or South Head would give even a moderate return upon the capital invested, to say nothing of the waste to be incurred in the abandonment of the present system. Neither do I think the cable service will be found adequate for the enormous traffic with which our present system with its large carrying capacity is frequently unable to cope. Take a Randwick race day, a cricket match, or a gala day at Coogee, Botany, or Bondi, and calculate if possible the number of cable trams which would be necessary to carry the people who would desire to be carried and (in the case specially of races and cricket) to be carried *at one time*. In addition to the enormous expense, I predict failure and public inconvenience far in excess of that experienced under the existing system.

Neither Melbourne nor any other City served by cable tramways, furnishes as far as my knowledge goes, anything analogous to such traffic as that to which I have referred.

As an exemplification of what the cable system as applied to our suburban traffic really involves, I have had a table prepared showing the number of cable trams which will be required during the busy hours to run on the various routes, and further, the number which will have to run on various main arteries, such as George-street and Oxford-street, and, I think, a perusal of this will point to the wisdom of giving most careful consideration to this important question, before launching upon a scheme which may be attended with loss, disappointment, and public dissatisfaction.

In the draft conditions of lease of the Tramways, which I submit with this, I have left it optional with the Government to retain the present motor system—that is to say, the routes which are now worked by it are to be converted into cable ways, only as the Government may from time to time determine. I believe that by adopting the new cable lines suggested in the alternative proposal to supplement the present motor-line service the Government and the lessees of the Tramways will find that the requirements of the travelling public will be better met than by determining to conduct the whole service by a cable system; at all events the proposal permits of the change being made tentatively, after experience has been obtained of the efficacy or otherwise of the combined system, and I respectfully submit it for consideration.

CH. A. GOODCHAP.

15 February, 1888.

STATEMENT showing the Tram intervals which will occur on the various lines under the proposed Cable system in order to give a service equal to that of the existing one.*

ROUTE I.

Dawes' Point to Harris-street, Balmain, and Field of Mars.				Dawes' Point to Newtown, Marrickville, etc.				Dawes' Point, Leichhardt, Annandale, and Five Dock.				Dawes' Point to Glebe Point.			
Up Journey.		Down Journey.		Up Journey.		Down Journey.		Up Journey.		Down Journey.		Up Journey.		Down Journey.	
No. of Journeys.	Intervals.	No. of Journeys.	Intervals.	No. of Journeys.	Intervals.	No. of Journeys.	Intervals.	No. of Journeys.	Intervals.	No. of Journeys.	Intervals.	No. of Journeys.	Intervals.	No. of Journeys.	Intervals.
42	Minutes. 5½	32	Minutes. 3¾	31	Minutes. 4	42	Minutes. 3	21	Minutes. 5¾	32	Minutes. 3¾	15	Minutes. 8	17	Minutes. 7

Entailing a service between Dawes' Point and Harris-street junction of 1:36 minutes intervals on the Up Journey, and of 0:98 minutes on the Down Journey; and between Harris-street junction and Newtown Road junction of 1:8 minutes intervals on the Up Journey and of 1:3 minutes on the Down Journey.

* For comparison the traffic between 7:30 and 9:30 a.m. has been chosen for the Up Journeys, and that between 4:30 and 6:30 p.m. for Down Journey.
 † These figures have been quoted on the assumption that the traffic on this line will equal that on the Leichhardt line.

With the present Motor Service the average intervals are—4·6, 3·64, 6, and 4·8 minutes respectively.

ROUTE II.

Foot of King-street, Bondi Junction and Waverley.				Foot of King-street to Randwick and Coogee.				Foot of King-street to Bondi.				Foot of King-street to Queen-street Junction and Woollahra.				Foot of King-street to Crown-street.			
Up Journey.		Down Journey.		Up Journey.		Down Journey.		Up Journey.		Down Journey.		Up Journey.		Down Journey.		Up Journey.		Down Journey.	
No. of Journeys.	Intervals.	No. of Journeys.	Intervals.	No. of Journeys.	Intervals.	No. of Journeys.	Intervals.	No. of Journeys.	Intervals.	No. of Journeys.	Intervals.	No. of Journeys.	Intervals.	No. of Journeys.	Intervals.	No. of Journeys.	Intervals.	No. of Journeys.	Intervals.
37	Minutes. 3·3	22	Minutes. 5½	14	Minutes. 8½	17	Minutes. 8	10	Minutes. 12	18	Minutes. 6¾	17	Minutes. 7	30	Minutes. 4	16	Minutes. 7½	20	Minutes. 6

Entailing a service between foot of King-street and Crown-street Junction of 1:3 minutes intervals on the Up Journey, and of 1:12 minutes on the Down Journey; and between Crown-street Junction and Darlinghurst Junction of 1:54 minutes intervals on the Up Journey, and of 1:4 minutes on the Down Journey.

With the present Motor Service the average intervals are—5, 4·6, 6·3, and 6 minutes respectively.

ROUTE III.

Via Castlereagh-street to Railway.				Via Castlereagh-street to Waterloo and Botany.			
Up Journey.		Down Journey.		Up Journey.		Down Journey.	
No. of Journeys.	Intervals.	No. of Journeys.	Intervals.	No. of Journeys.	Intervals.	No. of Journeys.	Intervals.
51	Minutes. 2·35	33	Minutes. 3·64	18	Minutes. 6·66	26	Minutes. 4·6

Entailing a service between Hunter-street and Railway Junction of 1:78 minutes intervals on the Up Journey, and of 2 minutes on the Down Journey.

With the present Motor Service the average intervals are—6 and 7 minutes respectively.

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LEASE OF GOVERNMENT TRAMWAYS.

Conditions of Lease.

PROVIDED an Act is passed by the Legislature authorizing the measure, the lease shall be for the right to work the existing Tramways in the City of Sydney and its suburbs (subject to such arrangements, if any, as the Government may ultimately make for the abandonment of a portion of these routes), and to construct and work all other Tramways which the Government may determine to establish in the City of Sydney and its suburbs.

The lease shall be for a term of forty years, at the end of which term the Tramways, with all the machinery, plant, and appliances, shall revert to the Government.

The price to be paid for the existing Tramways shall be the book cost of the same, and shall include the lines, the rolling-stock, and workshops, with the machinery, coke-sheds, waiting-sheds, and watering-places.

It will be optional with the lessee to pay the amount in cash or to pay in cash 25 per cent. of the amount and to give a bond bearing interest at the rate of 4 per cent. per annum, and such further interest (to be paid to a sinking fund) as shall suffice to extinguish the capital sum in twenty-five years.

Each person or Company making an offer must set forth in their letter of proposal the means which they possess of carrying out the conditions of this arrangement.

Each Tenderer shall deposit in the hands of the Treasurer security in the sum of £50,000, as a guarantee that if his Tender be accepted he will faithfully carry out the terms of his engagement. It will be optional with the persons tendering to pay the whole sum of £50,000 in cash, or to pay £10,000 in cash, and give a bond, executed by five persons of approved position and responsibility, in the sum of £40,000.

