FIRST REPORT OF THE COMMITTEE

appointed by the

MINISTER FOR EDUCATION

to enquire into various aspects of

HIGHER EDUCATION

in New South Wales

AUGUST 1961

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"In economic and social matters, the twentieth century has rejected the nineteenth century's concept of a small *élite* confronting a vast proletariat. Our society and economy simply wouldn't work with a high concentration of wealth in a few hands. Is it likely that the twenty-first century will work with a high concentration of education in a few hands? My hope is that the universities will be in the van, not the rearguard, in the rapid evolution of our society. *Tempora mutantur nos et mutamur in illis.*"

—SIR GEOFFREY CROWTHER.

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The Honourable E. Wetherell, M.L.A.,
Minister for Education,
Sydney.

Dear Mr. Minister,

On 20th June, 1960, you announced the appointment of a committee to enquire into various aspects of higher education in New South Wales, its terms of reference being:

1. To enquire into and report on—
   (*a*) the adequacy of existing provisions for higher education by the universities and other tertiary institutions; and
   (*b*) the extension and co-ordination of provisions for higher education.
2. To report upon any other matters relating to tertiary education which the Committee considers of sufficient importance.
3. To make recommendations concerning means of securing for the Government continuing advice on the proper development of higher education.

The members appointed to the Committee were:

EMERITUS PROFESSOR C. R. MCRAE, Deputy Vice-Chancellor, University of Sydney—Chairman;

MR. P. G. PRICE, Deputy Director-General of Education—Vice-Chairman;

PROFESSOR J. P. BAXTER, C.M.G., O.B.E., Vice-Chancellor, University of New South Wales;

MR. N. A. ESSERMAN, Director, National Standards Laboratory, Commonwealth Scientific and Industrial Research Organization;

DR. R. B. MADGWICK, Vice-Chancellor, University of New England.

Dr. S. W. Cohen, Director of Advisory Services, University of Sydney, was appointed as the Committee's Secretary and Research Officer.

Shortly after its work began the Committee had the misfortune to lose the services of its Chairman through ill-health and on 9th September, 1960, you appointed Mr. Price as Chairman in his place and Professor A. G. Mitchell, Chairman of the Professorial Board, University of Sydney, as a member of the Committee. Professor McRae returned to the Committee for a brief time in January, 1961, but ill-health once again obliged him to withdraw. The Committee wishes to place on record, and to bring to your notice, its appreciation of Professor McRae's services both during his period as Chairman and since he ceased to be a member of the Committee.

The Committee began by inviting interested persons and organizations to forward written submissions relative to its terms of reference. Some 170 statements were received from a variety of important sources and the first report of the Committee takes these into account, together with supplementary evidence which has been sought principally from universities.

Early in its discussions it became clear to the Committee that, because of the breadth of its enquiry, it would make most effective progress if it concentrated its attention to begin with on the problems of the universities. These appeared to be not only specially urgent but also fundamental to the definition of a structure for the whole system of post-secondary education. This first part of the Committee's report, therefore, is concerned with those problems associated with the organization of universities which the Committee has judged to be most urgent. In later parts of its report the Committee will deal with other aspects of tertiary education, particularly with technical education and teacher training. Some of their features receive passing reference in this first document and consideration of some aspects of university education is postponed until a later stage.

In our report, we draw attention to the fact that because of lack of sufficient finance, the universities are facing serious difficulties, and have not been able to carry out their functions to their own satisfaction. The Committee is anxious that this should not be interpreted as criticizing the community for lack of interest in the universities, and wishes to state its opinion that the people of New South Wales have been fortunate in the interest demonstrated by State Governments in the problems of higher education.

The principal and inescapable problems faced by universities are those of staff shortages, overall physical expansion, and the selection and care of students. Particular attention has therefore been given to the principles on which the provision of university education should be based, to the question of how and where provision should be made for increased enrolments and to the means whereby student wastages might be avoided. All of these problems, however, have been considered against the background of the essential functions of universities in establishing and maintaining teaching and research at a high standard.

The Committee takes this opportunity of placing on record its appreciation of the services rendered by its Secretary and Research Officer, Dr. S. W. Cohen.

The Committee has the honour to present its first report hereunder.

P. G. PRICE
J. P. BAXTER
N. A. ESSERMAN
R. B. MADGWICK
A. G. MITCHELL

CHAPTER 1

SUMMARY AND RECOMMENDATIONS

1. 1. The purpose of this chapter is to present briefly a picture of the present provision for university education in New South Wales and the major problems facing the universities, and to state the Committee's main recommendations. The main lines of the supporting argument will be given here; the details are given later in the report.

1. 2. The London *Times* in a special number published on 3rd February, 1961 stated that the university population in Britain rose from 47,600 in 1930-31 to 103,000 in 1959-60, an increase of 116 per cent and that in the same period in the U.S.S.R. it rose from 287,900 to 2,260,000, an increase of 658 per cent. In the period 1930-1959 student enrolments in Australian universities rose from 9,483 to 46,841, an increase of 394 per cent and in New South Wales from 2,824 to 16,145, an increase of 572 per cent. The figures for Britain and the U.S.S.R. refer in each case to full-time students. Those given for Australia and New South Wales refer to the total of all students. The percentage increases are comparable.

1. 3. In the same period the ratio of total enrolments to total staff changed within the University of Sydney from 12.9 to 19.3. There are various ways of expressing the student-staff ratio. Probably the most realistic approach is to consider effective full-course students and make appropriate allowances for part-time staff. In this way, we arrive at lower ratios than those quoted above but the general growth of staff responsibilities over the period 1930-1959 is evident.

1. 4. The figures given above illustrate the way in which university development has taken place within the State and are explained by the general tradition that admission should be open to all matriculated students who seek it. The growth in numbers has been natural and unrestricted. It has been based upon the principle that students' ambitions should be fully provided for. The increase in enrolments has thrown such heavy burdens not only on accommodation and equipment but also on teaching staffs that a proper balance between teaching and research and the welfare of students has been endangered.

1. 5. To keep things in proper perspective, and without minimizing the seriousness of the problems facing the universities, we feel bound to state at the outset that the State of New South Wales may well be proud of what has been achieved. In any effort to provide for the wave of enrolments which is already fully testing the resources of universities and whose power will inevitably become more difficult to control, this State starts off from a position of comparative advantage. In the efforts it must make to provide the leaders needed in fields of thought and research it has the benefit of experience and proved accomplishment. It has based its general educational policy on liberality of

opportunity and has been supported in this by the universities. They have shown a sense of public responsibility in keeping the way to higher education open to all who are equipped to follow it. A very extensive system covering every field of higher training has already been developed. There are no neglected areas of training and so no deficiences in its scope that need to be made good. The community does not face the deficiencies that would have shown themselves if there had been restriction of entry over a long period. It is therefore in a position to build. Whereas large expenditures are involved in providing for the next decade, only a small proportion of them are concerned in overcoming the defects in teaching facilities which already exist. There is good reason to be hopeful.

1. 6. In this State the main burden of providing formal education beyond the secondary school is carried by the universities and the teachers' colleges. With a very few exceptions the diploma courses previously given by the Department of Technical Education have disappeared. Courses available at agricultural colleges, the College of Nursing, the Conservatorium of Music, and other specialized agencies account for only a small percentage of those young people seeking formal courses in higher education. Courses in adult education offered by the universities and the Workers' Educational Association do not lead to the award of formal qualifications—a consideration which does not detract from their value. At present (1961) the universities have over 23,000 students enrolled (including full-time, part-time and external students), and the teachers' colleges about 5,500 of whom 1,800 take university courses as part of their preparation for teaching. In short, in this State at present it is the universities that carry the major burden of higher education, providing a range of courses covering preparation for practically all the professions as well as courses in general education. We do not have in this State provision, as is common in the United States, for professional courses in institutions which are recognized as of university rank but which are much more specialized than the traditional British pattern of the multi-faculty university.

1. 7. We have three universities in this State, their total enrolments in 1960 being 21,802, made up as follows:

TABLE I

University enrolments in New South Wales, 1960

Courses	Universities		
	Sydney	New England	New South Wales
First degree—			
Full-time..	8,470	551	2,023
Part-time	2,101	....	4,896
External	....	1,346	....
Post-graduate diplomas ..	342	194	46
Higher degrees	718	33	450
Miscellaneous	319	9	304
Totals	11,950	2,133	7,719

1. 8. As will be shown in later sections of this report, the University of Sydney has grown to a size far beyond what would be regarded as a large university in Britain. The University of New South Wales is already a large university by British standards and is rapidly growing. The University of New England, while steadily increasing its external enrolments, has still too few internal students. Because of its location in a rural city, residential accommodation has to be provided by the University for all its internal students and for its external students during the periods of the year when they are required to come to Armidale. It is clear that the full development of the University of New England depends not only on the provision of adequate staffing and accommodation for teaching and research, but also on the provision of sufficient residential accommodation.

1. 9. The University of Sydney, established in 1850, provides a wide range of courses in ten faculties: Arts, Law, Medicine, Science, Engineering, Dentistry, Veterinary Science, Agriculture, Economics, and Architecture. The New South Wales University of Technology was established in 1949. Under an amending Act of 1958 its range of faculties was extended and its name was changed to the University of New South Wales. It provides courses in Sydney on the main campus at Kensington and at Ultimo, at University Colleges in Newcastle and Wollongong, and at other centres at Orange and Broken Hill. It comprises the faculties of Science, Engineering, Applied Science, Commerce, Architecture, Arts, and Medicine.

1. 10. The University of New England was established in 1938 as a university college of the University of Sydney and became autonomous in 1954. It consists of the faculties of Arts, Science, Rural Science, and Agricultural Economics.

1. 11. All three universities have fully accepted the traditional functions of universities: teaching, research, the training of scholars and professionally competent people needed by the community, provision of opportunities for scholars to pursue in freedom their enquiries into all branches of knowledge, and serving the community as centres of intellectual stimulus and refreshment, as growing points for new ideas. The standards of work in the universities are such that their degrees are accepted all over the world.

1. 12. But although they have wholeheartedly accepted these traditional functions, they are finding it increasingly difficult to fulfil them to their own satisfaction, and the sources of their difficulties have provided the Committee with much of its basic data and have decided the point of departure for its enquiries. The present problems of the universities and the main causes of them may briefly be summarized.

1. 13. The increase in student numbers has been proportionately more rapid than that of the population as a whole; in 1931 the proportion of the total enrolments in all Australian universities to the total population in the 17-22 years age group was 140 per 10,000; by 1959 this had risen to 588 per 10,000. In New South Wales the corresponding ratio for 1959 was 623 per 10,000.

1. 14. The Australian Universities Commission, in its Report published in October, 1960,[1] pointed out that from 1957 to 1959 the absolute increase in the size of the 17-22 age group in Australia was 7.7 per cent, while in the same period the number of university enrolments per 10,000 of the 17-22 age group rose by 21 per cent. Assuming that present trends and conditions continue it is expected that university total enrolments in New South Wales, which were just under 22,000 in 1960, will have risen to about 45,000 in 1970.

1. 15. There are several reasons—educational, economic, and social—for the phenomenal growth in university enrolments. Two explanations which can be studied as educational problems, although they cannot be completely separated from economic and social issues, have been of direct interest to the Committee. The first of these is the increased holding power of the secondary schools. All over Australia during recent years there has been a general increase in the percentage of pupils entering secondary schools who remain to complete the full course. In New South Wales 12.1 per cent of the 1953 entry to secondary schools remained at school for the full course of five years; 14.8 per cent of the 1955 entry did so. The second important explanation is the principle of open entry which the universities have been following. In New South Wales at present any student who fulfils the matriculation requirements of any of the universities is not only assured of a university place, but has a very wide range of courses open to him. The Committee takes the view that this country, whose economy is still growing and expanding, has so much development to carry through, that there is need for every person that the universities can graduate in the humanities, the social and physical sciences, and the technologies. It therefore would regard as unrealistic, indeed retrograde, any attempt to make the universities highly selective places, and holds that university education should be available to all who demonstrate a level of educational achievement which indicates the probability of their graduating, given adequate teaching and facilities for study.

1. 16. The ability of the universities to cope with their increased enrolments depends on an adequate teaching staff, and adequate accommodation and equipment. The Committee has considered both matters. The procedures for financing the building programs and recurrent expenditure of the universities require them at the appropriate time to prepare estimates of their financial needs for the following triennium and to present these to the Australian Universities Commission. After discussion with each university and with officials of the State Treasury, the Commission prepares a set of recommendations for presentation by the Prime Minister to Federal Parliament. The financial provisions for the triennium, as approved by Parliament, are incorporated in a States Grants (Universities) Act which provides for Commonwealth grants to universities, made on condition that grants are also made by State Governments, the ratio of Commonwealth to State aid being 1 : 1 for capital expenditure on buildings and equipment, and 1 : 1.85 for recurrent expenditure. Details of the financial position of the universities are given later in this report. It is sufficient to state here a

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[1] Commonwealth of Australia, *Report of the Australian Universities Commission on Australian Universities* 1958-1963. Canberra, October, 1960. p. 18.

fact of immediate significance which confronted the Committee. For the current triennium 1961-63, the universities' estimates of the capital expenditure that they needed to provide for necessary developments amounted to £19,269,000; the States Grants (Universities) Act (1960) provides for a total of State and Commonwealth grants of £10,000,000. We have accepted the universities' estimates as realistic, and have therefore been forced to conclude that for the current triennium, the universities of this State are short of their estimated needs for capital development by approximately £3,000,000 per annum.

1. 17. The problem of coping with increasing enrolments is not only a matter of the erection of sufficient buildings. The appointment of academic staff in sufficient numbers and of satisfactory quality is essential for the proper development of the universities. For the four academic years 1957-60, approximately 425 new positions were created in the three universities, while an additional 133 positions fell vacant; in only a small proportion of these did the universities have real difficulty in making appointments, although some special fields caused difficulty. However, it is probable that in future it will become increasingly difficult to attract staff from overseas and from other sources outside the universities.

1. 18. The continuing expansion of our own economy will cause an increasing proportion of our graduates to find their way into fields other than university teaching. The expected rapid increase in the number of university places in the United Kingdom will make it more difficult for us to attract academic staff from the British universities.

1. 19. There were about 100,000 students in the universities of the United Kingdom in 1959. Recognizing the need to expand this number considerably the University Grants Committee is exploring means of increasing the number of university places to about 175,000 by the early 1970's, both by expanding the present universities and by the foundation of new ones. Decisions have already been taken to establish seven new universities. There are some leaders of British educational thought who consider that the country's needs require an increase in university enrolment far beyond the 175,000 contemplated over approximately the next decade; Sir Geoffrey Crowther, for example, has urged an increase in university places to about 300,000. That the need for massive expansion is considered important and urgent is indicated, not only by the plans of the University Grants Committee, but also by the establishment of the Robbins Committee, whose terms of reference, announced by the Prime Minister in December, 1960, cover a review of all higher education in Great Britain and advice on the pattern of long-term development.

1. 20. To add to the staffing problem, we shall have to try to make good our present deficiencies: the ratio of students to staff is at present far too high. These factors, and others, will force us to rely heavily on our own resources for training academic staff. The honours and post-graduate schools of our universities will have to be our main recruiting grounds. It will be necessary to give universities the funds to enable them to build up strong research schools, to provide scholarships which

will encourage the best of the undergraduates to undertake honours courses, and encourage a good proportion of the honours graduates to work for higher degrees.

1. 21. A further problem that has received the attention of the Committee is a matter that was discussed at some length by the Committee on Australian Universities (the "Murray Committee") in 1957[1]: the severe failure rates of students, particularly in the first- and second-year courses. While there is variation from university to university, and from one faculty to another within a university, a typical pass rate for first-year classes is between 60 and 65 per cent., and about 60 per cent. of most entering groups can expect to graduate.

1. 22. The present position, then, can be briefly stated. We have three universities. One of them is already too large, one is well on the way to having very large enrolments, while the third has too few internal students to allow it to function at its most efficient level. We have a large and rapidly increasing student population. The three universities receive from State and Commonwealth Governments a measure of financial support which, by pre-1957 standards, is generous, but which is still inadequate for their present needs. On the whole, the principle of open entry for matriculated students still applies. The failure rate of students is heavy. In many courses severe overcrowding occurs. The universities face a serious problem in the future supply of teaching staff.

1. 23. The Committee sees a number of serious educational problems arising from the present situation. It considers that the University of Sydney has grown to such a size that there is grave danger of a loss of important academic values. Indeed it may well be true that, as the Professorial Board of that University asserts, "the existence of large first-year groups is uneconomical and denies to the majority of first-year students the full advantages of membership of an academic society". There is a serious danger that a university can become so large that it ceases to be an academic community and breaks up into a number of separate faculties, while the amount of administrative work that must be carried by teaching staff can increase to the point where it hinders both teaching and research.

1. 24. Much must be done in university teaching to improve the graduation rate; the loss of students through failure is too high. It has many causes, one of the more important of which, we believe, is that the numerical growth of academic staff has not kept pace with that of the students. The principles of university organization have therefore tended to deteriorate from a basis of individual care to one of group tuition, from generous opportunity to demand and penalty. Rules such as those excluding students after failure are becoming more necessary but have a disastrous effect on the attitude of students towards participation in activities whose worth cannot be measured in examinations. The pressure of numbers must be relieved if successful students

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[1] Commonwealth of Australia, *Report of the Committee on Australian Universities.* Canberra, 1957.

are to be more than scholars, if the community is to increase the number of skilled professional men on whom its healthy existence may well depend and if, as we shall show, the efficient structure of the whole educational system is not to be endangered by a failure to recruit teachers for secondary schools. Whatever their special interests or range of studies all universities must be built of students benefiting from personal contact with scholarly teachers rather than of impersonal departments imparting knowledge, training in skills, testing capacities and assessing worth on the basis of high consistency in examination performances. The most dedicated physician or teacher is not necessarily the most consistent examinee nor is the desirable graduate in any other sphere of professional activity. It is necessary to relieve the evils which arise from mass instruction. Some would point to restriction of enrolments as a solution, but we do not advise this course. We have taken the view that it is better to seek out talent and nurture it than to devise rules and procedures for its rejection.