So soon as a proposal shall have been accepted the security deposits of the unsuccessful Tenderers shall be returned to them.

The person or Company whose Tender shall be accepted shall enter into an agreement with the Government which shall be based upon these conditions.

Within one month of the acceptance of a Tender the successful Tenderer shall pay over to the Treasurer the capital cost of the existing Tramways, and £40,000 of the security deposit (if the whole amount have been deposited in cash) shall be accepted as part payment of such capital cost.

The lessee shall take over at book value the stock of stores and materials in the Tramway Stores at Randwick, and shall pay the amount in cash. At the termination of the lease the then stock of stores shall be taken over at a valuation.

The balance of the deposit (£10,000) shall remain in the hands of the Treasurer as security for the due fulfilment of the terms of the Contract, and in the event of the lessee committing any breach of the conditions the above amount shall be forfeited to the Government of New South Wales.

Immediately on the payment of the money the lessee shall take over the existing Tramways (which are described on Schedule A hereto annexed), and shall work the traffic thereof subject to the following special conditions:—

The Trams shall be run for the convenience of the public, and an efficient service shall at all times be maintained to the satisfaction of the Railway Commissioners. The Railway Commissioners, or an officer deputed by them, shall from time to time examine the lines, rolling-stock, plant, buildings, and machinery, with a view to ascertain that all the appliances are being maintained in an efficient condition.

In the event of its being found that the line, or rolling stock, or machinery, or other appliances are not maintained in a satisfactory condition, or are in any degree inefficient, the Railway Commissioners may call upon the lessee to do the necessary repairs, or to provide efficient substitutes for any defective appliances, and if the lessee shall neglect or refuse to do so, the Railway Commissioners may do what is necessary at the cost of the lessee.

The lessee shall, at his own expense, maintain in good order so much of the ordinary roadway through which the tram-lines pass as it now devolves upon the Government to keep in repair.

The lessee shall, at his own expense, carry out such lawful orders and requirements of property-holders and local or municipal bodies through whose property or jurisdiction the tram-lines may pass as the Government would have been bound to carry out had this lease not been executed; and the lessee shall defend all actions and bear all expenses and penalties that may accrue from differences or disputes with such property-holders or local or municipal bodies.

The lessee shall be amenable in every legal respect to all persons during the term of the lease as the legal owner for such term of the railways and everything connected therewith.

* The fares on the present tram-lines or sections of tram-lines shall not in any way be increased.

All existing privileges granted to members of the Legislature shall be maintained.

The concession of reduction of fares now made to children proceeding to or from the schools which they attend shall be maintained.

In the event of any difference of opinion arising as to the interpretation to be placed upon these or any other of the conditions of the lease, the Railway Commissioners shall be the sole arbiters, and their decision shall be final.

Within twelve months of the execution of the agreement the lessee shall, at his own cost, convert so much of the existing Tramways as the Government shall determine into Cable Tramways, according to the plans to be approved of by the Government.

As stated in Clause 1 of these conditions, the lease will include the sole right to make Tramways and work them during the continuance of the lease in the City of Sydney and its suburbs, but the Government will decide the route which any new tramways shall take, and the order in which they shall be undertaken; and no new tramway shall be constructed except upon authority in writing under the seal of the Railway Commissioners.

Schedule B hereto annexed contains a list and description of the tramway lines which the Government propose should be established, but with the consent of the Government any one or more of these lines may be abandoned, and other lines may be substituted and carried out.

Such

* I am not certain that the fares should be limited to present fares; it would be well, I think, to allow a little latitude, say, that the fares shall not exceed 1d. a mile, nor the minimum be above 3d.—CH. A. G.

Such tramways shall be constructed on the cable principle, and shall be completed to the satisfaction of the Railway Commissioners, under the inspection of an officer deputed by them.

Upon the completion of each of these lines of tramway it shall be opened and worked by the lessee, subject to the same conditions as the existing tramways, that is to say:—

The trams shall be run in such a way as to afford to the public all reasonable convenience by the maintenance of an efficient service to the satisfaction of the Railway Commissioners.

The Railway Commissioners, by an officer appointed for the service, may at any time examine the lines and appliances with a view to secure that they are maintained in an efficient condition; and in the event of any defects being found the Railway Commissioners may call upon the lessee to execute the necessary repairs or make necessary renewals. If the lessee refuse or neglect to comply with the order, the Railway Commissioners may do what they consider necessary, at the cost of the lessee.

The Company shall not abandon its undertaking or any part of the same, or take up any tramway or any part of any tramway belonging to it except by the consent of the Government in writing, and thereupon it shall, with all convenient speed, and in all cases within six weeks at the most (unless the Government otherwise consent in writing) fill in the ground, and make good the surface, and, to the satisfaction of the Government and the local authorities, restore the portion of the road upon which such tramway was laid to as good a condition as that in the adjacent portion of the road shall then be, and clear away all surplus paving or metalling, material, or rubbish occasioned by such work; and the Company shall in the meantime cause the place where the road is opened or broken up to be fenced and watched, and to be properly lighted at night. Provided always that if the Company fail to comply with the provisions of this section, the Government, or the local authority if it think fit, may itself, at any time after seven days' notice to the Company, open and break up the road and do the works necessary for the repair and maintenance or restoration of the road to the extent in this section above mentioned, and the expense incurred by the local authority in so doing shall be repaid to them by the Company.

The Company shall be at liberty to connect any tramway with any engine-house, warehouse, stable, carriage-house, or workshop belonging to it on the routes, and used for the purposes of such tramway.

The local authority on the one hand, and the Company on the other hand, may from time to time enter into and carry into effect, and from time to time alter, renew, or vary contracts, agreements, or arrangements, with respect to the metalling or paving and keeping in repair of the whole or any portion of the roadway, or any road on which the Company shall lay any tramway, and the proportion to be paid by either of them of the expense of such metalling or paving and keeping in repair.

For the purpose of making, forming, laying down, maintaining, repairing, or renewing any of the tramways, the Company may from time to time, when and as far as it is necessary or may appear expedient, for the purpose of preventing frequent interruption of the traffic by repairs of works in connection with the same, alter the position of any mains or pipes for the supply of gas or water, or any tube, wire, or apparatus for telegraphic or other purposes, subject to the provisions of the Act, and also subject to the following restrictions (that is to say):—

Before laying down a tramway in a road in which any mains or pipes, tubes, wires, or apparatus may be laid, the Company shall, whether it contemplates altering the position of any such mains or pipes, tubes, wires, or apparatus or not, give seven days' notice to the Department of Government concerned, or to the corporation or Company, persons or person, to whom such mains or pipes, tubes, wires, or apparatus may belong, or by whom they are controlled, of its intention to lay down or alter the tramway and shall at the same time deliver a plan and section of the proposed work. If it should appear to the Government or to any such corporation, Company, or person that the construction of the tramway as proposed would endanger any such main or pipe, tube, wire, or apparatus, or interfere with or impede the supply of water or gas or the telegraphic or other communication, the Government or such corporation, Company, or person (as the case may be) may give notice to the Company to lower or otherwise alter the position of the said mains or pipes, tubes, wires, or apparatus, in such manner as may be considered necessary.

The Company shall make good all damage done by it to property belonging to or controlled by the Government, or by any such corporation, Company, or person, and shall make full compensation to all parties for any loss or damage which they may sustain by reason of any interference with such property or with the private service pipes of any person supplied by the Government, or by any such corporation, Company, or person, with water or gas.

If by any such operation as aforesaid the Company interrupt the supply of water or gas in or through any main or main pipe, it shall be liable to a penalty not exceeding fifty pounds for every day upon which such supply shall be so interrupted.

LEASE OF TRAMWAYS.

Specification.

THE tramways to be constructed by the Company shall consist of a double line, and shall be constructed and maintained as nearly as may be in the middle of the road, and at no part thereof shall the tramway be so laid that for a distance of 30 feet or upwards a less space than 9 feet 6 inches shall intervene between the outside of the footpath on either side of the road and the nearest rail of the tramway. Provided that the Company may, with the consent of the Government and of the local authority, construct the tramway elsewhere than in the middle of the road.

The tramway shall be constructed on the gauge of 4 feet 8½ inches, and shall be laid and maintained in such manner that the uppermost surface of the rail shall be on a level with the surface of the road. The tramway shall be constructed in the best and most approved manner, as to design, material, and workmanship to the satisfaction of the Government, and should any dispute arise as to the sufficiency of the tramway in the above particulars it shall be referred to the arbitration of three engineers or surveyors—one appointed by the local authority interested, one appointed by the Company, and one by the New South Wales Government—and the decision of the majority shall be final.

The

The Company from time to time for the purpose of making, forming, laying down, maintaining, and renewing any Tramway by this Act authorized, or any part or parts thereof respectively, may open and break up any road, subject to the following regulations :—

- (1.) It shall give to the local authority notice of its intention, specifying the time at which it will begin to do so, and the portion of road proposed to be opened or broken up, such notice to be given fourteen days at least before the commencement of the work.
- (2.) It shall not open or break up any road except under the superintendence and to the reasonable satisfaction of the local authority, unless that authority refuses or neglects to give such superintendence at the time specified in the notice, or discontinue the same during the work.
- (3.) It shall pay all reasonable expenses to which the local authority is put on account of such superintendence.
- (4.) It shall not alter the level of any road without the previous consent in writing of the local authority, and it shall be responsible for any and all damages and claims in regard thereto which may arise in consequence of any such alteration.
- (5.) Whenever the local authority shall decide to alter any level of any road, the Company shall at its own cost raise or lower the rails and so much of the roadway maintained by the Company as shall be necessary to suit such altered level.
- (6.) It shall not, without the consent of the local authority, open or break up, at any one time, a greater length than one hundred yards of any road which does not exceed a quarter of a mile in length, and, in the case of any road exceeding a quarter of a mile in length, the company shall leave an interval of at least a quarter of a mile between any two places at which it may open or break up the road, and it shall not open or break up at any such place a greater length than 100 yards.
- (7.) Where the carriageway over any bridge forms part of, or is, a road within the jurisdiction of a local authority, but such bridge is vested in some person, corporation, or Company distinct from such local authority, any work which the Company may be empowered to construct, and which affects or in anywise interferes with the structural works of such bridge, shall be constructed under the superintendence (at the cost of the Company), and to the reasonable satisfaction of such person, corporation, or Company, unless after notice to be given by the Company fourteen days at least before the commencement of such work, such superintendence is refused or withheld.
- (8.) Where the carriageway in or upon which any tramway is proposed to be formed or laid down is crossed by any railway or tramway on the level, any work which the Company may be empowered to construct, and which affects or in anywise interferes with such railway or tramway or the traffic thereon, shall be constructed and maintained under the superintendence (at the cost of the Company) and to the reasonable satisfaction of the Government, person, corporation, or Company owning such railway or tramway, unless after notice to be given by the Company fourteen days at least before the commencement of such work, such superintendence is refused or withheld.

In all cases the Company shall be responsible for the sound, safe, and proper mode of carrying out the works, which by the Act it is empowered to perform.

When the Company has opened or broken up any portion of any road it shall be under the following further obligations, namely :—

- (1.) It shall with all convenient speed, and in all cases within six weeks at the most (unless the local authority otherwise consent in writing), complete the work on account of which it opened or broke up the same, and subject to the formation, maintenance, or renewal of the tramway, fill in the ground and make good the surface and to the satisfaction of the local authority restore the portion of the road to as good condition as that in which it was before it was opened or broken up, and clear away all surplus paving or metalling material or rubbish occasioned thereby.
- (2.) It shall in the meantime cause the place where the road is opened or broken up to be fenced and watched, and to be properly lighted at night.
- (3.) It shall bear or pay all reasonable expenses of the repair of the road for six months after the same is restored, as far as those expenses are increased by the opening or breaking up.
- (4.) It shall in no case, unless the local authority otherwise consent in writing, keep any road wholly closed and unavailable for traffic.

If the Company fail to comply in any respect with the provisions of the present section, it shall, for every such offence, without prejudice to the enforcement of specific performance of the requirements of the Act, or to any other remedy against it, be liable to a penalty not exceeding twenty pounds, and a further penalty not exceeding ten pounds for each day during which any such failure continues after the first day on which such penalty is incurred.

The Company shall at its own expense at all times maintain and keep in good condition and repair, with such materials and in such manner as the local authority shall direct, and to their satisfaction, so much of any road whereon any tramway belonging to it is laid, as lies between the rails of the tramway, and (where two tramways are laid by the Company in any road in parallel lines, at a distance of not more than four feet from each other) the portion of the road between the two lines of such tramway, and also the portion thereof which may exceed four feet, where a greater deviation from the parallel lines than four feet shall occur at curves or divergencies, and in every case so much of the road as extends 18 inches beyond the rails of and on each side any of such tramway. The material of every road (opened or broken up by the Company) may be used by it in reconstructing the road so far as the same shall be applicable to that purpose, and all such material not so used and not required by the local authority shall be removed and retained by the Company.

- The lessee shall, at his own cost, maintain in good order so much of the ordinary roadway through which the tram-lines pass as now devolves upon the Government to keep in order; and he shall, at his own expense, carry out such lawful orders and requirements of persons and local or municipal bodies through whose property or jurisdiction the tram-lines may be carried as the Government would have been bound to carry out had not this lease been executed.
- The lessee to defend all actions and bear all expenses and penalties which may accrue from differences or disputes with such property holders or local or Municipal bodies.
- The fares on the proposed Tram lines or sections must not exceed the fares charged upon existing through lines. All existing privileges enjoyed by Members of the Legislature to be maintained.
- The reduction of fare now granted to children proceeding to or from the schools which they attend to, be maintained on the new routes.
- The Railway Commissioners to be the sole arbiters of the construction to be placed upon these conditions.