1. 25. There are some university activities which require the provision of such equipment and specialized staff that it is uneconomical to make this provision for a small number of students. We have in mind here certain of the technologies. It is probably best if these schools are reasonably large to warrant the concentration of staff and equipment that is needed if the most effective work is to be done. But this apart, we believe that educational losses occur when a university becomes large. It becomes increasingly difficult for students to have direct contact with the most mature minds in the university; extraordinary measures have to be taken to prevent the student slipping into a frustrating anonymity. At the other end of the scale, a university can be too small, and we believe that this is the situation at present of the University of New England, where development depends on the provision of residential accommodation to keep pace with the desired expansion of teaching and research facilities.

1. 26. However, the Committee does not consider it desirable to make general statements about the optimum size of universities. Each university must be encouraged to develop the shape and characteristics which seem to grow naturally out of its traditions, the circumstances of its establishment, its physical location, and the educational ends which it considers it can most satisfactorily serve. We do not suggest a uniform pattern for the universities in the State, but would like to see encouraged, within reasonable limits, a diversity which would enrich the total pattern. Each university must be given the means to grow to that size which its own ethos demands.

1. 27. In making recommendations for the provision of additional accommodation to meet the expected increases in enrolments the Committee has tried to strike a balance between educational ideals and economic constraints. It would almost certainly be cheaper to provide the necessary additional accommodation in the existing universities, but the Committee believes that there are educational dangers in pursuing such a policy exclusively. The Committee recommends that the existing universities be given the financial means to carry out their planned programs of development which will enable them to reach their maximum effective size under satisfactory conditions for teaching and research.

1. 28. The University of Sydney has planned to provide accommodation for up to 16,000 students under its master plan. Short of applying drastically restrictive measures, it is hard to see how this University can stop its growth short of 16,000. The University has given notice of intention to limit entry and has already put into operation restrictions on certain undergraduates who fail their courses. The Committee hopes that Government action flowing from the recommendations made later in this report will encourage the University of Sydney to depart as little as possible from its traditional liberal attitude towards the admission of students. With the provision of additional university facilities elsewhere, we hope that Sydney will be able to reduce its numbers from the expected peak of 16,000 to a maximum of 12,000, but we do not think that this reduction can be achieved within the next decade. Although the present building plans aim at providing minimum accommodation for 16,000, we do not believe that such accommodation would prove more than adequate for an ultimate enrolment of 12,000 since by that stage there will have been an increase in the numbers of students in the senior years, and there will have been, we hope, an increase in the proportion of students enrolled in honours and post-graduate courses. Accommodation has to be provided for such students on a larger scale than for pass undergraduates. The majority of students at the University of Sydney will be full-time day students. In 1960, approximately 70 per cent were full-time students, and 30 per cent part-time, and there is no reason to assume that these proportions will change significantly over the next decade.

1. 29. The University of New South Wales is still in the comparatively early stages of its building program. One of its most urgent projects is to provide buildings on the Kensington campus to enable it to transfer to that site the departments at present housed at Ultimo in buildings belonging to the Department of Technical Education. It is committed to a building program for its recently established Faculty of Medicine, while the transfer of the Newcastle University College to the Shortland site should be undertaken towards the end of the current triennium or at the beginning of the next. At present, a majority of students of the University are part-time students, but the balance is steadily shifting and it is expected that within about five years a majority of students will be undertaking full-time day courses. The Committee considers that while the University of New South Wales should not be forced to grow in the manner in which the University of Sydney, for historical reasons, was forced to grow, it should nevertheless be enabled to proceed with its planned program of development to that size which proves to be economically and educationally the most effective.

1. 30. Later in this report details are given of the expected cost of the most desirable development of the existing universities. But such development will still provide insufficient accommodation for the numbers of students who are expected to seek admission to universities. In this situation, two possible solutions suggest themselves: either to restrict admissions according to the accommodation available in the existing universities, or to provide additional university facilities. The Committee does not favour the former, although it believes that steps should be taken to make admission to universities somewhat more selective than at present.

1. 31. Reference has already been made to the heavy failure rate among first-year students. The reasons for this failure rate are complex, and are not all to be found in the preparation of students for entry upon university courses. We would therefore commend any efforts made by the universities to improve the efficiency of their teaching and to carry out research into problems of university education. At the same time we believe that a careful study should be made of ways of excluding from universities those students whose abilities seem to give them little chance of graduating. It does not seem sensible that universities should have to waste part of their resources and energies on students who would derive greater benefit from other forms of tertiary education.

1. 32. The methods of selection would need to be investigated but we believe that results on the Leaving Certificate Examination, or a similar type of examination, should be the main measure of fitness for university studies, supplemented perhaps by some form of scholastic aptitude test, the development of which would require considerable research. At a later stage of our enquiries we shall consider the problem of providing a suitably varied range of courses for those young people who, having satisfactorily completed their secondary education, either do not wish to enter universities or do not succeed in gaining admission to them.

1. 33. The Committee considers that in addition to the measures already recommended—developing the existing three universities to their optimum sizes, or, as with the University of Sydney, enabling them to stabilize at their maximum effective size, and making admission somewhat more selective—it will be necessary to provide additional university facilities. The Committee recommends that steps be taken immediately towards the establishment of a new university in the northern suburbs of Sydney. There appear to be good, indeed pressing, educational reasons why this new university should be established in that area. One of the major reasons is that such a new university should give quick and natural relief to the University of Sydney. Already a substantial proportion of the students whose homes are in the metropolitan area and who attend that University live on the northern side of the Harbour and it is clear that, at present and for some time to come, that area will provide the largest group of university students. The exact location should be such that transport would be relatively easy, preferably both by train and bus. In addition the site should be close enough to the city to be easily accessible for evening students.

1. 34. As already indicated, the Committee does not wish to make recommendations concerning the size of any university but since a major purpose of the establishment of a university on the northern side of the Harbour is to give quick relief to the University of Sydney, the Committee is of the opinion that such a new foundation should be capable of growing fairly quickly to an enrolment of at least 6,000 students (full-time and part-time). The first faculties to be established should be Arts, Science, and Economics.

1. 35. Several possible sites for a university have been suggested to the Committee, including St. Leonards, North Ryde, Hornsby, and St. Ives. The Committee recommends that the permanent Universities Committee, which is referred to below, should take expert advice as early as possible on the most suitable site.

1. 36. The Committee is aware that the future growth of population in the metropolitan area will be towards the west and south-west, and recommends that without delay suitable sites be secured in those areas for the establishment of further university facilities at the appropriate time.

1. 37. The capital costs of developing the existing universities, and of establishing new facilities may be, at a conservative estimate, about £60,000,000 over the next decade. Under the States Grants (Universities) Act (1960) the allocation to this State for capital expenditure is £10,000,000 over the current three-year period. The Committee is convinced that a sharp increase in grants is necessary. If additional funds are not provided, then the Committee considers that extensive restrictions on admission to universities cannot be avoided. Already, some restrictions are being applied over and above those traditionally imposed by matriculation requirements. The University of New South Wales has been forced to impose limitations on enrolments in some faculties, while the Senate of the University of Sydney has notified its intention to restrict enrolments in those faculties and departments where severe strains in teaching facilities are being felt. Because of the rapidity with which enrolments are growing, the restrictions to be imposed in the University of Sydney will come into operation at an earlier date than originally expected—1963 for most faculties with 1962 as the date for limitation of entry into the Faculty of Medicine—while the number of intending students who will be denied a place in the University, even though they have satisfied matriculation requirements, could be significant by 1964. In short, the difficulties are now upon us and the time is late. The unwelcome truth is that even if finance is made available without delay it may not be possible entirely to avoid denial of opportunity to students until the necessary developments in the existing universities are well advanced and an additional university in Sydney can begin work. The Committee wishes to state with all emphasis its judgment that unless the problem is treated as one of great urgency the damage done will take a long time to repair.

1. 38. The Committee has received many carefully prepared submissions presenting cases for the establishment of new university facilities in rural areas. The Committee has given close attention to such submissions, and in addition has studied a good deal of data, some of which is presented later in the report, bearing on population trends, school enrolments and potential university enrolments over all areas of the State. The Committee has come to the conclusion that apart from the fullest effective development of the University of New England, and of the present colleges of the University of New South Wales, it cannot recommend any other university development outside the metropolitan area.

1. 39. The Committee recommends that the Newcastle University College be transferred as soon as possible to the Shortland site, and that at an appropriate time it become an autonomous university containing faculties of Arts, Science, and Commerce. The establishment of full courses in Technology[1] would involve the provision of equipment which might prove to be an unnecessary duplication of the facilities at Kensington. In this field the Newcastle University College should continue to operate as a college of the University of New South Wales.

1. 40. The Committee has given close consideration to the special problems of medical education. It is aware of the serious overcrowding in the early years of the Faculty of Medicine at the University of Sydney, and is aware of the problems being faced by the University of New South Wales in obtaining an adequate supply of material for bedside teaching in the clinical years of the course in its newly established Faculty of Medicine. Medical education is expensive, and for its success depends heavily not only on the provision of adequate full-time teaching staff but also on the services of highly skilled part-time teachers for much of the clinical work. The problem of providing clinical teaching material, adequate in variety and in quantity, is no light one.

1. 41. Furthermore, there is need for further careful investigation into the extent of the need for medical graduates in this State, taking into account the demands of private practice, public health services, industry, teaching and research, and the fact that a proportion of those who graduate are students from overseas who will return to practise in their own countries. The permanent Universities Committee should have, as an early item on its agenda, a thorough investigation into the needs of this State for medical graduates, the facilities available for clinical teaching and a program for the building of hospitals which would take into account the needs of medical education. Until such time as these further investigations can be made, the Committee recommends that the Universities of Sydney and of New South Wales enquire into the possibility of an expansion of their facilities in the immediate future to ensure that all suitably qualified applicants will be admitted to the medical schools of the two Universities.

1. 42. It is clear that the magnitude of university development over the next decade will require the utmost efficiency in planning and a substantial measure of co-ordination among the universities. Admission procedures and control of numbers will need to be co-ordinated and needless duplication of teaching and research facilities and equipment must be avoided. Further, it is important to set up adequate machinery for ensuring that the programs and needs of universities are presented to State and Commonwealth Governments and to the Australian Universities Commission in a co-ordinated way. To these ends, we recommend the establishment of a permanent New South Wales Universities Committee composed of the Vice-Chancellors of each of the

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[1] Technology here is defined as covering such fields as Engineering (Civil, Mechanical, Electrical, Chemical, Mining, Highway, Traffic, etc.), Applied Sciences such as Metallurgy, Chemical Technology, Plastics, Rubber and Paint Technology, Wool and Textile Technology, Ceramics.

universities or their nominees, and two members appointed by the Minister for Education, one of the Minister's appointees to be the full-time Chairman. The Universities Committee must be directly responsible to the Minister for Education.

Recommendations

1. 43. The Committee's main recommendations are the following:

(1) The existing three universities should be given as a matter of urgency the finance to complete their development programs to enable them to handle their maximum effective enrolments.

(2) Immediate steps should be taken towards the establishment of a new university in the area of the northern suburbs of Sydney.

(3) Funds should be made available over the next decade for capital expenditure on existing universities and for the establishment of an additional university. The extent of the financial need is as follows:

(*a*) For the current triennium the universities of this State are short of their estimated needs for capital development by approximately £3,000,000 per annum.

(*b*) For the remainder of the next decade the expenditure for capital development for the universities of this State will be about £6,000,000 per annum. This estimate includes the necessary development of the existing universities and the establishment of an additional one.

(4) There should be careful investigation to determine the most desirable standard of qualifications for admission to universities. Subject to the imposition of such a standard, the principle of open entry should be maintained.

(5) Sites should be secured for future university development in the west and south-west of the metropolitan area.

(6) The universities should be given funds to enable them to develop fully their honours and post-graduate schools, since these will have to be the major training and recruiting grounds for academic staff.

(7) Arising out of its consideration of means of securing for the Government continuing advice on university development, the Committee recommends that there should be established a New South Wales Universities Committee.

(8) The main function of the Universities Committee should be to provide the Government, through the Minister for Education, with continuing advice on the proper development of the universities. Its functions would include:

(*a*) determining and reporting the occurrence and the extent of needs, the means whereby they can best be met and their provision co-ordinated;

(*b*) encouraging research with the objective of obtaining and spreading knowledge likely to be of use in the improvement of university education;

(*c*) consulting with the universities, government departments, and where necessary with the Australian Universities Commission;

(*d*) advising the Minister on State action which might be desirable in the light of the provisions of the States Grants (Universities) Acts;

(*e*) providing a place for discussion on problems of interest and concern to the universities and affording opportunities for the maximum desirable amount of co-ordination of their activities;

(*f*) discussing, with bodies responsible for other forms of education, problems of common interest.

(9) Two of the first tasks of the permanent Universities Committee should be:

(*a*) to select a site for, and proceed to the establishment of, the new university in the northern suburbs of Sydney, and

(*b*) to investigate various aspects of the need for an expansion of medical education.

CHAPTER 2

NATURE AND FUNCTIONS OF UNIVERSITIES

2. 1. With the many urgent problems facing institutions of higher education in New South Wales, there is a temptation to think of the main considerations which led to the establishment of this Committee primarily, if not exclusively, in terms of means: getting more money for universities, providing physical facilities to meet increasing enrolments, finding additional staff. And it is inevitable that the recommendations which the Committee has to make will be much concerned with such practical considerations. But means can be properly considered only against the background of the purposes which they are devised to achieve.

2. 2. The Committee therefore feels that it should state its views on the nature and functions of universities, and that it should relate these to the purposes which the universities in New South Wales may reasonably be expected to set before themselves in the second half of the twentieth century. The universities have to face great challenges and it would be a pity if their efforts amounted to no more than fragmented, haphazard, and unco-ordinated attempts to meet recurring crises. All that they do should have the coherence that comes from filling in the parts of a well considered long-term plan based on a clear notion of purposes and values.

2. 3. Universities all over the world share certain traditional values and purposes, but to some extent their nature is determined, and these great commonly accepted purposes are to some degree modified, by the circumstances and social structure in which they operate. We think it important to state some of the modifying circumstances in which the universities in New South Wales do their work.

2. 4. In April, 1960, the Vice-Chancellors of two universities, separated from each other by half the world, but sharing common university traditions, wrote to their graduates about the problems each faced with increasing student enrolments. The University of Liverpool *Recorder* for April, 1960, reported that the Vice-Chancellor of that University, which at the beginning of the academic year 1958-59 had 3,560 full-time and 207 part-time students, was to inform the University Grants Committee that the University was willing to increase its student numbers to 6,500 within a period of about ten years, on the understanding that the Grants Committee gave all necessary assistance with the provision of new buildings, staff, and equipment. Further, that the University would be willing to consider a further increase to 7,000, but that this further increase of 500 would be even more difficult and costly to accommodate. This must have had about it a curious aura of unreality for the Vice-Chancellor of the University of Sydney who, in

his April, 1960 *Letter to Graduates*, stated that the rate of increase in student numbers was proving greater than had been anticipated and then went on to say:

> "The Murray Committee considered that a total of about 12,000 students is the desirable upper limit for the University of Sydney. Already in 1960 we have this number. Although we would like as a maximum the figure of 12,000, we do not at present see any hope of having fewer than about 16,000 students in 1963. Whether or not we can hold our student numbers at about that figure will depend upon new University developments in the State."

2. 5. The practice in New South Wales has been to admit any student who meets matriculation requirements. This tradition was firmly established from the beginning of university education in Australia. At the inaugural ceremony of the University of Sydney in 1852 the Governor-General, Sir Charles Fitzroy, emphasized that the doors of the new university would be open to all who could pass the matriculation tests. The practice has remained unchanged to the present day. Rigorous selection procedures beyond matriculation, normal in the United Kingdom, are not known, but this liberal policy of admission creates special problems for the universities of the State. Universities in Great Britain which, up to the present, have been able to exercise a fairly high degree of selection, but which under the stress of national demands for more graduates are being pressed to increase their enrolments and accept a wider range of student ability, are beginning to experience the problems that the University of Sydney has long faced, and which the two younger universities in this State are now facing. In this connection, it is of interest to note a statement which the Vice-Chancellor of the University of Manchester made to the Court of that University in May, 1959.

> "Can the idea of a University as a corporation of scholars and selected students, as a body concerned only with the training of an intellectual elite, be abandoned and the doors opened wider without considerable risks being taken in attrition and failure rates? If increasingly we are asked to provide graduates because the state needs them; if the idea of education as a social rather than an individual process is to grow; if the idea of learning as an end in itself (supposing there ever to have been such a thing) is to be replaced by other criteria, then we have got to ask that the traditional tests of achievement be replaced by less rigid ones. If you insist at the point of entry on our dealing with more heterogeneous material—then you must be ready to face changes also at the point of departure . . . If social pressure continues to operate upon Universities in the direction of increasing student numbers, some latitude will have to be permitted in the matter of attrition and failure. The nation is entitled to ask much of its Universities. It must not ask the impossible."[1]

2. 6. The universities in New South Wales have accepted a heavy share of responsibility for satisfying the demands of a rapidly expanding society for increasing numbers of graduates in a wide range of professions. They have taken up the challenge of the increasing technological demands which this expanding society makes on them. But

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[1] *University of Manchester Gazette.* No. 25, September, 1959. pp. 5-6.

there are some who feel that the universities have accepted this responsibility too readily, and that it might have been better to experiment with the establishment of a diversity of smaller, specialized institutions to do much of the teaching and research that go on in some professional faculties.[1]

2. 7. In addition to their prime responsibility for teaching undergraduates, an important part of the work of the universities is on the frontiers of knowledge in the kinds of research programs they all pursue. Here they are concerned both with the training of research workers through their higher degree programs, and with the original work being done by members of staff and by senior students. The proper development of both primary and secondary industries calls for a wide program of research in the physical and biological sciences, and the humanities and the social sciences are of no less importance, both for their own sake and for the contributions they can make to solving the pressing, indeed the frightening, problems that face modern civilization. We do not accept, and we doubt if any university these days would accept, Newman's notion that a university is a place for the dissemination of knowledge rather than for its advancement. Nor do we accept his notion of the dichotomy between teaching and research which leads him to regard these two activities as distinct gifts, "not commonly found united in the same person". While we are well aware that in practice we frequently find members of university staff who are more gifted in one of these directions than in the other, we believe that a university is likely to provide better teaching and to carry out better research if most of the staff do both.