SCHEDULE A.

LIST OF EXISTING TRAMWAYS.

Railway Station to Circular Quay.
 Liverpool-street to Randwick and Coogee.
 Darlinghurst Junction to Waverley, Woollahra, and Bondi.
 Crown-street Junction to Cleveland-street.
 Devonshire-street Junction to Botany.
 Glebe Point.
 Forest Lodge.
 Newtown and Marrickville.
 Leichhardt.
 North Shore.
 Randwick to Waverley.

SCHEDULE B.

SCHEDULE C.

LEASING OF GOVERNMENT TRAMWAYS.

APPLICATIONS will be received at this Office until 11 a.m. from persons willing to lease the existing Tramways, and to construct and work such other Tramways as may be determined upon.

Specification, conditions of lease, and all further particulars may be obtained on application at the Office of the Commissioner for Railways, Phillip-street.

Tenderers will be required to state the amount of premium they are prepared to pay for the right to lease the Tramways in the terms stated in the conditions.

The acceptance of any tender will be dependent upon the passing of an Act through Parliament for leasing the Tramways.

Secretary for Public Works.

Department of Public Works,

Draft

51^o VICTORIÆ, 1888.

A BILL

WHEREAS it is expedient that the tramways of Sydney and the suburbs, for the more profitable working of the same, and with a view to place them on a purely commercial footing, shall be worked and managed by a body of private proprietors. Be it therefore enacted by the Queen's Most Excellent Majesty, by and with the advice and consent of the Legislative Council and Legislative Assembly of New South Wales in Parliament assembled, and by the authority of the same, as follows :—

This Act shall be called and may be cited as the "Sydney Tramway Company's Act of 1888."

Subject to the provisions of this Act the Government may call for applications from persons prepared to work the existing tramways, and to construct and work new lines of tramway, and may lease to a person or Company at such a price as may be agreed upon the whole of the tramways at present constructed within the city of Sydney and the suburbs thereof as described in Schedule A, with the rolling-stock, waiting-sheds, coke-sheds, and watering places, but if from any cause any portion of the land or premises shall cease to be necessary for the conduct of the traffic of the tramways, such portion of the land or premises may forthwith be resumed by the Government, and may be applied to such uses as the Government may determine.

As soon as may be after the an inventory of the tramway rolling-stock, plant, and machinery to be so leased as aforesaid shall be made, and signed by or on behalf of the Railway Commissioners, and shall be delivered to the Company.

The lease to be for a term of forty years, at the end of which time the lines, rolling-stock, buildings, &c., shall revert to the Government.

The price to be paid for the existing tramways and appliances shall be the book cost of the same with the addition of such per-centage as the tenderer may be prepared to offer; and it shall be optional with the lessees to pay the whole sum in cash, or to pay in cash twenty-five per centum thereof, and to give a bond for the balance, bearing interest at the rate of four per centum per annum, and such further interest (to be paid to a sinking fund) as shall suffice to extinguish the capital sum in twenty-five years.

Each tenderer shall deposit in the hands of the Treasurer security in the sum of fifty thousand pounds as a guarantee that if his tender be accepted he will faithfully carry out the terms of his engagement.

It will be optional with the persons tendering to pay the whole sum of fifty thousand pounds in cash, or to pay ten thousand pounds in cash, and give a bond, executed by five persons of approved position and responsibility, in the sum of forty thousand pounds.

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On the completion of the lease and the payment of the purchase money the Company shall forthwith enter into possession of the Tramways aforesaid, and shall work the same for the conveyance of passengers from point to point, subject to the following special conditions:—

- On the _____, or so soon thereafter as may be, the Company shall accept and take over for the purposes of the undertaking all stores and materials belonging to the Tramway Department that may be in hand or in course of delivery, and the Company shall pay the amount of the book value thereof in cash.
- The Company shall, at their own expense, maintain the tramway lines, and so much of the ordinary road as the tramway authorities are bound to keep in repair, in good order and condition, to the satisfaction of the Engineer or other officer appointed by the Government.
- The Company shall, at their own expense, carry out promptly the lawful orders and requirements of property-holders and local or municipal bodies through whose property or jurisdiction the tramway lines may pass.
- The lessee shall be amenable in every legal respect to all persons during the duration of this lease, as the legal owner for such period of the Railways and everything connected therewith.
- The trams shall be run for the convenience of the public, and an efficient service shall at all times be maintained, to the satisfaction of the Railway Commissioners.
- The Company shall keep the lines, rolling-stock, buildings, plant, and machinery in good repair, in good working condition, and fully supplied with rolling-stock, plant, and machinery, to the satisfaction of the Railway Commissioners, and the Railway Commissioners, or an officer deputed by them, shall, from time to time, examine the lines, rolling-stock, plant, buildings, and machinery, with a view to secure that all the appliances are maintained in an efficient condition; and in the event of its being found that the lines or rolling-stock or other appliances are out of repair, or otherwise in any degree inefficient, the Railway Commissioners may call upon the lessee to do the necessary repairs, or to provide efficient substitutes for any defective appliances; and if the lessee shall neglect or refuse to do so, the Railway Commissioners may do what is necessary at the cost of the lessee.
- The Railway Commissioners may from time to time require the Company to carry out any alteration or improvement in the working of the undertaking that may, in their opinion, be necessary for the safety of passengers, or for the safety of the public, or for the safe and effectual working of the undertaking.
- The Company shall from time to time make such returns and furnish such statistics relating to the undertaking in such form and under such heads and divisions and with such details as the _____ may from time to time require. The cost of preparing such returns and statistics and incidental thereto shall be treated as part of the working expenses of the undertaking.
- The fares on the present tram-lines shall not, in any case, be increased.
- All existing privileges granted to the Members of the Legislature shall be maintained.
- The concession of reduction of fares now made to children proceeding to or from the schools which they attend shall be maintained.

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The Company shall, if required by the Railway Commissioners, maintain and manage a Provident Fund for the benefit of the persons employed upon the undertaking, upon such terms and under such rules and regulations as shall from time to time be approved by the

Within twelve months of the execution of the agreement the lessee shall, at his own cost, convert so much of the existing tramway as the Government shall determine, into cable tramways, according to plans to be approved by the Government.

The lease shall include the sole right to construct tramways within the city of Sydney and the suburbs thereof, and such lease may be granted to the Company for a period of years, and under this concession they shall, with the consent of Parliament, lay down the lines which are described in the Schedule hereto annexed.

The Company may lay down such other lines of tramway as they in their own discretion may deem a public convenience and capable of being worked at a profit, provided such lines are approved by Parliament, and are sanctioned by the Railway Commissioners under seal.