2. 8. About these two functions of universities—teaching and research—we feel there will be no difference of opinion, and we shall return shortly to consider the former a little more fully. We turn now however to a more subtle function of universities, one which poses problems of implementation and draws attention to basic educational principles.

2. 9. In an address given at the Graduation Ceremony of the University of Western Australia in April, 1960, Dr. H. C. Coombs drew attention to what he called the growing "institutionalization" of contemporary society and to the development of large-scale organizations in business, in government, and in social and cultural affairs. While we probably have to accept this development, we must ensure that such large organizations are kept in proper check and frequently subjected to careful examination. According to Dr. Coombs, this can only be done

> "if there flows into our society a stream of young men and women who have the intellectual curiosity and the moral resolution to question the unstated assumption, who are capable of looking with fresh eyes at long established practices, and who have the fibre and integrity to resist the pressure to conform to pattern".[2]

We take the view that it is a major function of universities to produce such people.

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[1] P. H. Partridge, "The Growth of the Universities". *The Forum of Education.* Vol. XVIII No. 2. July 1959.

[2] *Gazette of the University of Western Australia.* Vol. 10, No. 2, June 1960. p. 23.

2. 10. We feel strongly that our universities should avoid turning out a uniform product, but we fear there is a great danger that this will happen if too much emphasis is laid on the development of technical skills. We further believe that in educating students in the humanities, it is only too easy to miss the mark, and to produce graduates who have failed to develop the qualities that we believe to be the mark of a university education. What then, beyond professional training and the pursuit of research, do we regard as the proper function of universities?

2. 11. For Newman, just over a century ago, the basic purpose of a university was the development of what he called a philosophical habit of mind, the principal marks of which are "freedom, equitableness, calmness, moderation, and wisdom".(1) He described that beauty of the intellect which is the true end of a liberal education:

> "To open the mind, to correct it, to refine it, to enable it to know, and to digest, master, rule, and use its knowledge, to give it power over its own faculties, application, flexibility, method, critical exactness, sagacity, resource, address, eloquent expression".(2)

2. 12. This view has frequently been repeated since Newman's day, just as in earlier days there were those who advanced it as the ultimate aim of education. In our own time writers such as Moberley and Ortega y Gasset have asserted that there is a personal development and maturing of the ideas and philosophy of the student which should be the mark of the university man. Livingstone reminds us of Newman's idea that the practical aim of a university is to train "good members of society" and then goes on to say:

> "How much stronger the case is for his view in an age when with divided and uncertain minds we have to ride the storms of social and intellectual change! The university should equip us for this task too. It should train men to be not merely masters of a special field but to know what Plato meant when he wished his ruling class to learn to be 'spectators of all time and all existence'. It should have wide aims and a sense of practical needs: and its graduates should go into life not so much expert in the battle-cries and tactics of the moment, as conscious of the deeper issues at stake and of the values involved in them."(3)

2. 13. To come very close to home, we recall that in his oration during the Centenary Celebrations of the University of Sydney, the late Sir Ian Clunies-Ross put forward three propositions:

> "(1) The first responsibility of the university is to make of the ordinary man an educated, an enlightened or cultured person, fitted as fully as his natural endowments permit to be a good member of society.

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(1) John Henry Newman, *The Idea of a University*. London. Pickering, 1873. p. 101.

(2) *ibid.*, p. 122.

(3) Sir Richard Livingstone, *Some Thoughts on University Education*. Cambridge University Press, 1948. pp. 11-12.

(2) Training for the professions or any other purpose must be compatible with the satisfaction of our first proposition.

(3) In order to satisfy propositions 1 and 2, drastic reform of university education is necessary."[1]

2. 14. We accept the view that the unchanging purpose of university education is the production of cultured, responsible, enlightened men and women, possessing the largeness of outlook and the qualities of mind which we have just been discussing. We do not regard this as incompatible with the other functions of a university, which are concerned with supplying the professional people and carrying out the fundamental research which modern society demands; indeed we doubt whether these "practical" ends will be well served if the more fundamental one is neglected. But it is necessary to examine briefly the implications of such a view.

2. 15. The issues involve fall into two main groups which may broadly be considered as problems of university teaching and examining on the one hand, and as principles of university curricula on the other. It is hardly necessary to say that these two groups of issues are not independent of each other.

2. 16. On the need for careful consideration of teaching and examining methods, probably all that needs to be said has already been said by Sir Richard Livingstone:

> "But it is a question not merely of the subjects to be studied but of the way in which we study them. Salt can lose its savour; the humanities can lose their humanity. Education continually tends to degenerate into technique, and the life tends to go out of all subjects when they become technical. It is possible to read Plato's *Republic,* as I did when an undergraduate, without realizing that it deals with the deepest of all problems—what the good life is, why men should wish to live it, how a state can be created in which it can be lived. It is possible to read the *Oedipus Tyrannus* of Sophocles without realizing that its characters are people as alive as ourselves, reacting as we might to the impact of tragic events. . . . It is possible to read history and get a history scholarship and an honours degree in it without divining the deeps that lie beneath laws and wars, diplomacy and institutions, or hearing behind the tumult and the shouting the still sad music of humanity: indeed that music is inaudible in most history books, though always present in the great ones. So easily can education decline into routine and mechanism."[2]

2. 17. The methods by which an undergraduate is taught, the influence of the examinations for which he prepares himself and which have assumed a crucial importance in our universities, the largeness of vision and liberality of thought which his university teachers demonstrate before him, these things will to a large extent determine the kinds of attitudes he develops towards learning. Much depends on the university's ability to organize itself so that the undergraduates will be

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(1) University of Sydney, *Centenary Celebrations,* p. 18.

(2) Livingstone, *op. cit.,* p. 16.

permitted to come into contact with fine, mature minds. With ever increasing enrolments, our universities are being forced away from the notion that "a University is, according to the usual designation, an Alma Mater, knowing her children one by one, not a foundry, or a mint, or a treadmill."[1]

2. 18. The other group of problems arises from the nature and form of university curricula. There are some, such as Ortega y Gasset, who claim that all university students should pursue some studies in all the great cultural fields: the physical, biological and natural sciences, history, sociology and philosophy. This is the idea behind the general education requirements at Harvard, and the more recently established pattern of university education at North Staffordshire. The University of New South Wales has adopted a procedure similar in kind to that developed in the Massachusetts Institute of Technology, requiring all students to undertake some work in the humanities and the social sciences. The University of Sydney, while not requiring students to spread their studies beyond their special fields, has in recent years modified its curricula to permit students in the scientific and technological faculties to take courses in the Faculty of Arts, while it has always been possible for Arts students to take scientific courses if they wished. We shall have to consider whether, with the inevitable increase in specialization, we have diverged too far from the idea behind the original curriculum of the University of Sydney, which opened its doors with three Chairs—Classics, Mathematics, Chemistry and Experimental Philosophy—and required all students to take courses given by all three professors.

2. 19. What we have said, in brief, is that universities in New South Wales share, with all other universities, responsibility for carrying on teaching and research at a high level in a wide range of humanistic and scientific studies. But we have also urged that the universities of this State have to be taken for what they are, not for what they would be if they were in another country. They are open to a wide range of ability and, for better or for worse, they carry out some functions which in other places might well be regarded as the functions of specialized institutions not going by the name of universities. This wide range of ability in the student body, and the wide variety of the aims and motives—many of them narrowly utilitarian—that bring students into our universities, are given conditions which, for some time to come at any rate, cannot easily be wished away. We have asserted that, even if they are under heavy pressure to concentrate much of their energies on teaching which can only be regarded as technical preparation, the universities must maintain a constant effort to advance and refine knowledge through the quality of their research, and to give to their students broader horizons and wider sympathies and develop in them the attitude of mind that produces what Newman called "good members of society".

2. 20. Universities have a duty not always sufficiently appreciated by the community generally, to safeguard and perpetuate scholarly attitudes and values. They must ensure that the spirit of disinterested

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[1] Newman, *op. cit.*, pp. 144-145.

enquiry is kept free and is recreated in a continuing succession of able students. In any advanced community there must be organizations of scholars free to enquire into knowledge and to follow their enquiries wherever they may lead. They must be free to declare the truth as they see it. It is an arresting thought that universities are the only institutions that can be organized to this end. The preservation and the assertion of academic freedom are important to the whole community.

2. 21. So far we have been mainly concerned with what universities do within their own walls, although we have briefly suggested that in their research programs they will be much concerned with the problems of life in the community generally. It is enough here to state the general principle that members of staff of universities can, and should, give leadership to the community, through their writings and addresses and membership of committees. In these and other ways they can make available to the community the specialized knowledge and the breadth of outlook which ought to be the mark of the university teacher. There should be a two-way traffic. While the university goes out into the community through the work and influence of its teachers, the community should be coming to the universities as the places to which people naturally look when they want expert knowledge, advice and assistance in current problems, or when they wish to strengthen and refresh themselves by drawing upon the accumulated wisdom and learning of which universities are trustees.

CHAPTER 3

INCREASING ENROLMENTS AND THEIR IMPLICATIONS

3. 1. A basic fact which confronted the Committee at the beginning of its enquiries, and which has run like a constant thread throughout all its discussions, is the rapid increase in university enrolments. This chapter examines the probable future demand for university education in New South Wales and considers some of the implications of this demand.

University enrolments

3. 2. The growth of the university enrolments arises from two principal causes: the growth in population and the increase in the proportion of young people seeking a university education. The first of these causes is to be observed in Table II below, where it is shown that the rates of growth of the age groups constituting the principal undergraduate population are greater than the overall growth of the whole population.

TABLE II[1]

Population of Australia 1960–70 (*a Projection*)

Year	Total population	Age group	
		15-19 years	20-24 years
1960	10,292,756	777,988	669,689
1961	10,508,491	821,662	691,943
1962	10,720,894	890,727	721,806
1963	10,928,372	947,475	746,912
1964	11,135,853	984,742	787,100
1965	11,343,668	1,023,151	833,291
1966	11,564,313	1,061,723	877,149
1967	11,746,952	1,066,241	935,865
1968	11,942,635	1,085,337	1,022,217
1969	12,151,423	1,106,425	1,039,133
1970	12,349,005	1,124,915	1,077,167

3. 3. It will be seen that whereas it is anticipated that the whole population of Australia will grow by 20 per cent. in the period 1960–1970, the growth in the 15–19 years age group is 44 per cent. and in the 20–24 years age group 59 per cent. in the same period.

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(1) W. H. Maze, "General Survey" in University of New South Wales, *The Australian Universities*—1970. Sydney, 1961. p. 10. Based upon data from the Commonwealth Bureau of Census and Statistics.

3. 4. The significance of these groups is shown by R. B. Davis who analyzed distributions of new enrolments in Australian universities and showed that of new enrolments on 1st March, 1958, 67 per cent. were in the 16-19 years age group and 16 per cent. in the 20-24 years group.[1] These ratios remain sufficiently steady from year to year to permit deductions regarding enrolments in future years. New enrolments of students above 24 years of age occur largely owing to the organization of evening and external studies by the universities. Estimates of required capital expenditure are based on the number of full-time students, because, if universities can meet the demands on accommodation made by the enrolment of students proceeding from secondary studies immediately or after a short interval, they are generally in a position to accommodate part-time students. The proportion of full-time students shows a tendency to increase slowly, but over the period with which we are concerned, the rates of growth of the total student population and of the number of full-time students are so closely related that the number of full-time students can be deduced with confidence from the total student population.

3. 5. The increasing rate of demand for enrolments in universities is illustrated in the following figures given by Davis.[2]

TABLE III

Enrolment ratios for all States of Australia: 1949, 1954–1959

Age specific population, 17 to 22 years.

Year	Specific population		University enrolment		Enrolment ratio per 10,000	
	M	F	M	F	M	F
1949	367,000	353,294	14,938	6,113	407	173
1954	354,591	333,760	23,163	6,295	653	189
1955	364,711	341,323	24,108	6,753	661	198
1956	378,267	352,420	26,872	7,608	710	216
1957	390,275	365,109	28,816	8,087	738	221
1958	400,584	378,654	32,642	9,223	815	244
1959	416,809	396,106	36,830	10,735	884	271

3. 6. It will be observed that during the period 1949–59 the enrolment ratio per 10,000 of population in this age group more than doubled in the case of the men, and increased by over 50 per cent. in the case of the women. The growth was apparent before 1949. Moreover, it seems reasonable to assume that it will continue and that by 1970 we could reach the stage at which 9 per cent. of the 17–22 population seeks enrolment in universities. The growth is also illustrated in the Report of the Australian Universities Commission of October, 1960, which points out that in the interval 1957 to 1959 the absolute increase in the

(1) R. B. Davis, *Estimates of Australian University Enrolments* 1960–74. University of New South Wales, 1960. p. 16.

(2) *Ibid.*, p. 28.

17–22 age group was 7.7 per cent. while in the same period the number of enrolments per 10,000 of the 17–22 population rose by 21 per cent. The forecast of a greater tendency towards attendance at universities will still leave the rate of enrolment in Australia behind that in American colleges and universities. The rate of enrolment in British universities is considerably less but is influenced by the existence in Great Britain of a wide range of other types of institutions of higher education.

3. 7. Taking all the facts into consideration, various authorities have made predictions of enrolments in Australian universities over the next ten years and particular attention has been paid in the past to the *Report of the Committee on Australian Universities* 1957 and the Borrie-Dedman study.[1] It is to be noted that the predictions made in these reports have, in fact, been exceeded. R. B. Davis, in the study already mentioned, has considered the problem on the bases of two assumptions regarding immigration and has arrived at an upper and lower estimate of Australian enrolments.[2] Table IV shows Davis's estimates of enrolment in all Australian universities and the Committee's deductions regarding enrolments in New South Wales based on the assumption that they will be 40 per cent. of the Australian total. (In 1957 they were 39.8 per cent., in 1958 39.5 per cent., in 1959 39.8 per cent. and in 1960 40.7 per cent.)

TABLE IV

Estimates of university enrolments to 1974; *Australia and N.S.W.*

Year	All Australian universities. Predicted enrolments based on		New South Wales. Predicted enrolments	
	Immigration upper estimate	Immigration lower estimate	Upper estimate	Lower estimate
1960	53,000	53,000	21,200 (*a*)	21,200
1961	59,000	58,500	23,600	23,400
1962	65,000	64,000	26,000	25,600
1963	71,000	70,000	28,400	28,000
1964	77,000	75,000	30,800	30,000
1965	83,000	81,000	33,200	32,400
1966	89,000	86,500	35,600	34,600
1967	96,000	92,500	38,400	37,000
1968	102,500	98,500	41,000	39,400
1969	108,500	104,000	43,400	41,600
1970	114,500	109,500	45,800	43,800
1971	120,500	115,000	48,200	46,000
1972	126,500	120,500	50,600	48,200
1973	132,500	126,000	53,000	50,400
1974	138,500	131,000	55,400	52,400

(*a*) Actual enrolment in 1960 was 21,802.

(1) W. D. Borrie and Ruth M. Dedman, *University Enrolments in Australia, 1955–1970: A Projection*. Canberra, Australian National University, 1957.
(2) R. B. Davis. *op. cit.*, p. 22.

3. 8. Predictions of enrolments obtained separately from the universities have been generally based on trends observed within the universities and the growth of candidature for the various matriculation examinations. The totals of the estimates prepared by the universities are slightly higher than Davis's upper estimates but for all practical purposes the differences are negligible. It is proposed to take the figures in the fourth column of Table IV as the bases of prediction in this report. They lead to the conclusion that, if the present pattern of secondary education and university admission procedures remain substantially unchanged, the total university enrolment in New South Wales will be more than doubled during the next ten years, increasing by about 24,000 from 21,802 in 1960 to about 45,800 in 1970.

3. 9. The Committee has investigated the question whether the increase of enrolment should be provided for by the expansion of existing institutions, the creation of more universities, or by a combination of these procedures. The argument is set out in a later chapter, but at this stage it may be noted that if we were to fall in with the view quoted with apparent approval by the Australian Universities Commission,[1] we should have to conclude that the growth in enrolments in the next ten years would require the establishment in this State of three universities, each larger than any provincial university in Great Britain.

3. 10. An instructive comparison may be drawn between the English and the Australian situations. Both countries have the same problem, that of providing university education for double the present numbers of students by 1970, but they have been led to face this challenge in somewhat different ways. In Great Britain the universities have always been highly selective and there has been a considerable pool of qualified young people unable to gain admission. Now it has been decided, and expressed as national policy, that England must increase the number of students at universities from the present 100,000 to 175,000, and if possible 200,000 by 1970. Unless this can be managed a decline in national standing is to be feared. The country cannot afford denial of opportunity to qualified students, and if facilities are to be found at the standard and with the student/staff ratio that the English universities have always regarded as maximum the cost is going to be very high.

3. 11. In New South Wales the policy has been to admit every qualified student, but he has too often been admitted to under-staffed and under-equipped universities and put in much greater danger than the English student has been, of failure in his earlier years. We have the tradition of open entry towards which clearly England will be striving. Sir Geoffrey Crowther says: "In my view . . . there must be enough places in the entering year of the universities—whatever happens thereafter—to ensure one for every boy or girl who passes in two

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[1] In its *Report on Australian Universities* 1958–1963, p. 69, the Commission states: "The extent of the present task can be realized by considering the enrolments predicted for the next six years in terms of the optimum size of a single university. Most university authorities in Australia would place this at no more than 8,000 students. If the enrolment demand is to be met in terms of the existing university pattern, the Australian community must create every two years the equivalent of at least one new university of 8,000 students."

subjects at Advanced Level and who wishes to enter."[1] Such an idea in England is new. In this State there has always been a place in a university for every boy or girl who satisfied the much less exacting standards of the matriculation requirements. The opportunities for the students, once admitted to the universities, have not been as good as in England. To provide for the increased number of students who will be coming forward in the State with better facilities than have been enjoyed in the past, the cost is also going to be very high.

3. 12. Britain, by a policy dictated by national need, plans to provide by 1970 for twice the present number of students in universities through a deliberate expansion of opportunity. If we keep our policy of open entry and full opportunity (and the Committee's recommendation is that all possible should be done to retain it) we shall have to be providing for twice the number of students by 1970. With our rapidly developing economy we can no more do without them than can England at a stage in her history where a multiplication of higher training in all fields is more than ever important to the maintenance of her standing. The magnitude of the problem ahead is the same in both countries and to the question: How many young people with higher education are needed? the answer is the same: As many as we can get.

Enrolment of overseas students

3. 13. Before leaving the subject of student enrolments attention is directed to the numbers of overseas students attending universities in this State. Statistics relating to the enrolment of overseas students in Australian universities are contained in the Report of the Australian Universities Commission of October, 1960. They show that on 30th June, 1960, there were 139 Colombo Plan students enrolled in the University of Sydney, 97 in the University of New South Wales and 16 in the University of New England, making a total of 252 or 48 per cent. of the Australian total of 521.

3. 14. There were at the same time 1,091 private overseas students enrolled in the universities of this State being 53 per cent. of the Commonwealth total of 2,078 and approximately 5 per cent. of the total enrolment of all students in the State. A majority of these students came from Singapore, Malaya and Hong Kong. In a total of 886 Asian students at the University of Sydney in 1960 (including Colombo Plan students), 322 were from Malaya, 169 from Singapore and 197 from Hong Kong, these together being 78 per cent. of the total of Asian students. Universities are available in the countries from which these students come but they have not been expanded to meet the full demands for higher education. They remain small and comparatively selective.[2]

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(1) Sir Geoffrey Crowther, *Schools and Universities*. London School of Economics, 1961. p. 7.

(2) For the academic year 1959–60, the following were the enrolments in the Universities of Hong Kong and Malaya:

Hong Kong—Enrolment, 1,129 full-time, 139 part-time, total 1,268; Faculty of Medicine, 299.

Malaya—Enrolment, 1,923 full-time; Faculty of Medicine, 470.

(*Commonwealth Universities Yearbook*, 1961.)

P 61559—2

3. 15. The total of all Asian enrolments in Australian universities is rising, having increased in the University of Sydney from 4 per cent. of all enrolments in 1955 to 7.5 per cent. in 1960, the rate of increase showing a steady acceleration. In the same period, first enrolments have increased from 74 to 339. The majority of enrolments in 1960 in this University were in Medicine (356) and Engineering (131).

3. 16. The admission of overseas students has been principally through the Leaving Certificate and Matriculation Examinations, which are a requirement for entry into Medicine. Overseas qualifications are recognized for admission into other faculties. The pass rate of Asian students is lower than that of non-Asians but this fact may be largely explicable on the basis of language difficulties. Amongst those who succeed are some students gaining very high passes.

3. 17. In 1960 there were 252 Colombo Plan and 1,091 private overseas students in New South Wales universities, making a total of 1,343 students. The corresponding figure in 1959 was 1,195, that is 148 less than in 1960. In Chapter 6 we deduce that the average cost of non-residential university building is £1,300 per student to which must be added 10 per cent. for equipment, making a total of £1,430. The cost for students in Medicine and Engineering is higher. The majority of overseas students are enrolled in the high cost faculties and we would therefore be justified in estimating the average capital cost of their placement to be £1,500 per student. (This sum neglects the cost of provision of clinical teaching for students in Medicine.) On present building costs, it would cost about £2,000,000 to provide the necessary accommodation and equipment to teach 1,343 students, which is the number of students from overseas enrolled in the universities of this State in 1960. If the rate of growth remains steady at 148 students per annum, the increase represents a capital cost of about £220,000 per annum of which normally the State's share is half or £110,000 per annum. The recurrent cost for teaching and services in universities is about £500 per student. The enrolment of 1,343 overseas students in 1960 therefore represented a recurrent cost of about £670,000 of which the amount not covered by fees or Commonwealth grants and therefore principally a charge on the State would be approximately £320,000; this amount is rising at the rate of about £40,000 per annum.

3. 18. In short, the capital costs represented by the enrolment of overseas students is approximately £2,000,000, the State's share rising at present at the rate of £110,000 per annum, while the recurrent costs to the State were about £320,000 for 1960, rising at the rate of about £40,000 per annum.

3. 19. We accept wholeheartedly the view that Australia should do all in its power to cultivate understanding and goodwill towards its Asian neighbours, and to help them in their development. It is a cause of gratification that Australia is now becoming increasingly a centre to which students from Asia look for higher education.

3. 20. Just because this development has already gone so far and because we think it should go on we find it important to bring to notice the facts set out in this chapter. It is important that Australians (and others) should realize the extent of the financial subsidy which, over and above the sum spent on Colombo Plan students, they are making to the

higher education of Asian students. We think it well to point out that the burden is falling very heavily upon this State and that the University of Sydney in particular is taking a large share of the responsibility. The State might well bring to the notice of the Commonwealth Government the national character of this responsibility.

Staffing

3. 21. It is obvious that university expansion will be impossible unless the necessary academic staff can be obtained, and Australian universities will have to play an increasing part in training their own staffs. To obtain a picture of staffing movements to and from the Australian universities over the past three or four years, information was sought from all universities and is set out in Table V.

TABLE V

Australian universities—staffing movements

Academic years 1957, 1958, 1959 *and part of* 1960

	New South Wales						Other States (Not including ANU-IAS)						Totals
	Arts type faculties		Science type faculties		Other		Arts type faculties		Science type faculties		Other		
	P.(*a*)	O.(*b*)	P.	O.	P.	O.	P.	O.	P.	O.	P.	O.	
VACANCIES CAUSED BY:													
New positions	16	142	23	244	..	24	11	141	26	184	9	137	957
Retirement or death	1	2	2	8	..	1	5	3	6	9	6	6	49
To this or another Australian university	3	16	1	28	..	1	2	33	..	26	..	13	123
To overseas university	1	5	1	8	..	..	1	8	3	20	1	5	53
To C.S.I.R.O.	..	..	..	1	..	..	..	..	..	4	1	..	6
To elsewhere	..	12	1	23	..	3	2	17	1	16	1	11	87
Not stated	..	4	..	16	..	..	..	2	..	4	..	10	36
Totals	21	181	28	328	..	29	21	204	36	263	18	182	1,311
FILLED FROM:													
Same university	6	4	9	56	..	2	4	20	5	27	2	11	146
Other Australian university	4	48	5	25	..	1	9	27	10	32	3	30	194
United Kingdom university	1	18	2	20	..	2	4	18	6	26	8	16	121
Other overseas university	5	15	1	22	..	1	1	13	6	25	2	23	114
C.S.I.R.O.	..	..	2	9	..	1	..	..	1	8	1	5	27
Elsewhere	1	62	6	130	..	19	..	96	6	116	1	86	523
Not yet filled	4	34	3	66	..	3	3	30	2	29	1	11	186
Totals	21	181	28	328	..	29	21	204	36	263	18	182	1,311

(*a*) P. Professors.
(*b*) O. Other academic staff of the grade of lecturer and above.

3. 22. The interpretation of Table V is discussed in the following explanatory notes:

(1) Arts-type faculties included Arts, Economics, Commerce, Law.

(2) Science-type faculties included Science, Engineering, Medicine, Dentistry, Veterinary Science, Rural Science, Agriculture.

(3) The large numbers in some of the "other" faculties is mainly due to the fact that one university did not supply information on subjects or faculties. It would probably be reasonable to assume that the "other" figures could be distributed between the Arts and Science groups in proportion to the numbers firmly recorded in those groups.

(4) The "elsewhere" group needs some explanation. The sections covering the filling of vacancies from universities was intended to be used for people coming *from teaching positions* in universities. Where a university differentiated between

(*a*) people appointed from teaching positions in universities, and
(*b*) those appointed from the ranks of research or post-graduate students,

the latter have been classified as "elsewhere".

However, some universities did not differentiate between the two groups, so that some of the people recorded as coming from universities —the probable numbers are discussed below—could have been post-graduate or research students before being appointed to a university teaching position. Probably, therefore, the numbers recorded as coming from universities—that is, from teaching positions in universities—should be reduced, and the "elsewhere" group increased, this latter group including people appointed from non-teaching activities in Australian universities. An analysis of three returns, which are probably typical of all universities, indicates that about 20 per cent. of those recorded as coming from "elsewhere" into positions below professorial rank were students or research fellows immediately before their appointments to teaching positions. For those universities which supplied the detailed information, about 23 per cent. of the post-graduate students appointed came from Australian universities and about 60 per cent. from United Kingdom universities. Of the latter group a large proportion were Australian students who had gone to United Kingdom universities for post-graduate work. In all Australian universities there were 123 positions recorded as falling vacant due to movement to other positions in the Australian university community. There were 340 positions filled from the Australian university community. It can therefore be inferred that during the period the net gain of 217 was made up of post-graduate students not recorded as "elsewhere", people who previously held temporary lecturing positions, senior tutors, and so on.

(5) The "not yet filled" group is made up of a large proportion of vacancies which, at the time of compiling the returns in the later months of 1960, were going through the normal machinery of advertisement, sending for referees' reports and considering applications. While it is difficult to summarize quantitatively the universities' comments on the "not yet filled" positions, only a small proportion of the total of such positions seems at present to be causing real difficulty. However, the difficulties of staffing in some fields is not revealed in Table V.

(6) A total of 53 people left Australian universities to go to overseas universities; in return, Australian universities gained 235 people from overseas universities. Of these, 121 came from United Kingdom universities and, as we have already seen, a number of these could have been Australian students of high quality who had gone to overseas universities to carry out post-graduate studies and research.

(7) The universities gained 27 people from C.S.I.R.O. and lost 6 to C.S.I.R.O.

(8) Departures to "elsewhere" totalled 87, while there were 523 arrivals from "elsewhere". It has already been pointed out in (4) above that perhaps about 20 per cent. of those recorded as coming from "elsewhere" to positions below professorial rank could have been post-graduate students; perhaps 100 of the "elsewheres" could be regarded as falling into this group, leaving about 420 people recruited from places outside universities. These people came from civil services, both in Australia and overseas, industry, teachers' colleges, technical colleges, secondary schools, and private professional practice.

(9) Of the 1,125 appointments made during the period and recorded in Table V, approximately 40 per cent. are estimated to have been people who were already in Australian universities, either as teachers or as honours or post-graduate students, while about 60 per cent. were outside Australian universities immediately prior to their appointments.

3. 23. The evidence indicates that during the period 1957–1960, the Australian universities were successful in attracting to teaching positions considerable numbers of people from outside the Australian university community: from universities and other sources overseas and, within Australia, from civil services, industry, private practice and technical and teachers' colleges. This situation will probably not continue. Expansion of university facilities overseas in the near future, particularly in the United Kingdom, will almost certainly slow down recruitment of staff from overseas universities. Within our own country, the expanion of our economy could well provide substantial inducements for some of the best of our graduates to make their careers outside the academic world. In the past a substantial proportion of our permanent university teaching positions have been filled by people who have taken honours or higher degrees in Australian universities and have then spent periods as research students, demonstrators and teaching fellows here or in overseas universities.

Honours and post-graduate schools

3. 24. In the future, for reasons already discussed, we shall have to rely even more heavily on our ability to train our own academic staff here in Australia. In particular, we draw attention once again to the expected increase in university enrolments in Great Britain, which we have already referred to in paragraphs 1.19, 3.10, and 3.23. It will therefore be necessary to give the universities every aid and encouragement to develop their honours and post-graduate schools, and to provide them with the resources from which they can provide scholarships, research fellowships and other means of inducing the

better of their undergraduates to work for the kinds of qualifications which will fit them for teaching posts in universities. Having provided these students with means and opportunities to obtain such qualifications, every inducement will have to be held out to them to take up a career in university teaching and research.

3. 25. The case for strengthening our honours and post-graduate schools and for encouraging good students to enter them does not rest only on the need to build up a strong source of university teaching staff. It rests also on this country's need of a growing supply of highly trained scientific and technical manpower for research institutions and for industry. Although there is general acceptance of the fact that we need skilled and well-trained technicians in large numbers, there is undoubtedly a need for a supply of people who have reached high standards of academic attainment, are able to use their knowledge, and are capable of original ideas.

3. 26. Apart from these needs, the existence of strong honours and post-graduate schools is essential in the life and development of the university itself. They are important in attracting and holding staff and students of high quality. They provide a leavening in the intellectual life of a university. For this reason Australian universities have striven, amid their many varied commitments, to develop post-graduate schools, so that it may now truly be said that in some disciplines advanced work may be done as effectively in Australia as abroad. This is a gratifying record. But a pressing need for highly trained graduates, certain to be made even more pressing by the determination in Great Britain to do everything possible to satisfy the same need, requires that the universities should be encouraged and enabled to develop honours and post-graduate schools more vigorously than ever before.

3. 27. The recruitment and retention of academic staff are dependent on the general conditions of employment, among which is the necessity for having salary scales which are sensitive to general salary trends in comparable occupations. It is important to have in operation machinery for the rapid review of academic salaries, the present machinery having become remote and slow in operation.

CHAPTER 4

THE GRADUATE OUTPUT OF THE UNIVERSITIES

4. 1. In this chapter we examine this country's needs for university graduates and consider some of the main conditions within the universities which appear to affect the success of undergraduates in their studies. We begin by trying to determine the adequacy of the supply of graduates for various professions but assessment is difficult for a number of reasons:

(1) An accurate estimate of requirements can only be obtained by prolonged investigation in all fields of employment. This report is confined to evidence available from only a few sources and in particular from the experience of universities themselves.

(2) A statement of requirements by employers may not be an accurate guide to the nature of a position to be filled. Only a detailed investigation will reveal whether the proposed employment of a pass or honours graduate is justified in terms of the requirements of the position. On the other hand a position which requires a graduate may not be listed as a vacancy if it is already filled by an employee with lesser qualifications, such as a student who has discontinued a university course. Employers occasionally ask for unnecessarily high qualifications. For example, they may ask for honours graduates when pass graduates would probably satisfy their requirements; they may ask for graduates when they really need technicians. The shortage of people at the certificate levels has no doubt caused many employers to try the graduate field.

(3) Vacancies notified to universities may be listed at more than one university.

(4) There is no way of measuring the extent of transfer of employees from one occupation to another. Where this occurs the original and consequent vacancy may both be listed although, in fact, there was need for the supply of only one graduate.

(5) There is no record of the requirements of employers who organize their own training schemes.

(6) There are no records in universities of vacancies in medicine, dentistry, veterinary science, architecture or law, because comparatively few graduates in these faculties need to register with an appointments board.

(7) No information at all is available regarding the employment of students who discontinue university courses before completing a degree. Very few such students register with appointments boards for employment.

4. 2. The Appointments Board of the University of Sydney, while recognizing these limitations on the data, comments that it seems certain that the University is not supplying anything like the number of technical graduates needed and selects the following fields in which there have been considerable unsatisfied demands:

(1) Science graduates with higher degrees in all subjects, for research work in organizations such as the Commonwealth Scientific and Industrial Research Organization and the Australian Atomic Energy Commission, for university teaching and research, and for some research and development jobs in big industrial concerns.

(2) Engineering graduates—Chemical, Civil, Electrical and Mechanical.

(3) Science graduates with Chemistry as a major subject for many types of industrial jobs.

(4) Mathematicians.

(5) Metallurgists, both on the engineering side and on the science side.

(6) Teachers of most subjects, but particularly of Mathematics and Science.

(7) Veterinary scientists.

(8) Agricultural scientists.

(9) Dietitians.

(10) Economics graduates with Statistics or Accountancy as a major subject.

(11) Social workers.

(12) Women graduates with good qualifications in shorthand and typing.

(13) Male graduates with further training in business administration, or with leadership potential, for executive training schemes.

(14) Computer programing and operations research are two comparatively new and expanding fields in which there is a heavy demand for graduates.

4. 3. Mr. J. C. Richards in an address at the University of New South Wales quoted the following figures to illustrate the growth of industry which has led to increasing demands for highly trained personnel.[1]

INDUSTRY—PRIMARY AND SECONDARY

Industry	(*Value of Output*) £ million		
	1948–9	1958–9	Per cent change
Primary—Rural	609	1,256	+106
—Non-rural	95	231	+143
Total Primary	704	1,487	+112
Manufacturing	569	1,840	+224
Total Value of Output	1,273	3,327	+162

[1] J. C. Richards, "The University and Industry", in University of New South Wales, *The Australian Universities*—1970. Sydney, 1961. p. 63.

The non-rural primary industries include mining and forestry, fishing and trapping, and the values quoted represent the net return to the producer after deducting marketing and production costs from gross values. The figures include depreciation and maintenance charges.

4. 4. The statements quoted in paragraphs 4.2 and 4.3 are typical of the kind of information which has come to the attention of the Committee. It is clear that there is an established and expanding need for a greater flow of graduates from universities and that proper provision needs to be made for the enrolments predicted in paragraphs 3.7 and 3.8. Later in this report (Chapter 5) it is suggested that students wishing to attend universities but who, even though satisfying matriculation requirements, appear to be inadequately equipped to undertake university courses, should be guided into courses more suited to their abilities and needs. On the other hand, experience has shown that many potential university students of good ability do not attend universities. In order to ensure that as many able students as possible attend universities and occupy places which, on the pattern of the past, would have been occupied by unsuitable students, everything possible must be done in the secondary schools to identify and fully encourage talented pupils to move to the highest levels of educational achievement of which they are capable.

4. 5. In this matter of identifying and encouraging young people of talent and of making provision for their education, we consider that this country is in the same position as Great Britain and the United States. We have already seen that in Great Britain action has begun to increase considerably the number of university places. In the United States there is a keen awareness of the need to make the fullest use of talent. For example, the President's Committee on Education Beyond the High School emphatically stated this view:

> "There is no doubt that talented young people are our most valuable national resource. The loss both in human and in social terms that results from failure to identify, inspire and assist able young people for further education and training is incalculable."(1)

The President's Committee then made recommendations for the establishment or development of sound guidance and counselling programs. The magnitude of the problem facing the United States—and there is no reason for any complacent assumption that this country does not have the same kind of problem—has been brought sharply to notice in a number of studies. In one of the most significant of these, a substantial amount of data led to the conclusion that

> "it is evident that the United States is wasting its intellectual resources at the rate of approximately 200,000 18-year-olds a year. These are the young people with college ability who terminate their education upon graduation from high school. Apparently, between 60,000 and 100,000 highly able high school graduates with aptitude and interest for college fail to continue with their

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(1) President's Committee on Education Beyond the High School, *Second Report to the President.* Washington. July, 1957. p. 40.

education for financial reasons. Another group of approximately 100,000 with similar ability lack the interest or motivation for college."[1]

The Educational Policies Commission saw this as one of the crucial issues facing American education:

> "The failure of this nation to develop fully its intellectual potential underlines the importance of guidance programs for all youth. Among high school graduates qualified to profit from higher education a tragically large number—in some places as many as half—do not go to college. Lack of money accounts for an important share, but not for all, of this failure. Among the other factors which permit the under-education of the able is lack of motivation. This results not only from their failure to understand their abilities and the advantages which will accrue to themselves as well as to the nation if they will seek the opportunities open to them, but also from lack of encouragement in the home. This problem should be attacked at the secondary level or earlier."[2]

4. 6. While the maximum output of graduates is needed for all professions in this country, there are special problems associated with preparation for two professions—medicine and secondary school teaching—to which we particularly call attention.