Schedule B contains a list and description of the tramway lines which the Government propose shall be established, but with the consent of the Government any one or more of these lines may be abandoned, and other lines may be substituted and carried out.

All such tramways constructed by the Company to be worked on the cable system (or by electric motors), and shall be completed to the satisfaction of the Railway Commissioners.

All tramways constructed by the Company shall be held and worked by the Company for their own profit for a period of forty years, at the end of which time the tramways, with the rolling stock and appliances, become the property of the Government of New South Wales.

At the expiration of the lease the Government shall take over from the lessee the stock of stores and materials, provided they be found suitable for the work of the tramways, and provided the value thereof does not exceed the value of the stores taken over by the lessee from the Government.

In respect of the working of the tramways constructed by the lessee, they shall be subject to the same terms and conditions as are prescribed in clause for the working of the existing tramways.

If in the opinion of the Railway Commissioners any land for the time being in the possession of the Company shall not be required for the purposes of the undertaking, the Railway Commissioners shall certify such opinion to the Company. Upon receipt of the said certificate, or so soon thereafter as may be, the Company shall state in writing whether they acquiesce in the opinion of the Railway Commissioners, or whether they object thereto, and if so the grounds of their objection. If no objection is stated by the Company, or if the grounds of their objection, if any, are not, in the opinion of the Railway Commissioners, sufficient, the Company shall, upon the requisition of the Railway Commissioners, go out of possession of the land in question, and the Railway Commissioners shall be exclusively entitled to possession thereof.

If the Railway Commissioners and the Company shall fail to agree touching any matter with respect to which their agreement is required by the terms of the lease, or if in any case not herein specially provided for any dispute, question, or controversy shall at any time arise between the Railway Commissioners and the Company touching these presents, or any clause or thing therein contained, or the construction thereof, or any matter connected with these presents, or the operation thereof,

thereof, or the rights, duties, or liabilities of either party in relation to the premises, then and in every such case the matter as to which the Railway Commissioners and the Company shall fail to agree, or the matter in difference as the case may be, shall be referred to two arbitrators or their umpire, pursuant to and so as with regard to the mode and consequences of the reference, and in all other respects to conform to the provisions in that behalf of Act

or any subsisting statutory modification thereof, and upon every such reference the arbitrators and umpires shall respectively have power to examine witnesses upon oath or affirmation, and either to fix, settle, and determine the amount of costs of the reference and award respectively or incidental thereto to be paid by both parties or by either party, or to direct the same to be taxed either as between solicitor and client or otherwise, and to direct and award where and by and to whom such costs shall be paid; and every or any such reference may be made a rule of Her Majesty's Supreme Court of Justice on the application of the Railway Commissioners or of the Company, and either the Railway Commissioners or the Company may instruct counsel to consent thereto for the other party.

The tramways to be constructed by the Company shall consist of a double line, and shall be constructed and maintained as nearly as may be in the middle of the road, and at no part thereof shall the tramway be so laid, that for a distance of thirty feet or upwards a less space than nine feet six inches shall intervene between the outside of the footpath on either side of the road and the nearest rail of the tramway. Provided that the Company may, with the consent of the Government and of the local authority, construct the tramway elsewhere than in the middle of the road.

The tramway shall be constructed on the gauge of four feet eight and a half inches, and shall be laid and maintained in such manner that the uppermost surface of the rail shall be on a level with the surface of the road. The tramway shall be constructed in the best and most approved manner, as to design, material, and workmanship, to the satisfaction of the Government, and should any dispute arise as to the sufficiency of the tramway in the above particulars it shall be referred to the arbitration of three engineers or surveyors, one appointed by the local authority interested, one appointed by the Company, and one by the New South Wales Government, and the decision of the majority shall be final.

The Company from time to time, for the purpose of making, forming, laying down, maintaining, and renewing any tramway by this Act authorized, or any part or parts thereof respectively, may open and break up any road, subject to the following regulations:—

- (I) It shall give to the local authority notice of its intention, specifying the time at which it will begin to do so, and the portion of road proposed to be opened or broken up, such notice to be given fourteen days at least before the commencement of the work.
- (II) It shall not open or break up any road except under the superintendence and to the reasonable satisfaction of the local authority, unless that authority refuses or neglects to give such superintendence at the time specified in the notice, or discontinue the same during the work.
- (III) It shall pay all reasonable expenses to which the local authority is put on account of such superintendence.
- (IV) It shall not alter the level of any road without the previous consent in writing of the local authority, and it shall be responsible for any and all damages and claims in regard thereto which may arise in consequence of any such alteration.

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- (v) Whenever the local authority shall decide to alter any level of any road, the Company shall at its own cost raise or lower the rails and so much of the roadway maintained by the Company as shall be necessary to suit such altered level.
- (vi) It shall not, without the consent of the local authority, open or break up, at any one time, a greater length than one hundred yards of any road which does not exceed a quarter of a mile in length, and, in the case of any road exceeding a quarter of a mile in length, the Company shall leave an interval of at least a quarter of a mile between any two places at which it may open or break up the road, and it shall not open or break up at any such place a greater length than one hundred yards.
- (vii) Where the carriage-way over any bridge forms part of, or is a road within the jurisdiction of a local authority, but such bridge is vested in some person, corporation, or Company distinct from such local authority, any work which the Company may be empowered to construct, and which affects or in anywise interferes with the structural works of such bridge, shall be constructed under the superintendence (at the cost of the Company) and to the reasonable satisfaction of such person, corporation, or Company, unless after notice to be given by the Company fourteen days at least before the commencement of such work, such superintendence is refused or withheld.
- (viii) Where the carriage-way in or upon which any tramway is proposed to be formed or laid down is crossed by any railway or tramway on the level, any work which the Company may be empowered to construct, and which affects or in anywise interferes with such railway or tramway or the traffic thereon, shall be constructed and maintained under the superintendence (at the cost of the Company) and to the reasonable satisfaction of the Government, person, corporation, or Company owning such railway or tramway, unless after notice to be given by the Company fourteen days at least before the commencement of such work, such superintendence is refused or withheld.

In all cases the Company shall be responsible for the sound, safe, and proper mode of carrying out the works, which by the Act it is empowered to perform.

When the Company has opened or broken up any portion of any road it shall be under the following further obligations, namely:—

- (i) It shall with all convenient speed, and in all cases within six weeks at the most (unless the local authority otherwise consent in writing) complete the work on account of which it opened or broke up the same, and subject to the formation, maintenance, or renewal of the tramway, fill in the ground and make good the surface, and to the satisfaction of the local authority restore the portion of the road to as good condition as that in which it was before it was opened or broken up, and clear away all surplus paving or metalling, material or rubbish occasioned thereby.
- (ii) It shall in the meantime cause the place where the road is opened or broken up to be fenced and watched, and to be properly lighted at night.
- (iii) It shall bear or pay all reasonable expenses of the repair of the road for six months after the same is restored, as far as those expenses are increased by the opening or breaking up.
- (iv) It shall in no case, unless the local authority otherwise consent in writing, keep any road wholly closed and unavailable for traffic.

If

If the Company fail to comply in any respect with the provisions of the present section, it shall, for every such offence, without prejudice to the enforcement of specific performance of the requirements of the Act, or to any other remedy against it, be liable to a penalty not exceeding *twenty* pounds, and a further penalty not exceeding *ten* pounds for each day during which any such failure continues after the first day on which such penalty is incurred.

The Company shall at its own expense at all times maintain and keep in good condition and repair, with such materials and in such manner as the local authority shall direct, and to their satisfaction, so much of any road whereon any tramway belonging to it is laid, as lies between the rails of the tramway and (where two tramways are laid by the Company in any road in parallel lines, at a distance of not more than four feet from each other) the portion of the road between the two lines of such tramway, and also the portion thereof which may exceed four feet, where a greater deviation from the parallel lines than four feet shall occur at curves or divergencies, and in every case so much of the road as extends eighteen inches beyond the rails of and on each side any of such tramway. The material of every road (opened or broken up by the Company) may be used by it in reconstructing the road so far as the same shall be applicable to that purpose, and all such material not so used and not required by the local authority shall be removed and retained by the Company.

The Company shall not abandon its undertaking or any part of the same, or take up any tramway or any part of any tramway belonging to it except by the consent of the Government in writing, and thereupon it shall, with all convenient speed, and in all cases within six weeks at the most (unless the Government otherwise consent in writing) fill in the ground, and make good the surface, and, to the satisfaction of the Government and the local authorities, restore the portion of the road upon which such tramway was laid to as good a condition as that in the adjacent portion of the road shall then be, and clear away all surplus paving or metalling, material, or rubbish occasioned by such work, and the Company shall in the meantime cause the place where the road is opened or broken up to be fenced and watched, and to be properly lighted at night. Provided always that if the Company fail to comply with the provisions of this section, the Government, or the local authority, if it think fit, may itself, at any time after seven days' notice to the Company, open and break up the road and do the works necessary for the repair and maintenance or restoration of the road to the extent in this section above-mentioned, and the expense incurred by the local authority in so doing shall be repaid to them by the Company.

The Company shall be at liberty to connect any tramway with any engine-house, warehouse, stable, carriage-house, or workshop belonging to it on the routes, and used for the purposes of such tramway.

The local authority on the one hand, and the Company on the other hand may from time to time enter into and carry into effect, and from time to time alter, renew, or vary contracts, agreements, or arrangements with respect to the metalling or paving and keeping in repair of the whole or any portion of the roadway, or any road on which the Company shall lay any tramway, and the proportion to be paid by either of them of the expense of such metalling or paving and keeping in repair.

For the purpose of making, forming, laying down, maintaining, repairing, or renewing any of the tramways, the Company may from time to time, when and as far as it is necessary or may appear expedient, for the purpose of preventing frequent interruption of the traffic by repairs of works in connection with the same, alter the position of any mains or pipes for the supply of gas or water, or
any

any tube, wire, or apparatus for telegraphic or other purposes, subject to the provisions of the Act, and also subject to the following restrictions (that is to say):—

Before laying down a tramway in a road in which any mains or pipes, tubes, wires, or apparatus may be laid, the Company shall, whether it contemplates altering the position of any such mains or pipes, tubes, wires, or apparatus or not, give seven days' notice to the Department of Government concerned, or to the Corporation or Company, persons or person, to whom such mains or pipes, tubes, wires, or apparatus may belong, or by whom they are controlled, of its intention to lay down or alter the tramway, and shall at the same time deliver a plan and section of the proposed work. If it should appear to the Government or to any such Corporation, Company, or person that the construction of the tramway as proposed would endanger any such main or pipe, tube, wire, or apparatus, or interfere with or impede the supply of water or gas or the telegraphic or other communication, the Government or such Corporation, Company, or person (as the case may be) may give notice to the Company to lower or otherwise alter the position of the said mains or pipes, tubes, wires, or apparatus, in such manner as may be considered necessary.

The Company shall make good all damage done by it to property belonging to or controlled by the Government, or by any such Corporation, Company, or person, and shall make full compensation to all parties for any loss or damage which they may sustain by reason of any interference with such property or with the private service pipes of any person supplied by the Government, or by any such Corporation, Company, or person, with water or gas.

If by any such operation as aforesaid the Company interrupt the supply of water or gas in or through any main or main pipe, it shall be liable to a penalty not exceeding *fifty* pounds for every day upon which such supply shall be so interrupted.

Nothing in this Act shall take away or abridge any power to open or break up any road along or across which any tramway is laid, or any other power vested in any local authority, for any of the purposes for which such authority is constituted, or in any Department of Government, or in any local authority, Corporation, Company, body, or person, for the purpose of laying down, repairing, altering, or removing any pipe for the supply of gas or water, or any tubes, wires, or apparatus for telegraphic or other purposes, or for constructing, altering, maintaining, and repairing any works for sewerage, drainage, or other purposes, but in the exercise of such power the Government and every such local authority, Corporation, Company, body, or person shall be subject to the following restrictions (that is to say):—

They shall cause as little detriment or inconvenience to the Company as circumstances admit.

Before they commence any work whereby the traffic on the tramway will be interrupted, they shall (except in cases of urgency, in which cases no notice shall be necessary) give to the Company notice of their intention to commence such work, specifying the time at which they will begin to do so, such notice to be given eighteen hours at least before the commencement of the work.

They shall not be liable to pay to the Company any compensation for injury done to the tramway by the execution of such work or for loss of traffic occasioned thereby, or for reasonable exercise of the powers vested in them as aforesaid.

The Company may use on the said tramway, carriages with flanged wheels, or other wheels, suitable only to run on the rails thereof, such carriages, with their fittings and appliances, to be subject to approval of the engineer or other officer appointed by Government.

If

If at any time after the opening for traffic of any tramway or branch authorized by this Act, the Company discontinue the working thereof, or any part thereof, for the space of three calendar months (such discontinuance not being occasioned by circumstances beyond the control of the Company, for which purpose the want of sufficient funds shall not be considered a circumstance beyond its control), and such discontinuance is proved to the satisfaction of the Government, the Government, if it thinks fit, may, by order, declare that the powers of the Company in respect of such tramway or the part thereof so discontinued shall, from the date of such order, be at an end, and thereupon the said powers of the Company shall cease and determine. Where any such order has been made, the Government may, at any time after the expiration of two months from the date of such order, remove such tramway or the part thereof so discontinued, and the Company shall pay to Government the cost of such removal and of the making good of the road; and if the Company fail to pay the amount so certified within one calendar month after delivery to it of such certificate, or a copy thereof, the Government may, without any previous notice to the Company (without prejudice to any other remedy which they may have for the recovery of the amount) sell and dispose of the materials of the tramway, or part of tramway removed, either by public auction or private sale, and for such sum or sums and to such person or persons as the Government may think fit, and may, out of the proceeds of such sale, pay and reimburse themselves the amount of the cost and of the cost of sale, and the balance (if any) of the proceeds of the sale shall be paid over by the Government to the Company.