The supply of medical graduates

4. 7. The Committee has already stated, as one of the principles on which its recommendations are based, that the necessary facilities should be available to all those who appear to be capable of successfully undertaking a university course, and that this State cannot afford to waste any of its potential professional people. When we come to investigate problems of medical education we find that consideration of the facilities required cannot easily be separated from an assessment of the community's minimum needs for medical practitioners. While the Committee is firmly of the opinion that facilities for teaching medicine must be such as to ensure that the community's minimum needs are satisfied, it is not prepared to accept the view that the present provision is necessarily adequate, and, as will be shown later, the Committee is of the opinion that there should be a thorough investigation into all aspects of the State's needs for doctors. Because there are certain difficulties associated with medical education—a major one being the need to ensure an adequate supply of clinical teaching material—there is always a strong temptation to allow standards of present provision or estimates of minimum needs to set an upper limit to the graduate output at which universities should aim. We are of the opinion that the same principle should apply in the provision of medical education as in other forms of education: that a university place should be available to every applicant who demonstrates a level of ability which appears likely to give him a

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[1] Charles C. Cole, Jr., *Encouraging Scientific Talent.* New York, College Entrance Examination Board, 1956. p. 184.

[2] Educational Policies Commission, *The Contemporary Challenge to American Education.* National Education Association, 1958. p. 11.

reasonable chance of graduating. We turn now to examine briefly these two aspects: the probable minimum needs for medical graduates, and means of ensuring that only those applicants will be admitted to medical schools who appear to have reasonable prospects of coping with the course.

4. 8. Significant facts related to needs are set out in a report of the New South Wales Branch of the British Medical Association[1] which states that in 1956 there were 12.6 doctors in New South Wales to each 10,000 of population, 17.1 per 10,000 being in the metropolitan area and 7.2 per 10,000 in the rest of the State. Our investigation of the position in 1960 suggests that there has been little variation from these figures. An acceptable ratio approximates 10 per 10,000. The overall supply of doctors is therefore satisfactory but this is not true of their distribution; particular geographic areas, public services and some hospitals are inadequately staffed. Shortages of general practitioners and specialists occur in many services and places due apparently to adverse or comparatively adverse economic factors.

4. 9. The B.M.A. report referred to in the last paragraph analyzes the conditions to be met for a production of graduates which would maintain the existing ratios, and arrives at the conclusion that after provision has been made for an intake of graduates from overseas and from other States at the rate of 115 per annum, the deficiency is such that there is a necessity for only two medical schools in the foreseeable future. It assumes that the larger of these schools would be that within the University of Sydney which would have a first-year intake of 200.

4. 10. We are of the opinion that—

(1) in order to provide better public services and services in areas which are experiencing inadequacies there must be a greater production of graduates than that envisaged in the B.M.A. report, and

(2) the fact that doctors trained outside this State choose to migrate to it is not a substantial reason for denying medical education to students living in the State.

4. 11. We are therefore led to approach this problem from the point of view of the size of the potential student body and to examine the relationship between the number of students seeking enrolments in schools of medicine and the State requirement for the production of medical graduates. Certain factors arise in this enquiry which we have not had time to pursue to their conclusion but it seems to be beyond doubt that there should be opportunities for study for all those who can satisfy a reasonable university entrance standard, which would be determined not by the application of quotas but by prescribing a level of attainment at the Leaving Certificate Examination. It appears also that the number of prospective students of satisfactory potential is such as to throw doubt upon the need for the establishment of a third medical school.

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[1] *Report of the New South Wales Branch of the British Medical Association on Medical Education.* Part I. 1958.

4. 12. For some years the University of Sydney has been able to graduate only about 50 per cent of those who enter first year. We do not accept this figure as representing the proportion who should pass if teaching conditions were at a better standard. On the other hand it is apparent that standards of entry into medical courses need close examination. At the beginning of 1961 there were slightly less than 500 new first-year enrolments in the medical schools in the Universities of Sydney and New South Wales. Data derived from a study at the University of Sydney suggests that as many as 20 per cent or 25 per cent of those enrolling have little prospect of success and should either improve their entrance qualifications, if this be within their power, or choose some less exacting study.(1) We think that, in general, a student who attempts the study of medicine, having failed to gain 360 co-ordinated marks in his best six papers or 300 in his best five papers at the Leaving Certificate Examination, is attempting a study for which he is not suitably prepared.(2) If the minimum entrance standard in 1961 had approximated such performances the total number of students accepted into the medical courses of the two universities would have been reduced below 400. The University of Sydney proposes a quota of 300 first-year students in 1963, including those repeating first year. The University of New South Wales expects to have a similar capacity at that time. A total of 400 new students is therefore within the immediate combined capacities of the Universities of Sydney and New South Wales and there is room for some growth. We think there is time therefore for further inquiry into the organization of a third medical school and suggest that the question should be referred for further examination to the Universities Committee whose establishment we are proposing in this report.

4. 13. There are two qualifications that should be added. The first is that estimates of this State's needs for medical graduates indicate that we are working to small margins, and we are therefore of the opinion that the universities should be asked if, and by what means, they can increase their output of graduates beyond that which they expect to achieve with their present enrolments. The second is that the ability of the University of New South Wales to take substantial enrolments in first year depends heavily on a program of hospital building which will give the university adequate teaching facilities in the clinical years. If such a program is carried out, then the university can enrol 200 students in first year in 1962 with a guarantee of being able to provide clinical teaching for them at the appropriate time.

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(1) The first-year results of students entering the Faculty of Medicine at the University of Sydney in 1958 were studied. On the basis of their aggregates on their best six papers at the Leaving Certificate Examination of 1957 the students were divided into two groups in order of merit: the upper 75 per cent, and the lower 25 per cent. Of the upper group, 79.4 per cent passed their first-year examinations. Of the lower group, 42.7 per cent passed.

(2) In Chapter 5 we discuss in some detail the meaning and computation of co-ordinated marks (paras. 5.26-5.28). At this point it is sufficient to state that co-ordinated marks are arrived at by treating the raw scores for the various subjects in such a way as to take account of the distribution of intelligence quotients of the candidates taking the various papers.

4. 14. It is the opinion of the University of Sydney that it can increase its output of medical graduates by restricting entry into first year to those students who demonstrate graduation potential. We think there is some substance in this opinion and that until such time as more students of ability seek enrolment, an added flow of graduates would be more likely to be achieved by concentrating on factors affecting the efficiency of teaching than by increasing the number of medical students.

The supply of graduate teachers

4. 15. It is unquestioned that the shortage of graduate teachers for secondary schools is a problem of the utmost gravity. The supply and training of teachers will be looked at in some detail in the Committee's second report, but some things need to be said at this point. As an indication of the magnitude of the problem, in the following paragraph is set out an analysis of the need in State secondary schools for graduate teachers of four subjects.

4. 16. In order to staff the departments of English, Mathematics, Science, and Commercial subjects in the high schools in this State entirely with graduates within the next ten years, it will be necessary to appoint 3,400 graduates, or 340 per annum. This figure ignores resignations and retirements among the present non-graduate and casual staff. The figure of 3,400 is arrived at in this way:

(*a*) To provide for increases in secondary enrolments on the basis of present staffing ratios an additional 1,100 positions will be created; the rate of resignation and retirement is such that it requires 1.75 new teachers to fill each vacancy, so that the actual intake required to fill the 1,100 new positions is about 1,900 graduates.

(*b*) There are at present more than 1,500 non-graduate and casual teachers who should be replaced by permanent teachers who are graduates.

In the subjects under discussion the overall requirement of 340 graduate teachers needed each year compares with the existing intake of less than 200. It should be pointed out that the total recruitment need not be altogether from full-course undergraduates; many non-graduate teachers are proceeding to degrees by part-time or external studies.[1]

4. 17. The figures quoted in paragraph 4.16 ignore the need to produce more graduate teachers of other subjects who, although smaller in number, are urgently required. The total number of graduates needed in the departmental high schools will therefore be greater than that shown in paragraph 4.16.

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(1) To anticipate what is said more fully in Chapter 6, we point out here that given the means to carry out its development plans, the University of New England expects that within a few years it would be graduating each year 150 external studies students in Arts. Of these, at least 80 per cent would be teachers already committed to a teaching career and not likely to be lost to the profession. The external studies courses will not solve the problem of staffing the schools with graduates in all subjects, but they will make a significant contribution.

4. 18. Without pursuing this matter in detail here, there are some further points that should be mentioned:

(1) In the previous two paragraphs, no account has been taken of the needs of independent schools.

(2) It is desirable to recruit additional teachers to improve the present pupil/teacher ratio.

(3) Of all the subjects taught in the secondary schools, the shortage of graduates is specially serious in Mathematics and Science.

(4) The consolidation of small secondary schools into larger high schools creates an increasing demand for graduates.

(5) The introduction of a sixth year into secondary schooling will increase the need not only for graduate teachers but for teachers who graduate with honours.

(6) The present flow of graduates into primary schools is inadequate.

4. 19. The Department of Education grants scholarships to all suitable applicants whose aggregate of co-ordinated marks at the Leaving Certificate Examination suggests that they are likely to graduate, but considerable losses occur by failure during the course and by resignation to accept positions elsewhere after graduating. In some fields, and particularly in Mathematics and Science, the Department of Education competes for the employment of its own trainees in a very live market. The independent schools also feel the effect of general shortages of highly qualified manpower. We conclude that the supply of more graduates for the teaching profession demands urgent attention, and we shall return to a fuller discussion of this problem in a later report.

Factors affecting university graduation rates

4. 20. It is not proposed in this report to attempt an exhaustive investigation of the causes of failure among students. They have been and are still the subject of much thought and investigation within the universities and an assessment of their relative importance would be inconclusive and controversial. Some remarks, however, are relevant to the general argument. Here we propose to review briefly some causes of failure which might be removed by improvements in teaching and organization.

4. 21. Given adequate capacity, an undergraduate is likely to be a good student if he comes from his school with a sense of purpose in study, the recognition of the sacrifices which his study will involve and a determination to overcome the difficulties which they will impose. There are those who enter university without a devotion to their studies. Many, however, who demonstrate a maturity of purpose are unsuccessful in their courses. It is with such students that we are concerned. About 60 per cent of all students who enter universities in this State eventually graduate, although the graduation rates vary among the faculties. We do not believe that for reasons beyond educational control 40 per cent of all students are incapable of completing their examination requirements. The mean capacity of the failure group is reason enough to think that the high wastage rate should not be assumed to be inevitable.

University teaching and examining

4. 22. It has been said (some would say demonstrated) that there is a factor built into teaching and examining which raises the likelihood of failure for those who are in the lower range of ability of any student group, however high its average ability might be. It seems to be associated with a tendency of teachers to regard average ability as being that to which they have become accustomed. The average student determines the level of teaching and is the potential 50 per cent. candidate in an examination. The result may be observed not only in universities, but also in selected groups in secondary schools. While the best pupils do well, those at the lower end of the scale often achieve performances which have too little relation to their capacities. Good pupils at the lower ends of bright classes learn the penalties supposedly reserved for the low average. There is in consequence a considerable wastage of talent. No wise parent of a secondary pupil would wish his child of high ability to be at the lower end of a class of unusually high competence. The phenomenon recurs in universities and raises the question whether more highly selective admission procedures would necessarily lead to a proportionally higher pass rate.

4. 23. He who has more than enough has little need to count what he spends. The community has had plenty of talent and little reckoning of its expenditure. There can be so many good pupils in a secondary school that there need be little reckoning of the loss if some discontinue their studies, some fail in them and some, while passing, achieve standards which are below their abilities. There can be so many able students in a university that the loss of a few loses its proper significance. One of the great disadvantages of large enrolments is not related to difficulties of teaching so much as to the submergence of individuals in the mass. A student with high potential value to the community can appear an expendable item in a large enrolment. The avoidance of this loss at all stages of education requires extensive planning. It is necessary for one thing to give scope for the exercise of responsibilities towards individual students as against classes. The discharge of such responsibilities by lecturers and professors may be rendered impossible by excessive enrolments.

4. 24. Heads of university departments must accept the roles of teacher, examiner and judge. Professors are chosen for their scholarship and their ability to advance scholarship and it is to them alone that the community can look for the development of their subjects and the setting of standards. To many their powers may seem unconstrained in the extreme but it cannot be otherwise. There have been many notable men who have exercised them to the great benefit of students and there are many now who are working in their tradition. They try for a balance between their interests as research leaders and as teachers, between a concern about standards and the encouragement of effort. The development of high standards in university teaching is in their hands.

4. 25. Take a man with an interesting story to tell, a sense of friendship and a capacity to listen and you have a good companion. Let him have conviction in telling his story and you begin to have a

teacher. Add scholarship and an enthusiasm for learning and you have a great teacher. The effort and the discipline needed to acquire scholarship do not necessarily lead to skill or interest or satisfaction in teaching, but scholarship is prerequisite to teaching. University education, like all education, should expose students to learning in an atmosphere which encourages the absorption not only of its facts but of its ideals. Without the ideals there is little gain. The atmosphere of learning does not come from knowledge merely but is created by men with knowledge who have the skill to pass on the inspiration of discovery which they have themselves experienced. Of all men in the community, university lecturers are best equipped to become teachers because they, having known the stimulus of learning, are best able to excite students to follow it to horizons which are bounded only by their abilities. The cultivation of ideals is part of university teaching and it promotes success and satisfaction in study. It is the only sure way in which a scholar may ensure that his work will be carried on. To achieve this end a scholar must learn to be a teacher.

4. 26. Scholars in small universities overseas would face new experiences by serving in the large departments of universities in this State. Very heavy demands are made on our senior scholars and it is to their credit that under difficult conditions so many face the challenge of doing all possible for the welfare of their students. They are expected to do research, to teach and to administer and it is often impossible for them to find time and energy for all their manifold responsibilites. A good many have sacrificed their own chances of scholarly reputation in trying to ensure that their departments were properly organized, under difficulties, for the teaching of their students. It is clear that the community is going to go on expecting this of them while unsatisfactory student/staff ratios persist. The same sort of demand is made of more junior teachers. They are expected to teach and to do research and to play their part in the running of complicated departments. Their hope of promotion within their university or of appointment to a senior position in another university depends upon their reputation in teaching and their output of published research. In the past it has been difficult for many of them to maintain their research.

4. 27. As teaching and research are twin functions of universities, so they are inseparable interests and responsibilities of the scholar teaching in universities. Each needs the other. Teaching unenlivened by interest in and experience of enquiry and discovery becomes routine instruction. Creative curiosity and critical discipline are sharpened by the effort to explain ideas to others. This combination of interests and abilities in the university teacher seems to us so important that we think it is wrong that the financial rewards for university teaching should ever be less than for full-time research.

4. 28. While it is true that the attainment of some of the purposes —some would say the main purposes—of university education does not lend itself to measurement, the fact remains that a student's progress through his course and his eventual graduation depend on his success at examinations. Inefficient examining not only destroys the influence of good teaching and good learning, but it can have dangerous practical consequences. Unreliable examining may enable ill-prepared

students, or those who have mastered the tricks of the examination hall, to be credited with attainments to which they are not entitled, while the deserving student may be unjustifiably failed. An examination which does not adequately measure the attainment of all the important objectives of a course cannot give a truthful picture of student achievement. In universities, as in secondary schools, the kind of learning that students do is often influenced by what they take to be the demands of the examinations they have to face. Examinations should demonstrably make the right demands.

4. 29. There is now a considerable research literature on the measurement of educational achievement. We commend the work being done in the universities in this State to bring to the notice of academic staffs the important developments and research findings in this field, and to promote an enquiring and critical approach to the examining which is now being done in the universities. We would support a continuance and extension of this work.

Student welfare and guidance

4. 30. The welfare of students depends to some extent on factors which are outside the ordinary activities of the teaching staff. Reference should be made to three which fall under this heading, namely, student advisory services, student amenities, and the adequacy of library facilities.

4. 31. The place of student services is well established in universities and it is not proposed to do more than refer to them briefly and commend their activities. There is ample evidence that students need guidance in technical aspects of their study and are anxious to make use of it when it is available. They also frequently need assistance in problems such as accommodation and employment. In addition, medical advisory services have proved their worth beyond doubt. Student advisory services may be supplied by a faculty or by a central non-faculty organization, each of which has its own important function. Whereas the former is normally concerned with advice on courses of study, there are instances in which the interest of the lecturer concerned has been such as to extend his influence in a much wider sphere. In general, the central organization is the one most concerned with problems that call for general advice. Its officers find that students having trouble in their adjustment to university life are frequently diffident about approaching the members of teaching staff and that the central organization is better able to give help through being detached from the teaching staff. Most young people appreciate the assistance which can be given by older persons in their personal problems and frequently such help is most readily sought from one with whom the student is not formally associated in his studies. The existing frameworks of service organizations within the universities are good and deserve sympathetic administrative assistance. They have already proved their capacity with limited facilities to assist undergraduates towards success in their courses and should be extended so that their services may be more readily available to students.

Amenities for students

4. 32. Amenities for students should encourage them to be members of rather than visitors to a university. They are undoubtedly best provided through residence in a university college. The great bulk of students in New South Wales universities are not resident and special provision is necessary for them. They need places where they can gather, places where they can study, places where they can eat, and places where they can learn the art of responsible management of their own affairs. They should, in addition, have places where they can play. Pressures on university finance, and the need to provide basic necessities for teaching forced the provision of these amenities to a low priority. When the student population in New South Wales was small (in 1919 it was 2,797) students could spend long satisfying hours in libraries or laboratories, in recreation or in the rooms of their unions. They therefore spent their time at university in productive occupation. They had better opportunities to learn from one another. The student body has since become peripatetic and fragmented, a condition which must surely have a profound influence on success in study. A student who hears lectures through microphones, sits in the library with his chair touching his neighbour's, looks for space on the grass to eat his lunch (except when it rains), might be forgiven for seeking an excuse to be in some other place where better conditions of study might exist. Much needs to be done to remedy this situation. Some provision has been made in capital grants for the improvement of student amenities within universities and continued attention will need to be given to their development.

Libraries

4. 33. An adequate library service is essential to the functioning of a university. It is of the utmost importance in encouraging initiative in undergraduate study. Its resources can be developed to provide for post-graduate programs of study through which alone we may hope to train prospective university teachers. A well equipped research library is an asset in attracting and keeping academic staff.

4. 34. A university library must be regarded as part of a general library service to the public and the library in any university should be available to students wherever their studies are conducted. The university library system should operate as a co-ordinated whole. Each library is primarily concerned with meeting the major requirements of its own students, but it should have its own contribution to make in aiding general research. Adequate supplies of references in existing university libraries have added importance as the sources on which new establishments will initially depend.

4. 35. A new library building has been completed for the University of New England and should meet its requirements for some time. The library building for the University of New South Wales is at the stage of planning and will not be in use under present allocations until 1966; the library is at present housed in most inadequate temporary accommodation. The University of Sydney will spend £500,000 in the 1961-63 triennium on the completion of the reading room block of its new library.

4. 36. The present serious overcrowding of the Sydney University library must be corrected at the first opportunity. During the last three years strenuous efforts have been made to provide additional accommodation; the number of seats for readers has been increased from 510 to about 1,100. The library is open 75½ hours a week, including Sunday afternoons during term. Completion of the reading room block in 1962 will improve matters, but complete relief can only come when the new book stacks are built. Finance to build the stacks has not been provided for the current triennium. Although the study conditions are very inadequate the main shortage is that of books. The Librarian points out that students waste valuable time looking for a single copy, especially between class periods, and they fail to read many assigned items because they are unable to obtain them in either the university library or the Public Library. The inadequacy of provision is such that it leads to stealing, mutilating and hiding of books, and students pay fines in order to retain books on loan for longer than approved periods, thus denying others the use of references. The overcrowding in the library of the University of New South Wales is, if anything, worse than at Sydney University, and it is difficult to see how any adequate service can be offered until the new library is finished in 1966.

4. 37. The function of a library is not to provide text books but to make supplementary reading available. The inadequacy of library provision tends to restrict study to text books and this is quite contrary to the spirit of university study. It must be remembered, in addition, that even text book study must suffer in some instances since many students are unable to afford expensive items.

4. 38. The cost involved in establishing a new library might be gauged by the fact that since the inauguration of the University of New England in 1955 its book stock has been increased from 30,000 to 75,000. During this period library services, including books, salaries and equipment, but not capital expenditure, have cost approximately £190,000. In the University of New South Wales there is an annual student levy for library purchases of £5 per student and the Committee considers that this principle has much to commend it.

4. 39. A great deal can be done within the University of Sydney with a levy of £1 per student but it would be desirable to increase it above this amount. The purchasing power of the Australian pound reduces the amount of material which can be acquired overseas and there is more and more demand for expensive books of a scientific or technical nature. A common standard for the supply of undergraduate books in overseas libraries is one copy for every ten students. At a rate of one copy for every thirty students the total cost of books which should be put into the library at the University of Sydney is slightly greater than £100,000. In view of the value of the service to undergraduates they might be called upon to make a direct contribution towards this cost.

4. 40. University libraries would be considerably helped by a Commonwealth review of the book trade situation. State action regarding the exemption of gifts, including gifts in kind, from death duties will encourage considerable and important donations to university libraries.

CHAPTER 5

SELECTION FOR ADMISSION TO UNIVERSITIES

5. 1. Having examined briefly some major aspects of the probable demand for university education and having seen that this country needs all the graduates it can get, we turn now to the problem of selecting for admission to universities those applicants who merit an opportunity to show whether they can cope with university work. We have already stated our view that the heavy wastage rate is not inevitable, and we have drawn attention to some aspects of university teaching. In this chapter we concentrate our attention mainly on the extent to which more selective admission procedures might be expected to divert from the universities students for whom other forms of education would be more beneficial.

Opportunities for university education in New South Wales

5. 2. The system of education in New South Wales in schools and universities aims to provide opportunity which is independent of geographical variations. The organization of the Leaving Certificate Examination, for example, permits students in isolated schools to matriculate. Matriculation rules have recognized the considerable variation in opportunities for performance at a high standard which are open to pupils from many types of schools in various parts of the State. The average Leaving Certificate candidate has had a chance to gain entrance to a university and thereafter demonstrate qualities which for one reason or another he may not have been able to prove at the end of his school career. For example, an isolated pupil may not have the opportunity of studying a particular science but universities have not required that he should do so in order to proceed with its study at the tertiary level. In general, particular faculty and course requirements have been rare. Even a Faculty of Agriculture, for example, has welcomed students who have not had experience of the land or of the study of agriculture in schools.

5. 3. The system which includes these opportunities is called by some "egalitarian" and it has been suggested that administrators in education have been afraid of the imposition of good standards. But many university graduates have owed their success to this system and the system has grown naturally in a community which has recognized the rights of a dispersed population. We might apply to it the phrase used of his ideal system by an American writer: "The pursuit of excellence in a framework of opportunity for all". The Committee does not support the highly selective systems which apply in some other countries and, in particular, it does not consider that the Australian system would benefit by restricting enrolments to the extent applying in British universities.

5. 4. In order to put the problem in national perspective, in Table VI a comparison is made among the universities in Australia. To find some basis for comparison among the States, data reported by the Australian Universities Commission is used, but it should be noted that the term "full-course" as used by the Commission in this regard is not the same as "full-time"; it is for this reason that the figures in Table VI are different from those in Table I (para. 1.7).

TABLE VI

All Australian universities: ratio of "full-course" students to State populations, 1960

Universities	Full-course enrolments 1960 (*a*)		Estimated State population on 30-6-60 (*b*)	Number of full-course students per 10,000 of population
Sydney	9,100			
New South Wales	5,843	15,629	3,828,315 N.S.W.	40·8
New England	686			
Melbourne		6,870	2,891,748 Vic.	23·8
Queensland		3,600	1,463,245 Qld.	24·6
Adelaide		3,350	945,247 S.A.	35·4
Western Australia		1,832	730,581 W.A.	25·1
Tasmania		712	347,438 Tas.	20·5
Aust. National University		356		
Australia		32,349	10,280,742	**31·5**

(*a*) *Report of the Australian Universities Commission* 1958–1963. p. 19.
(*b*) New South Wales, *Pocket Year Book for* 1961. p.24.

5. 5. If the number of full-course students enrolled in universities in New South Wales were such as to produce the average Australian enrolment, they would number approximately 12,000 instead of 15,600. Some explanations suggest themselves for the greater proportion of enrolments in New South Wales. It could, for example, be explained in part by the industrial nature of the State and the consequent demand for courses in Applied Science and Technology. It is, to a certain extent, influenced also by a principle of open entry applying in the State and by a large enrolment of overseas students. It is also due largely to the liberal provision for university education made by the Government of New South Wales over the years. Later in this chapter we attempt to ascertain the extent to which it arises from the enrolment of students who are inadequately prepared for university studies. We find it a matter for satisfaction, rather than for criticism, that in this State a university education has been readily available to any matriculated student. We have in mind not only full-time courses but also the wide range of part-time courses available to evening students and the external studies courses organized by the University of New England.

Relationship between schools and universities

5. 6. In 1912 the University of Sydney and the secondary schools were brought into a relationship that has brought great benefit to the young people of the State. One of the great ambitions of Peter Board as Director of Education was to bring into being a secondary school system related to the university in a way that would ensure that every

pupil, merely by being at school, was on a direct road to the university if he had the wish and the ability to follow it. This was achieved by some give-and-take between the school authorities and the university. The university agreed to accept as satisfying the requirements for matriculation passes in an examination conducted by another authority, namely the Board of Secondary School Studies, which was set up to administer the Leaving Certificate Examination. In return the university was given good representation on the Board and university professors acquired considerable influence as chief examiners and chairmen of syllabus committees. The reform was given effect in the 1912 amendments to the University and University Colleges Act, in which Section 31c states:

> "A leaving certificate or higher leaving certificate which certifies that a student has passed the required examination in the subjects and at the standards which the Senate determines are necessary for matriculation . . . shall entitle the holder of such certificate . . . to matriculate at the University."

5. 7. The other universities accept results on the Leaving Certificate Examination as satisfying their matriculation requirements. A 1960 amendment to the University and University Colleges Act gives representation on the Board of Secondary School Studies to the Universities of New England and of New South Wales.

5. 8. It now appears probable that the Leaving Certificate Examination will be held for the last time in 1965 and in terms of the recommendations of the *Report of the Committee Appointed to Survey Secondary Education in New South Wales* will be replaced, for university admission purposes, by a Higher School Certificate to be taken at the end of the sixth year of secondary schooling.[1] Control of this examination, which will probably be held for the first time in 1967, will be vested in a Board of Senior School Studies, comprising representatives of the Department of Education, the universities, and the secondary schools.

5. 9. Most of the discussion in this chapter is based on the facts which must be faced while the present Leaving Certificate Examination is in existence. It has been the best single predictor of university success, and the Committee is confident that the proposed Higher School Certificate will be at least as efficient. However, there has been a basic difficulty in the use of the Leaving Certificate for granting admission to universities. The syllabuses of the Leaving Certificate Examination are common to all students irrespective of the variations in aptitudes and vocational ambitions which exist amongst them. The pass standard in any subject in the examination seeks not only to recognize the satisfactory completion of a period of school study by an earnest student with something less than the average ability of

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[1] New South Wales, *Report of the Committee Appointed to Survey Secondary Education in New South Wales.* 1957. pp. 97–98.

all candidates,[1] but also to select candidates on the basis of their suitability for further studies. The proposed reorganization of the system of secondary education should overcome the consequent dilemma which examiners face in determining satisfactory pass standards.

A sixth year of secondary education

5. 10. The introduction of a sixth-year course designed for intending matriculants should overcome much of the inefficiency in preparation and selection for university courses which now exists.

5. 11. There are several reasons why the additional year of secondary school work will be beneficial. Although at present the younger students do well, academically, at universities, there will be advantages in the increased social and emotional maturity that might be expected to develop in an additional year at school in courses which should be conducted in such a way as to give the pupil an insight into the methods of work which he is expected to use at a university, methods which demand of a student a greater responsibility for managing his own affairs than is usual in the final year of a secondary course at present. Further, the additional year will provide opportunities for pupils to specialize to some depth in those studies which are likely to be of most relevance for their university work. It is probable that the rather specialized nature of the sixth year will lead to a good deal of self-selection for university admission. Pupils will not lightly embark upon the sixth-year course unless they and their parents have given careful thought to the implications. Through skilful counselling before and during the final year, and through self-evaluation during that year (which might well be regarded as a trial year for university work) the hesitant but able pupil might be led to see that in fact he should proceed to university studies, while the less able will come to realize that perhaps his best interests would be served by continuing his education elsewhere than in a university.

The nature of the selection problem

5. 12. It is highly desirable that students should not be encouraged into courses in which they face almost certain failure. It is also desirable that the community should not be faced with the heavy expenditure involved in their failure. There is at some point a balance between adequate provision of opportunity and extravagant provision of accommodation, equipment and staff. Research to find that point, although extensive, is still inadequate. We consider that further research must

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[1] For the last three years, the percentages of candidates passing the Leaving Certificate Examination were:—

Year	School candidates	Private Study candidates	All candidates
1958	80.0	48.5	76.1
1959	82.1	43.2	77.0
1960	80.3	43.2	76.2

be undertaken as a matter of urgency and that, until more reliable conclusions can be reached than are possible at present, any steps towards the exclusion of students should be taken with caution. The principle of providing opportunity is sound and should remain the guiding principle in the admission of students to universities.

5. 13. In Chapter 6 we shall analyze in some detail the costs that will be involved if the universities are to keep pace with the growing demand for university education; here it is sufficient to say that the costs will be heavy. It would obviously be possible to reduce capital and recurrent expenditure by adopting more selective admission procedures so that the number of students admitted could be held to that number for which accommodation could be provided. Of course, any saving so effected would not be a total saving, since the students excluded from universities would have to be provided with some other form of education requiring in its turn either the establishment of new institutions or the development of existing institutions such as technical colleges. The provision of such alternative facilities might be cheaper than the provision of a corresponding number of university places.

5. 14. The Committee has already made clear its view that there is such a great need for highly trained people in all fields that we cannot afford not to provide all necessary facilities for the higher education of every person capable of profiting from it. Selective admission is justified only as one aspect of educational guidance. If errors are to be made, it is a national necessity that they should be on the side of generosity in providing opportunities for university education.

5. 15. One aspect of the selection problem has been forcibly brought to the attention of the Committee by the results of an investigation carried out by the Department of Education concerning school pupils who were candidates for the Leaving Certificate Examination in both 1958 and 1959. The total number of such candidates was 776 of whom 46.5 per cent had passed the examination at their first attempt. Three candidates who passed the examination in 1958 failed in 1959. However, 91.9 per cent of repeating candidates passed at their second attempt including 85.5 per cent of those who had previously failed. The overall percentage of subject passes of all candidates increased from 59.5 per cent to 89.7 per cent and their average co-ordinated subject mark increased from 43.2 to 55.4. This increase is of particular significance. Expressed as a total of six co-ordinated marks it represents an increase from approximately 260 to approximately 330. Such a large increase would naturally not be anticipated from a candidate who gained high marks at the first sitting.

5. 16. The results just quoted do seem to suggest that some candidates who achieve only minimum matriculation qualifications, and are therefore in doubt about their prospects of university success, would be well advised to test their position by repeating the final year at school. It suggests, moreover, that the exclusion of a matriculant because of a low total performance need not be a permanent exclusion if he is prepared to repeat a year of school studies and if, on the evidence available within the school, he appears likely to profit from university studies.

Principles of selection

5. 17. We turn to examine the principles underlying selection procedures for admission to universities and the performance of students who are admitted under existing conditions in this State.

5. 18. There is a good deal of published research material, including Australian data, on various aspects of the problem of selection for universities,[1] and therefore we do not propose to examine this subject at any great length. However, at the outset we state the view that while measures of academic achievement will always play a major part in any selection procedure, other factors are important, even though they do not lend themselves to accurate measurement. The success of students in the universities depends to a large extent on their basic school training, which involves not only the acquisition of knowledge and skills but also the development of habits. It is quite clear to those who are concerned with the welfare of undergraduates that differences in attitudes and habits of work are at least as important for success as those in ability. To be successful in his studies at university a student, whatever his age, must possess that maturity of attitude which ensures self-appraisal and self-discipline.

5. 19. A careful review of the published research has led the Committee to conclusions which are stated later in this paragraph, but which might need to be revised after further much needed research. These conclusions are confined to the problem of admission to universities and ignore consideration of the kinds of institutions that should be available to people who are not admitted to universities or who fail their courses at universities. The provision of adequate tertiary education for such people, although receiving passing reference in this report, will be the subject of investigation in a later report.

(1) The Leaving Certificate Examination or similar type of test of academic attainment is the best single predictor of university performance available at the time of matriculation, and a candidate's performance in it should be the only consideration in university decisions about admission procedures.

(2) Other information about candidates, including intelligence test scores and assessments of personality, can be of considerable use but should be used by schools and universities for guidance rather than as selection devices.

(3) There is insufficient local evidence on the value of scholastic aptitude tests. American data suggests that it is worth experimenting with the development of such a test or series of tests suitable for Australian conditions. The Committee wishes to bring this matter to the

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(1) Very good summaries of the research, together with extensive bibliographies will be found in the following:—

C. Sanders, "University Selection: Its Theory, History, and Psychology". *The Australian Journal of Education.* Vol. 1. Number 3. November, 1957.

R. R. Dale, *From School to University.* London, Routledge & Kegan Paul, 1954.

attention of the Board of Secondary School Studies and to the universities. At this stage, and until considerable experimental work has been done, no opinion can be expressed on whether such a test should form part of the Leaving Certificate Examination or whether, alternatively, it should be developed for use in guidance.[1]

(4) The interview has little value as a selection device. If it is employed its use should be limited to a review of all available evidence in difficult borderline cases.

5. 20. It is reasonable to expect that the kinds of abilities and skills that should have been developed in the more able pupils by the end of secondary schooling will not be different from the kinds of abilities and skills that are needed for success at university. It is also reasonable to expect that these abilities and skills should be reliably measured in a final secondary school examination. A matriculant's result at the final school examination should reflect the attainment of objectives beyond factual knowledge and should depend on such deeper capacities as understanding, ability to apply knowledge, to analyze and to synthesize, and even to evaluate and form judgments. The closer the final examination comes to measuring the kinds of abilities needed for university work the more valuable it will become as a matriculation examination. A close study of the demands made by various parts of the Leaving Certificate Examination (for example, the comprehension question in the English Expression examination) might indicate that a weighting given to certain parts of a candidate's results would increase the value of the Leaving Certificate as a matriculation examination. We have already pointed out that there are difficulties associated with the use of the Leaving Certificate Examination for the dual purposes of testing attainments and assessing potential. The proposed organization of secondary education to lead to a matriculation examination at the end of a sixth year of schooling should enable the functions of the examination to be separated and is therefore supported.

5. 21. There are higher correlations between university first-year results and Leaving Certificate results when special weight is given in the latter to subjects broadly relevant to courses undertaken at university, but the correlations are not high enough for very accurate individual predictions. While there is a substantial relationship between Leaving Certificate performance in specific subjects and university performance in the same subjects, or in closely related subjects, the relationship is far from perfect. The requirement of a pass in a given subject at the Leaving Certificate for entry to that subject at university, at least in the Science-based faculties, would keep out a significant number of people who now succeed in its study. It might well be argued that the university course in a subject could be pitched at a higher level if all students admitted to it had passed the Leaving Certificate in that subject, but it must also be recognized that because of variations among schools in the courses which they provide, special prescription for university studies is

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[1] The Joint Matriculation Board of the Universities of Manchester, Birmingham, Liverpool, Leeds, and Sheffield has developed an examination in General Studies. The material published on that examination might well be studied along with research on the American scholastic aptitude tests.

likely to keep out many potential graduates. It must also be pointed out that in some country schools, the pupils would be penalized by any narrowly prescriptive scheme of faculty pre-requisites.