The Company may demand and take for every passenger travelling upon the tramway, or any part thereof, including tolls for the use of the tramway and the carriages, and for motive power and every other expense incidental to such conveyance any tolls not exceeding the fares specified in the Schedule.

The Company shall, on being served with a requisition in that behalf by the Government, run upon any line of tramway open for public traffic, and specified in such requisition, two or more carriages every morning (except Sundays and public holidays) between the hours of six and seven o'clock, and two carriages every evening between the hours of half-past five and half-past six for workmen at an uniform fare (of three half-pence) for each journey. Provided always that the tolls herein specified shall be subject to revision by Act of Parliament at any time after the lapse of ten years from the completion of fifteen miles of the extra lines of tramways to be constructed under this Act, without the Company or the person or body corporate replacing the Company being entitled to any compensation in consequence of such revision.

A list of all the tolls and charges authorized by this Act to be taken by the Company shall be exhibited in a conspicuous place inside each of the carriages used by the Company upon the tramway.

The tolls and charges by this Act authorized shall be paid to such persons and at such places upon or near to the tramways, or in such manner and under such regulations as the Company shall by notice be annexed to the list of tolls appoint.

Subject to the provisions of this Act, the Company may, from time to time make regulations:—

For preventing the commission of any nuisance in or upon any carriage, or in or against any premises belonging to it.

For regulating the travelling in or upon any carriage belonging to it.

And for better enforcing the observance of all or any of such regulations, it shall be lawful for the Company to make by-laws for all or any of the aforesaid purposes, and from time to time to repeal or alter such by-laws and make new by-laws. Provided that such by-laws be not repugnant to the law.

Notice

Notice of the making of any by-laws under the provisions of this Act shall be published by the Company by advertisements to be inserted once at least in the *Government Gazette* and once at least in each of two successive weeks in all the daily newspapers published in Sydney, and unless such notice is published as aforesaid, such by-law shall be disallowed by the Government.

No such by-law shall have any force or effect which shall be disallowed by the Government within one calendar month after a true copy of such by-law shall have been laid before the said Government, and a true copy of every such proposed by-law shall not, less than one month before such by-law shall come into operation, be sent to the Government.

And any such by-law may impose reasonable penalties for offences against the same not exceeding *forty* shillings for each offence, with or without further penalties for continuing offences not exceeding for any continuing offence *ten* shillings for every day during which the offence continues, but all by-laws shall be so framed as to allow in every case part only of the maximum penalty being ordered to be paid.

In addition to and not in substitution for any provision contained in this Act with reference to the publication of by-laws, all by-laws made under the authority of this Act shall be painted on boards or printed on paper, and posted on boards and hung up and affixed and continued on the front or other conspicuous part of every office, station, or waiting-room belonging to the Company, and such board shall from time to time be renewed as often as the by-laws thereon or any part thereof shall be obliterated or destroyed, and no penalty imposed by any by-law shall be recoverable unless the same shall have been published and kept published in manner aforesaid.

Such by-laws, when so published and affixed, shall be binding upon and observed by all parties, and shall be sufficient to justify all persons acting under the same, and for proof of the publication of any such by-laws it shall be sufficient to produce a copy of the newspapers in which the notice of having made such by-laws is advertised, and to prove that a printed paper or painted board containing a copy of such by-laws was affixed and continued in manner by this Act directed, and in case of its being afterwards displaced or damaged, then that such paper or board was replaced as soon as conveniently might be.

If any person wilfully obstructs any person acting under the authority of the Company in the lawful exercise of its powers in setting out the authority of the Company in the lawful exercise of its powers in setting out or making, forming, laying down, repairing, or renewing a tramway, or defaces or destroys any mark made for the purpose of setting out the line of the tramway, or damages or destroys any property of the Company, he shall for every such offence be liable to a penalty not exceeding *five* pounds.

If any person without lawful excuse (the proof whereof shall lie on him) wilfully does any of the following things, namely:—

Interferes with, removes, or alters any part of the tramway or of the works connected therewith;

Places or throws any stone, dirt, wood, refuse, or other material on any part of the tramway;

Does, or cause to be done, anything in such manner as to obstruct any of the Company's carriages, using the tramway, or to endanger the lives of persons therein or thereon;

Obstructs or impedes any officer, agent, or servant of the Company in the execution of his duty;

Refuses to quit the tramway, or any station, office, stable, or other premises connected therewith, upon the request to him made by any officer, agent, or servant of the Company;

Or

Sydney Tramway Company's.

Or knowingly aids or assists in the doing of any such thing ;
He shall for every such offence be liable (in addition to any proceedings, by way of indictment, or otherwise to which he may be subject) to a penalty not exceeding *five* pounds.

If any person travelling, or having travelled, in any carriage on the tramway, avoids, or attempts to avoid payment of his fare, or if any person having paid his fare for a certain distance knowingly and wilfully proceeds in any such carriage beyond such distance, and does not pay the additional fare for the additional distance, or attempts to avoid payment thereof, or if any person knowingly and wilfully refuses or neglects, on arriving at the point to which he has paid his fare, to quit such carriage, every such person shall, for every such offence, be liable to a penalty not exceeding *forty* shillings.

It shall be lawful for any officer or servant of the Company and all persons called by him to his assistance to seize and detain any person discovered either in or after committing or attempting to commit any such offence as in the next preceding section is mentioned, and whose name or residence is unknown to such officer or servant, until such person can be conveniently delivered to a constable, who shall convey him with all convenient despatch before some Justice without any warrant or other authority than this Act, and such Justice shall proceed with all convenient despatch to the hearing and determining of the complaint against such offender.

No person shall be entitled to carry or to require to be carried on the tramway any goods which may be of a dangerous nature, or which may be or are calculated to injure the furniture of the carriages or the clothing of any passenger therein, and if any person take by the tramway any such goods he shall be liable to a penalty not exceeding *five* pounds for every such offence, and it shall be lawful for the Company to refuse to take any parcel that it may suspect to contain goods of a dangerous nature, or to require the same to be opened to ascertain the fact.

Every passenger travelling upon the tramway may take with him his personal luggage not exceeding twenty-eight pounds in weight without any charge being made for the carriage thereof. The Company shall not be bound to carry, unless it think fit, any dogs or other animals, parcels, goods, articles, or things other than passengers' luggage exceeding twenty-eight pounds in weight.

The Company may use, or upon such terms as they shall think fit, allow to be used any of their omnibuses, carriages, cars, or other conveyances for the purpose of publishing notifications or advertisements upon the inside thereof, any statute or by-law to the contrary notwithstanding.