5. 22. Research indicates that a very large increase in the minimum acceptable Leaving Certificate pass would be required to bring about even a modest improvement in university pass rates.

5. 23. Evidence produced on the importance of personality and intelligence makes it desirable that these factors should be taken into account in decisions about university admissions, but the difficulty of measuring them makes it impossible so far to incorporate them in the formal matriculation machinery. This suggests that university admission is a matter not only of selection by examination, but also of identification and guidance within the secondary school. School principals and guidance officers should be fully encouraged to use what is now known about the influence of intelligence and personality in leading their pupils to exercise some self-selection for university admission. A continuing guidance program in schools, based on a close and intimate knowledge of each pupil built up over a period, is essential in leading pupils and their parents to an understanding of the chances of success and satisfaction in university studies.

5. 24. Much good would come from regular liaison between universities and schools, exchange of experience, and sharing and use in common of the findings of research. Elsewhere in this report we recommend that there should be established a New South Wales Universities Committee. The secretariat of that Committee should include a person of high ability in the field of educational research, capable of advising the Committee about research findings on university education, and of maintaining liaison with research workers in the universities.

5. 25. If it is necessary to reduce the number of students being admitted to universities on the basis of present matriculation requirements, consideration should be given to procedures similar in kind to those used in the award of Commonwealth Scholarships.

5. 26. In addition to studying published research data the Committee has studied some unpublished data on the relationship between results in the Leaving Certificate and performance at the University of Sydney and has found this data helpful in its discussions on university selection and in its interpretations of the published results of investigations carried out elsewhere. In order that the results of investigations reported below in paragraphs 5.30–5.34 might be more easily understood, it will perhaps be helpful to describe the accepted method of determining the relative merit of candidates who pass the Leaving Certificate Examination for such purposes as the award of Commonwealth Scholarships and Teachers' College Scholarships. All raw marks gained in pass and honours papers at the examination are first co-ordinated and the highest six co-ordinated marks so determined are aggregated. In this procedure, no distinction is made between matriculation and non-matriculation subjects. In co-ordination the variations which occur in mean raw marks and in the distribution of raw marks about their means are adjusted. A new mean mark is determined for each subject and this is weighted in accordance with the mean capacity of the candidates who sit for the subject. All marks are then distributed from 0 to 100 about the new means in a manner uniform for each subject.

5. 27. The mean capacity of examination candidates in various subjects has been found to remain remarkably constant from year to year. Provided therefore that the principles of co-ordination are unchanged, co-ordinated marks gained by candidates from year to year are comparable. Moreover, totals of co-ordinated marks may be equated to normal performances at defined levels of capacity. The process of co-ordination is therefore a reliable means of measuring the quality of an examination pass. The candidate who secures a total of 300 co-ordinated marks in six papers, that is who averages 50 marks in each subject, is the average candidate and his performance is consistent with the possession of an Intelligence Quotient (I.Q.) of 116 which is the mean I.Q. of Leaving Certificate candidates. The theoretical maximum number of co-ordinated marks is 600, representing 100 marks for each of six papers.

5. 28. The distribution of aggregates of co-ordinated marks gained by candidates is as follows:

Total co-ordinated marks in six papers	*Percentage of Leaving Certificate candidates gaining this mark*	*Mean I.Q. of candidates corresponding to total marks*
300	50	116
320	39	117
340	29	119
360	21	121
380	15	122
400	9	124
420	5	126

5. 29. About 80 per cent of all candidates pass the Leaving Certificate Examination, of whom about 60 per cent matriculate.[1] Thus, about 60 per cent x 80 per cent, that is, 50 per cent of candidates matriculate. We should therefore expect that the minimum co-ordinated total for a matriculating candidate would be about 300 marks, and his I.Q. level 116.[2] There is nothing in this figure to suggest that matriculation standards are too liberal. It will be seen from evidence which follows that some matriculating students do not reach this standard. Some candidates gaining more than 300 marks do not matriculate.

Relation between Leaving Certificate and university performance

5. 30. Many studies have been made, in this country and overseas, of the relationship between performance on an entrance examination and performance at university. To get information based on some recent local experience, the Committee studied the results of an investigation at the University of Sydney of the co-ordinated marks of candidates who entered the University in 1958 after matriculating at the

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(1) See also footnote p. 42, for results for the years 1958-60.

(2) The mean I.Q. of students entering Australian universities is about 124, with a standard deviation of 7 to 8. C. Sanders, *op. cit.*, p. 160.

1957 Leaving Certificate Examination. The survey was confined to the faculties of Law (full-time), Agriculture, Veterinary Science, Medicine, Science, Engineering, Dentistry and Architecture, that is, those faculties which require the full completion of the first year before the second year is undertaken. The performance in the first-year examinations (annual and deferred) of the 798 students included in the survey are shown in Table VII.

TABLE VII

Relationship between co-ordinated marks at Leaving Certificate 1957 *and results in first year at the University of Sydney* 1958.

Co-ordinated total	No. of candidates	No. who passed	Per cent passed	Co-ordinated total	No. and per cent of candidates	No. and per cent of group who passed	Per cent of total passes in group
<280	21	2	10				
280-299	30	8	27				
300-319	35	16	46	<360	204 (25%)	79 (39%)	14
320-339	63	30	48				
340-359	55	23	42				
360-379	68	43	63				
380-399	90	56	62	360-439	333 (42%)	237 (71%)	42
400-419	92	68	74				
420-439	83	70	84				
440-459	77	70	91				
460-479	59	55	93	⩾440	261 (33%)	245 (94%)	44
480-499	53	49	92				
⩾500	72	71	99				
Total ..	798	561	70		798 (100%)	561 (70%)	

5. 31. It must be emphasized that the data reported in Table VII does not cover all the first-year students in the University of Sydney in 1958. It does not include students in Arts, Economics, or the part-time course in Law, and the performance of students in those faculties could have some influence on any general conclusions that are drawn. It includes only students who entered first year in 1958 after having qualified for admission through the Leaving Certificate Examination of 1957, and therefore does not touch students repeating first year, those who entered through the Matriculation Examination or through the Leaving Certificate Examination earlier than 1957, or those who were admitted on overseas qualifications, war service or provisional matriculation. The overall pass rate of 70 per cent shown in Table VII is higher than the pass rate for first-year students generally in Australian universities. The students whose records provided the data for Table VII may therefore not be a truly representative sample.

5. 32. Even with the reservation mentioned in the previous paragraph, Table VII suggests some important considerations.

(1) Candidates having less than 320 marks on their best six papers comprised 11 per cent of all entrants included in the survey; in theory their exclusion would have raised the pass rate from 70 per cent to 75 per cent. Such an assumption, however, is open to question since the exclusion of a lower group might well raise the standards of examinations applied to the remainder.

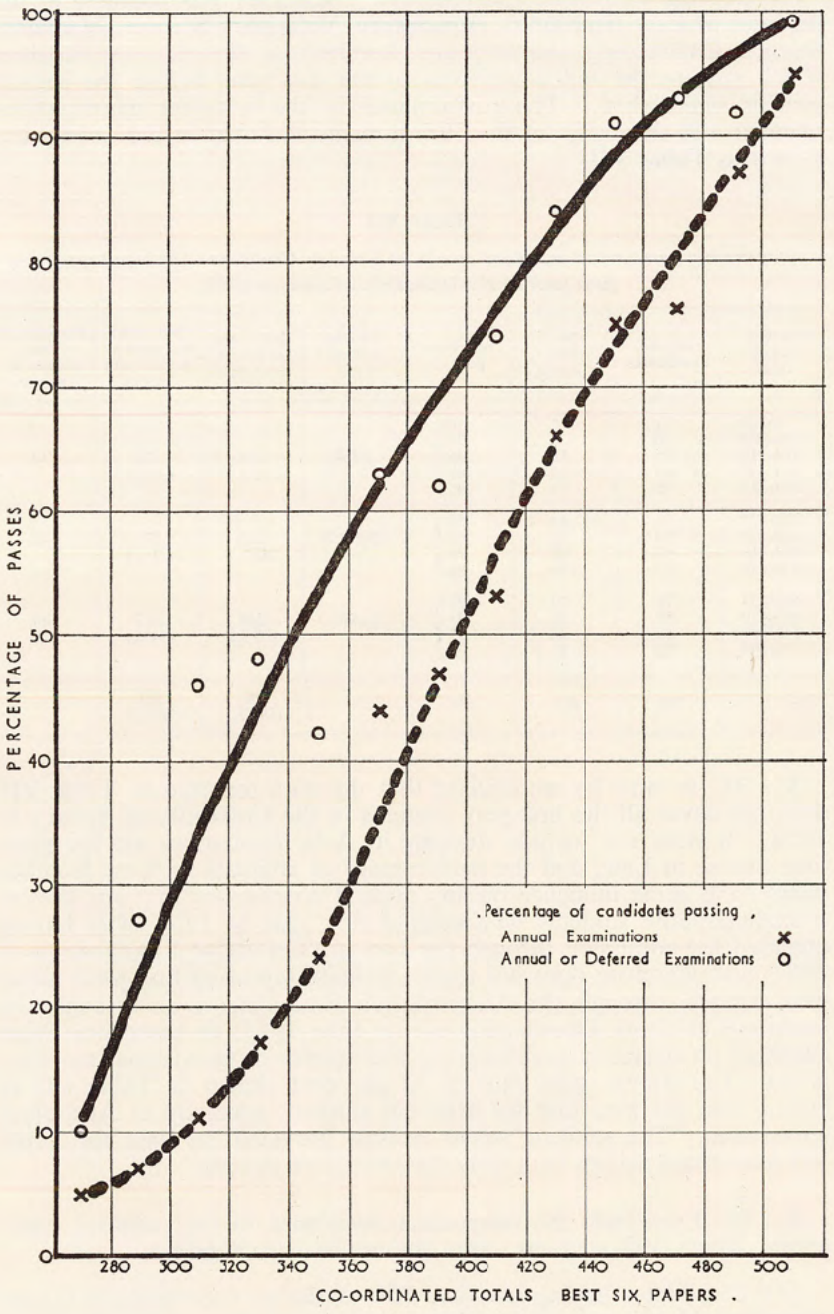

FIGURE 1.

Relationship between total of co-ordirated marks on best six papers at Leaving Certificate 1957, and performance at University of Sydney first year examinations 1958. . Data from Table VII.

(2) Six per cent of the students gained co-ordinated marks less than 300 and 19 per cent had marks between 300 and 359. Thus about 75 per cent of all candidates had co-ordinated totals of 360 or better. Only 21 per cent of all Leaving Certificate candidates, or 42 per cent of all matriculating candidates, reach this level. It is therefore evident that there is a high degree of self-selection amongst undergraduates.

(3) The relationship between Leaving Certificate performance and university success is not perfect. While it is clear that there is a positive relationship, we find that there were university failures and passes at every Leaving Certificate level.[1] No matter what minimum aggregate mark is taken as a point for determining university admissions, some potentially successful students will be excluded, while some of those admitted will fail. Figure 1 (p. 47) shows in graph form the relationship between the Leaving Certificate co-ordinated totals and university performance for the students described in Table VII.

(4) In all the groups below 360 aggregate the pass rate was less than 50 per cent.

5. 33. The study reported in paragraphs 5.30-5.32 was based on the results of the 1957 Leaving Certificate. Since 1957 there has been a slight variation in the methods of co-ordination which, while not affecting the mean or the maximum, cause a variation in intermediate totals. A total of 300 in 1957 corresponds to a total of 300 in 1960, but a total of 360 gained at the earlier date is equivalent to a total of 350 under present conditions. Proportional changes occur between 300 and 360. Co-ordinated totals above 300 shown in Table VII must therefore be varied if they are to be compared with data based on present conditions. In particular, candidates who gained totals a little greater than 300 would gain slightly lower totals under present methods of co-ordination.

5. 34. Published results on the Leaving Certificate Examination show the grade of pass, on each written paper for each candidate, at one of four levels: First-class Honours, Second-class Honours, A pass, B pass (H I, H II, A, B). Since many crucial decisions are based on co-ordinated marks, and not on the grade of pass, it is important to point out that Leaving Certificate performances which, in terms of the published results, appear to be identical, may in fact be very dissimilar when the co-ordinated marks are examined. In Table VIII below some examples are given which relate totals of co-ordinated marks to the results which are published for public information. In assembling this table, the best five passes gained by candidates which would qualify them for matriculation were recorded. In order to relate this report to existing matriculation conditions (changes in matriculation requirements in the University of Sydney came into force in 1959) the passes examined were those gained by 1960 Leaving Certificate Examination

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[1] Data collected by Sanders (*op. cit.*, p. 155) indicates that in the more populous faculties of Australian universities the correlation between scores on entrance examinations and university first-year examination results range in most studies between 0.55 and 0.70; correlations with university examinations as a whole, and not only with first-year examinations are generally within the range 0.40 to 0.55.

candidates, but a correction has been made in the co-ordinated totals so that passes gained may be compared with totals of co-ordinated marks as calculated in 1957. A sample of 184 cases was taken from a series of Leaving Certificate Examination results selected at random.

TABLE VIII

Adjusted co-ordinated aggregates, Leaving Certificate 1960, for a random sample of candidates

Co-ordinated total (1957 standard)	Total number of cases	Published L.C. results 5B's	1A 4B's	2A's 3B's	3A's 2B's	
<300	39	29	9	1		
300-309	13	6	6	1		
310-319	23	12	10	..	1	
320-329	29	14	11	4		
330-339	22	8	7	7		
340-349	34	7	9	16	2	
350-359	24	4	4	10	2	together with
					1	case 4A's, 1B
					1	case 1HII, 1A, 3B's
					1	case 1HI, 1A, 3B's
					1	case 1HI, 1HII, 3B's

Between 360 and 369, 25 cases were counted in which a pass with 5B's occurred only once.

Summary and conclusions

5. 35. The review of the data discussed or referred to in this chapter leads to the following conclusions:

(1) There is sufficient relationship between totals of co-ordinated marks, as determined in the same way as for the award of Commonwealth Scholarships, and success in the first year of university study to justify the use of co-ordinated totals in conjunction with existing matriculation regulations to improve methods of predicting success and therefore of selecting students for universities. In particular university students whose aggregate of marks at the Leaving Certificate is less than the average of all candidates have a high failure rate in the first-year examination, although some succeed.

(2) Selection on the basis of a pattern of Honours, A's and B's is likely to be less satisfactory than on co-ordinated marks since each grade of pass represents a wide range of merit.

(3) The system of selecting the best six marks allows, in the case of a candidate who takes more than six papers, the inclusion of good honours marks in the place of poor pass marks, and there can be no objection to this procedure. It also permits a candidate to select five matriculation subjects from correct groups and to include an easier sixth non-matriculation subject, so gaining an advantage over a candidate whose selection of subjects is strictly in line with his anticipated university studies. But if an aggregate of marks is to be used as a means of selecting undergraduates the principles of selecting marks for aggregation should be revised. Probably a more satisfactory predictor

would be the total of the best five papers in subjects qualifying for matriculation. Research on this matter should precede any extensive use of co-ordinated aggregates in the selection of undergraduates.

(4) If co-ordinated marks are used as a basis for university admission some means will need to be found of relating Leaving Certificate passes to those gained in other examinations used for matriculation.

(5) There is evidence to show that students gaining low totals of co-ordinated marks are inadequately prepared for university work and that in some cases their readiness could be improved by a further year of schooling. It can be in the interests of the student to repeat a year at school rather than at university, particularly in view of the steps recently taken in universities to prevent excessive repetition of courses.

(6) Data on the comparative quality of entering undergraduates in the various States is not available. Whatever the quality of those who enter universities in New South Wales it can be stated that about 60 per cent of them eventually graduate and this graduation rate is found with little variation in all States. The quality of students entering universities in New South Wales, therefore, might not be greatly different from that in other parts of Australia.

(7) It has not been suggested and it is not intended to suggest that the requirement of a given co-ordinated aggregate should be written into matriculation requirements. We have no evidence to prove the superiority of a Leaving Certificate candidate who gains a co-ordinated aggregate of 360 and proceeds straight to university over a candidate who scores 300 and defers his course to a time of greater maturity. The effect of maturity is again a subject that needs investigation.

(8) It is essential that further research should be carried out in this whole field and the Committee commends the investigations now being carried out in universities. The costs of such investigations are a long-range saving since they help to reduce the failure of students and wastage of ability. Such research should cover all aspects of student selection and not merely methods of using for admission purposes marks at the Leaving Certificate Examination.

(9) If additional requirements for matriculation are determined the change should be for educational reasons only and not to save cost, or reduce student/staff ratios or alleviate administrative difficulties in the provision of courses.

(10) The suggestions made above concerning a higher minimum standard of admission are not to be confused with the imposition of quotas. Quotas are primarily determined by limitations of accommodation and teaching facilities. There should be no raising of matriculation requirements unless it is clear that alternative forms of tertiary study are available for those students who are excluded and who are unable to improve their qualifications or repeat a year of school. Any rise in matriculation standards should therefore be imposed progressively.

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(11) At this stage it is not possible to state what expense the State might save through the exclusion from universities of a body of matriculants. The cost of providing university education is shared by the Commonwealth while the cost of alternative provision, for example in technical colleges, is borne wholly by the State. The effect of a rule defining a required co-ordinated aggregate might be and, it is hoped, would be to encourage many matriculants in the lower bracket to undertake a further year of schooling. This would delay, but not permanently deny, entrance to a university.

(12) It is advisable to avoid differences between the admission standards of universities. In the first place they lead to mistaken public comparisons of the merit of their graduates. In the second they cannot be reconciled with a co-ordinated provision of university education in the State. Hence there should be co-ordination in any procedures which result in the exclusion of a body of students, and we now turn to consider such co-ordination.