If any person (except by agreement with the Company) uses the tramway, or any part thereof, with carriages having flange-wheels or other wheels suitable only to run on the rail of the tramway, such person shall, for every such offence be liable to a penalty not exceeding *twenty* pounds.

It shall be lawful for any officer or agent of the Company, and all such persons as he may call to his assistance, to seize and detain any driver of horses, cars, or waggons, guard, porter, servant, or other person employed by the Company upon the Tramway ; or in repairing and maintaining the works of the tramway, who shall be drunk while so employed, or who shall commit any offence against any of the by-laws, rules, and regulations of the Company, or who shall wilfully or negligently do or omit to do any act whereby the life or limb of any person passing along or being engaged, or being in or upon such tramway or the works thereof, shall or might be injured or endangered, or whereby the passage of any horses or carriages shall or might be obstructed or impeded, and to convey every such person so seized and detained,

detained, and any person counselling, aiding, or assisting in any such offence, with all convenient despatch before any two Justices, without any other warrant or authority than this Act, and every such person so offending, and every person counselling, aiding, or assisting therein as aforesaid, when convicted upon the oath of one or more credible witness or witnesses before such Justices (who are hereby authorized and required upon complaint to them made upon oath, without information in writing, to take cognizance thereof, and to act summarily in the premises) shall, in the discretion of such Justices, be imprisoned with or without hard labour for any term not exceeding three months, or, in the like discretion of such Justices, shall, for every such offence, forfeit to Her Majesty any sum not exceeding *twenty-five* pounds, and, in default of payment thereof, shall be imprisoned with or without hard labour, as aforesaid, for such period not exceeding three months, as such Justices shall appoint.

The Company shall be alone answerable for all accidents, damages, and injuries happening through its act or default, or through the act or default of any person in its employment, by reason or in consequence of any of its works or carriages, and shall save harmless all local and other authorities, companies, or bodies, collectively and individually, and their officers and servants from all damages and costs in respect of such accidents, damages, or injuries.

All tolls, penalties, and charges under this Act, or under any by-law made in pursuance of this Act, may be recovered and enforced before a Justice in manner provided by the provisions of the "Justices of the Peace Statute, 1865." Part VI.

Notwithstanding anything in this Act contained, the Company shall not acquire or be deemed to acquire any rights other than that of user of any road along or across which it shall lay any tramway

It shall be lawful for the Company from time to time to enter into any contract with any other Company, being the owners or lessees or in possession of any other tramway for the passage across or along the tramway by this Act authorized to be made (for a distance not exceeding thirty chains) of any carriages of such other Company, or for the passage over any other line of tramway for such distance as aforesaid of any carriages of the Company, upon the payment of such tolls and charges and under such conditions and restrictions as may be mutually agreed upon, or if the parties shall fail to agree, then on such terms as may be determined by the Government, and for the purpose aforesaid it shall be lawful for the parties to enter into any contracts for the division or apportionment of the tolls and charges to be taken upon their respective tramways.

The days of labour of any person employed by the Company as a driver or conductor of any tramcar or of the animals working any tramcar shall be eight hours, but any person so employed may work for the Company overtime for special payment. Provided that no person so employed shall in any case work for the Company more than sixty hours in any one week, and the Company shall be liable to a penalty not exceeding *five* pounds for each and every breach of this section.

When any line of tramway constructed under this Act shall lead from or to or past any suburban railway station, tramcars shall be run to and from such station along such line of tramway so as to connect with such and so many trains arriving at or departing from such station, either from or to Sydney, as the Government may approve.

If the Company offend against the next preceding section, it shall, on conviction before Justices, be liable to a penalty not exceeding *ten* pounds for every day during which such offence continues.

SCHEDULE A.

Railway Station to Circular Quay.
Liverpool-street to Randwick and Coogee.
Darlinghurst Junction to Waverley, Woollahra, and Bondi.
Crown-street Junction to Cleveland-street.
Devonshire-street Junction to Botany.
Glebe Point.
Forest Lodge.
Newtown and Marrickville.
Leichhardt.
North Shore.
Randwick to Waverley.

SCHEDULE B.

[2s.]

508—H

Sydney : Charles Potter, Government Printer.—1888.

1887.

(THIRD SESSION.)

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

GOVERNMENT TRAMWAYS.

(AMOUNT EXPENDED ON EACH LINE, AND ON ROLLING STOCK.)

Ordered by the Legislative Assembly to be printed, 23 November, 1887.

RETURN to an *Order* of the Honorable the Legislative Assembly of New South Wales, dated 27th September, 1887, That there be laid upon the Table of this House,—

“A Return showing the amount expended in the construction of Tramways, “giving the cost of each line separately, also the amount expended on “rolling stock and machinery.”

(Mr. Frank Farnell.)

GOVERNMENT TRAMWAYS.

Lines opened for Traffic.	Total Amount expended to 31st December, 1886.
	£
Railway Station to Circular Quay	61,218
Liverpool-street to Randwick and Coogee	105,791
Darlinghurst Junction to Waverley and Woollahra and Bondi	68,969
Crown-street Junction to Cleveland-street	31,666
Campbelltown to Camden	37,868
Newtown (Glebe Junction) to Marrickville	53,405
Glebe Point and Forest Lodge	38,021
Railway Station Junction to Botany	78,162
Forest Lodge Junction to Leichhardt	31,111
North Shore Cable	69,625
Total cost of construction	£ 575,836
Tramway workshops for all lines	54,710
Rolling stock	216,130
Machinery	5,471
Furniture	2,113
	£854,260

1887-8.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

TRAMWAYS.

(RETURN SHOWING TOTAL COST OF CONSTRUCTION OF, WITHIN THE COLONY.)

Ordered by the Legislative Assembly to be printed, 19 June, 1888.

[Laid upon the Table of the House, in accordance with promise made by the Honorable the Secretary for Public Works, in answer to Question No. 5, in Votes and Proceedings No. 100, of the 7th June, 1888.]

1. The total number of miles of Government Tramways in the Colony?
2. The total cost of the Tramways to date?
3. The total cost of Tramway Rolling Stock?
4. The total cost of Tramway Workshops and Sheds in (a) Sydney and Suburbs, (b) Newcastle and Suburbs, (c) Camden?

Date	The total number of miles of Government Tramways in the Colony.		The total cost of Tramways constructed.			The total cost of Tramway Rolling Stock.	The total cost of Tramway Workshops and Sheds, inclusive of all Waiting Sheds and Buildings.		
			Lines open for traffic.	Expenditure in connection with Lines not constructed.	Total Expenditure.		Sydney and Suburbs.	Newcastle and Suburbs.	Campbelltown to Camden.
	Miles.	Chains.	£	£	£	£	£	£	
31st December, 1887 ...	50	54-87	625,956	105,640	731,596	217,537	71,281	817	2,374