Authority to determine matriculation standards

5. 36. Powers to define entrance requirements are possessed by all universities through the respective Acts under which they are constituted. The Senate of the University of Sydney, the Council of the University of New South Wales and the Council of the University of New England "may make by-laws" with respect to them. The University of Sydney has made matriculation by-laws in detail; the University of New South Wales has not made by-laws. The University of New England is at present engaged in the framing of by-laws governing various aspects of the administration of the University, including matriculation. By-laws of all universities are subject to the ratification of the Governor in Council. Since the University of Sydney has made by-laws regarding matriculation any alteration in its entrance requirements must be submitted to the Governor in Council (to whom it is forwarded by the Minister for Education), but the Universities of New South Wales and of New England, not yet having detailed their requirements in by-laws, may alter them without reference to the Governor in Council and therefore without formally bringing the alterations to the attention of the Minister for Education.

5. 37. Under these circumstances, co-ordination of matriculation standards must depend on co-operation between the universities. There has, in fact, been a great deal of co-operation in this matter and as a result, the matriculation requirements of the three universities are very similar. Variations are only minor.

5. 38. The University and University Colleges Act requires the University of Sydney to accept passes in the Leaving Certificate Examination "in the subjects and at the standards which the Senate determines are necessary for matriculation" as satisfying the requirements for matriculation. The Universities of New South Wales and of New England have no such obligations under their Acts but their Councils have included Leaving Certificate Examination passes in their definitions of matriculation requirements. All universities also accept the Matriculation Examination of the University of Sydney. In addition the universities accept alternative methods of matriculation based on other standards.

5. 39. The Councils of the Universities of New South Wales and of New England have power to control the enrolment of students, notwithstanding that they may have satisfied matriculation requirements. The power of the Senate of the University of Sydney to take such action has been doubted and depends on whether the word "matriculate" implies an obligation upon the University to enrol any student who has satisfied the educational requirements for entry.

5. 40. In discussing this matter, it is difficult to distinguish between (*a*) issues which are of concern only in the internal management and organization of a university, and (*b*) those aspects of university organization which are of concern to people outside the universities. It may well be that, for the first group, there is no need to go through the lengthy procedure of obtaining approval from the Governor in Council; these are not essentially matters of public moment. But for the other group, there should be immediate public notification of action contemplated by the universities, and as far as possible, there should be some sort of co-ordination among the universities. Alteration of matriculation requirements should not be made without sufficient prior notice either to schools preparing candidates for the Leaving Certificate Examination or to the Board of Secondary School Studies which has the responsibility of determining syllabuses.

5. 41. In a period in which the development of university enrolments may lead to the establishment of new universities or the growth of university colleges into universities, it becomes particularly important that there should be uniformity in the powers possessed and that the universities should co-ordinate their actions. It is important to evolve some machinery for co-operation and co-ordination among universities so that they may share among themselves in a systematic way, and according to their own separate characters and resources, the duty of educating young people in which they are responsible ultimately to the community. We expect that the permanent Universities Committee which we have recommended should be established would be a means of obtaining the necessary co-ordination.

5. 42. We consider that the attention of the appropriate administrative bodies associated with the universities should be invited to the following matters:

(1) Each university should be adequately represented on the Board controlling the final secondary school examination and should recognize that examination in defining its matriculation requirements.

(2) There should be a considerable uniformity in basic matriculation requirements among the universities. At the same time, each university must be able to determine its own matriculation system and standards. A mechanism for discussion and consultation between the universities should be set up to provide a desirable amount of uniformity. The permanent Universities Committee recommended elsewhere in this report should fulfil this need. Matriculation requirements should be clearly stated in documents easily available to schools and to individuals.

(3) In making alterations to matriculation requirements, the universities should bear in mind problems that face the schools, and ensure that sufficient notice is given to enable the schools to make necessary adjustments.

(4) Restrictions on enrolments should only be imposed when unavoidable shortages of staff, accommodation, and equipment make it impossible for the universities to teach large numbers in an effective way. Co-ordination between the universities in any such action is essential and this will be achieved through the proposed permanent Universities Committee. This Committee would have the responsibility of keeping the Minister informed on all matters before it for consideration.

(5) Universities should possess powers to effect the enrolment or restriction of enrolment of students.

CHAPTER 6

UNIVERSITY EXPANSION: FINANCIAL FACTORS

6. 1. We have already shown that during the next decade university enrolments in this State are expected to increase by over 24,000 and we have taken the view that higher education should be provided for all those who seek it and who appear to be capable of profiting from it. Even with an expansion of other forms of higher education, it is clear that this State cannot avoid the necessity to increase rapidly the number of university places.

6. 2. It will by now probably be apparent that the Committee in framing its recommendations on this matter will not confine itself to the financial issues involved. Nevertheless, they are of prime importance and in this chapter we turn our attention to their consideration.

SOURCES OF INCOME OF UNIVERSITIES

6. 3. Until recent times the University of Sydney, which was the only university in the State from its incorporation by Act of Parliament in 1850 until 1949, relied almost entirely for its income upon State grants, fees from students and benefactions. While the amounts from each source have varied from time to time, something of the order of 25-30 per cent of this income was contributed by the State, 25-30 per cent came from fees and 30-50 per cent from benefactions and other sources. Over the last several decades, income from fees and benefactions and other sources has decreased in proportion until in 1959 fees represented 26 per cent and income from benefactions and other sources 5 per cent, whereas the State contributed 45 per cent of the total income.

6. 4. At their inception, the newer Universities of New South Wales (1949) and New England (1954) relied almost entirely for their income on State grants. In the case of the University of New England, however, the Commonwealth Government, which had earlier undertaken financial assistance to universities, made grants from its first year of operation.

6. 5. It is only in recent years that the Commonwealth Government has made a substantial contribution to the support of universities. The first significant move in this direction was made about the end of World War II when the Commonwealth contributed towards buildings, equipment and running expenses, and paid the fees for ex-servicemen, in connection with the Commonwealth Reconstruction Training Scheme. The Commonwealth Scholarship Scheme followed. Commonwealth Government assistance to universities increased substantially in 1951 when the States Grants (Universities) Act was passed following the

report in the previous year of a committee under the chairmanship of the late Professor R. C. Mills. Further legislation from time to time increased the annual contributions by the Commonwealth.

6. 6. A major change in the pattern and extent of Commonwealth aid followed the Report of the Murray Committee to the Prime Minister in 1957. As a result the States Grants (Universities) Act, 1958, made provision for substantial annual grants to each of the universities towards recurrent expenditure (running costs) and capital expenditure on buildings and equipment for the years 1958, 1959 and 1960. The payment of these grants was subject to their being matched, in varying proportions according to prescribed schedules, by grants from the State and income from fees. Unmatched emergency grants were also paid to each university during the years mentioned.

6. 7. The Murray Committee's recommendation for the appointment of a permanent body resulted in the passing, through the Commonwealth Parliament, of the Australian Universities Commission Act, 1959, and the appointment of an Australian Universities Commission in the same year. Following the Commission's Report of 15th October, 1960, the Commonwealth Parliament passed the States Grants (Universities) Act, 1960, which provides for Commonwealth grants, to specified maxima, for recurrent expenditure in the ratio of 1 : 1.85 of income derived from State grants and fees, and for capital expenditure on building projects and equipment in the ratio of 1 : 1 of amounts provided by the State for these purposes.

6. 8. Procedures culminating in the preparation of States Grants (Universities) Bills and administration of the provisions of the Acts involve preparation of estimates by the universities for several years in advance, discussions between the Commission and the universities, progress reports by the universities and audited statements of income and expenditure. The universities also submit annual estimates of income and expenditure to the State Government.

6. 9. The present procedure whereby the Universities Commission discusses needs with the universities, and then formulates a policy for recommendation to the State and Commonwealth Governments, has the disadvantage that the State Government, which is responsible for the whole co-ordinated system of education in the State, plays no part in the formulation of the original plans.

6. 10. Elsewhere in this report (Chapter 9) we recommend the establishment of a New South Wales Universities Committee to provide advice to the Minister. This permanent Committee should in future receive the proposals from the universities before the final discussion with the Universities Commission, should inform the Minister of the nature of these proposals and transmit to him any comments which it may have upon them. If the permanent Committee has the composition which we recommend, this machinery should work efficiently and smoothly.

6. 11. The current Act provides for payment of maximum amounts for the purposes indicated, subject to State grants and fees reaching the amounts shown:

TABLE IX

Allocations to New South Wales universities: States Grants (Universities) Act, 1960

(1) Recurrent expenditure

University	Year					
	1961		1962		1963	
	State grant and fees	Commonwealth grant	State grant and fees	Commonwealth grant	State grant and fees	Commonwealth grant
	£	£	£	£	£	£
Sydney	2,890,000	1,562,000	3,179,000	1,718,000	3,338,000	1,804,000
New South Wales	2,497,000	1,350,000	2,809,000	1,519,000	3,161,000	1,708,000
New England ..	847,000	458,000	932,000	504,000	1,026,000	554,000
£	6,234,000	3,370,000	6,920,000	3,741,000	7,525,000	4,066,000
Totals £	9,604,000		10,661,000		11,591,000	

(2) Building projects and equipment 1961-63

University	Building projects				Special equipment	
	Specified buildings and site works		Furnishing and equipment			
	State	Commonwealth	State	Commonwealth	State	Commonwealth
	£	£	£	£	£	£
Sydney	1,450,000	1,450,000	72,500	72,500	45,000	45,000
New South Wales	2,880,000	2,880,000	144,000	144,000	40,000	40,000
New England ..	670,000	670,000	33,500	33,500	15,000	15,000
(Unspecified) ..	..	..	..	..	250,000	250,000
£	5,000,000	5,000,000	250,000	250,000	350,000	350,000
Totals £	10,000,000		500,000		700,000	

6. 12. As far as the colleges affiliated with the University of Sydney are concerned, the State contributed to their initial building operations and has paid annual subsidies towards the salaries of their principals

since their foundation. The several States Grants (Universities) Acts have provided amounts of Commonwealth money for teaching and administrative costs of these colleges. The 1958 Act provided, for the first time, an amount (£180,000 for the period 1958-60) for building extensions. This grant was subject to its being matched by an equal amount from State and from college funds. The State Government contributed £90,000. The 1960 Act provides for £142,000 Commonwealth grant for 1961-63 under similar conditions.

THE DEVELOPING PATTERN OF UNIVERSITIES IN NEW SOUTH WALES

6. 13. The costs of provision of university education are best related to the increases in enrolments which are anticipated in various universities. It will be shown in this chapter that there are some cost factors which are more or less independent of them, but the effect of the distribution of enrolments among universities is so important as to necessitate at the outset the definition of the pattern of development on which the conclusions of this chapter have been based. It is as follows.

University of Sydney

6. 14. We have stated elsewhere in this report that the University of Sydney cannot avoid growth to an enrolment of 16,000 and that a reduction thereafter to an enrolment of 12,000 could be desirable. In this chapter we envisage the growth but make no assumption that there will be any reduction during the next decade below the peak of 16,000.

University of New South Wales

6. 15. We can find no evidence that there will be any necessity in the next decade to provide teaching in the technologies in any university except Sydney and New South Wales and we base our conclusions on the assumption that the University of Sydney has almost reached its peak enrolments in the faculties concerned so that almost the whole growth must be provided for within the University of New South Wales. We therefore envisage strong development in the technologies within this University associated with controlled development in other faculties.

University of New England

6. 16. It is imperative that the University of New England should develop progressively to an enrolment approximating 2,500 internal students in residence by 1970. The University should continue to expand its existing faculties and be a major centre for the development of teaching and research in matters relating to primary industries. During the foreseeable future, studies in these fields should be confined to the Universities of Sydney and New England.

Additional university

6. 17. The above pattern of development leaves a surplus of students which will occur principally in the faculties of Arts, Science and Economics in the metropolitan area. To meet this position we consider that a new university should be established which might develop an enrolment of 6,000 students during the next decade. We do not think that any further university establishment will be required within the ten-year period under review.

COSTS INVOLVED IN THE DEVELOPMENT OF THE PATTERN

6. 18. Our initial approach to the problem of costs was to investigate whether it was within the powers of existing universities to absorb all increases of enrolments which would occur up to 1970 and if so what expenditures would be involved.

6. 19. In Table X the replies received from the universities are presented in a tabulated form. They were not in sufficient detail to allow a complete analysis of costs to be made. Furthermore, the figures obtained from the University of Sydney were based on a purely theoretical argument concerning an increase of enrolment to 20,000. Such a development is not in accordance with the policy of the University, is not accepted as desirable by this Committee and is opposed to the planning of development suggested in the 1960 Report of the Australian Universities Commission. The table is therefore presented merely as an indication of the magnitude of the costs involved in using existing establishments to develop total enrolments approximating that which, on the basis of predictions in Table IV (paragraph 3.7), might be reached in 1972. The approximate equality of the total final enrolment shown in the table with that shown in Table IV for 1972 rather than for 1970 is accidential and arises from the fact that the replies of the universities were made without consultation with each other.

6. 20. It was necessary to obtain the information in Table X not only in order to establish a measure of costs but also to compare the cost of housing a given number of students by provision within existing universities with that arising from the establishment of new institutions. It is difficult to obtain an exact measure of the cost of development of a new institution, which is considerably influenced by such factors as the nature of the teaching it would provide and the costs of site acquisition and site development. It is apparent that when a university is first established provision must be made for more students than will offer for enrolment immediately; further there are disproportionate costs per student in providing for administrative buildings, while almost the whole of the costs of site acquisition and development are incurred.

6. 21. Table X above suggests that the housing in existing universities of approximately 30,000 additional students together with the provision of satisfactory accommodation for students already enrolled would amount to approximately £63,000,000, the ratio of total cost to

TABLE X

Development costs 1961–1970: *information supplied by the universities*

University	Project	Approved expenditure 1961-63 £000	Estimated additional expenditure required 1961-3 £000			Anticipated expenditures 1964-70 £000							Total additional expenditure 1961-70 £000	Estimated final enrolments 1970
			1961	1962	1963	1964	1965	1966	1967	1968	1969	1970		
Sydney	Buildings, equipment, furniture, purchase of sites, other works (not residential colleges).	2,900	500	1,310	896	2,000	2,000	2,000	2,000	2,000	2,000	2,000	16,706	20,000
New South Wales	Kensington. All works including residential colleges.	5,372	..	1,470	2,940	2,940	2,940	2,940	2,940	2,940	2,940	1,470	23,520	20,700
	Newcastle	18	..	..	..	1,500	1,500	300	300	300	300	300	4,500	2,500
	Wollongong	370	..	220	220	220	220	220	220	220	220	220	1,980	1,500
	Broken Hill	..	..	125	125	..	..	..	..	..	..	..	250	not stated
	Orange	..	..	20	20	20	20	20	..	..	..	..	100	not stated
New England ..	All works except residential colleges.	725	70	303	115	852	152	253	180	410	239	28	2,602	2,620 internal +3,600 external
	Residential colleges	615	100	85	350	460	500	500	500	400	200	..	3,095	
	Totals	10,000	670	3,533	4,666	7,992	7,332	6,233	6,140	6,270	5,899	4,018	52,753	50,920

Total additional expenditure (i.e. in excess of approvals amounting to £10,000,000 in the 1961–3 triennium) = £52,753,000 to provide for total enrolments of 50,920.
The expenditure includes £8,869,000 in the present triennium in excess of approved grants.

increases of enrolment being £2,100 per student including the cost of halls of residence. At a later stage in this chapter the separate parts of the cost of expansion will be analyzed, and it will be shown that an important part is concerned with overcoming existing deficiencies and is therefore independent of the establishment of new institutions. The per capita cost of providing accommodation for teaching all additional students under conditions of initially satisfactory accommodation and excluding the provision of halls of residence is significantly less than £2,000.

6. 22. All the evidence available from experience points to the fact that the cost of initial enrolments within a new university must be in excess of that required to house a similar number of additional students in a well established institution. In view of the inadequacy of information available to us we do not propose to make a firm statement regarding the cost of a new establishment providing for a wide variety of faculties. We understand that the development of Monash University to provide for an enrolment of 8,000 full-time and 4,000 part-time students is estimated to cost approximately £24,000,000 including residences but excluding equipment and books for the library. Capital expenditure therefore represents approximately £2,000 per student. (We note that expenditures of much greater magnitude are envisaged in grants made available to British universities.) The information before the Committee leads us to the view that the initial cost of establishment of a university—say for the first 500 places—might be independent of the faculties which are to be organized, but later costs will vary considerably with the range of faculties and courses provided. If a university does not organize teaching in technologies and medicine the cost of building at the later stage might be less than £1,300 per place.

THE COMPONENTS OF CAPITAL COSTS

6. 23. In the following statements we investigate the magnitude of the various components of capital expenditure resulting from our recommendations for a pattern of university development. In attempting to forecast the financial needs of universities one is immediately confronted with two important facts. The first is that requirements can only be determined over a short period if any satisfactory degree of accuracy is to be obtained, the second is that requirements which appear to be similar may, on closer examination, prove to differ between universities in their nature as well as their extent.

6. 24. **It is for these reasons that we consider it essential that the permanent Universities Committee should make regular reports, and that it should gain its information by close liaison with each university.**

6. 25. In this section we endeavour to indicate the nature of the overall problem and to make some estimate of the financial aid required for its solution during the current triennium and over the next ten years. There are so many problems involved that we can do no more than arrive at an approximation of the costs involved.

TABLE XI

Grants for buildings for teaching purposes

University	Predictions of enrolments by universities (*a*)			Percentage of full-course enrolments (*b*)	Deduced growth of full-course enrolments (*c*)	Capital grants 1961-63(*d*)			Grant for buildings for teaching purposes ÷ anticipated growth in enrolments (*e*)
						Residential	Site purchases, services, works	Other, i.e. buildings for teaching purposes (*e*)	
	1961	1964	Difference	1960	1961—64	£	£	£	£ per full-course student
Sydney	12,500	15,400	2,900	76·8	2,230	..	475,000	2,425,000	1,090
New South Wales	9,335	12,615	3,280	75·7	2,480	250,000	170,000	5,340,000	2,150(*f*)
New England	2,817	3,750	933	30·8	287	615,000	175,000	550,000	1,920(*f*)
Melbourne Monash	12,340	16,960	4,620	62·0	2,860	286,000	510,000	9,096,000	3,180
Queensland	9,500	14,600	5,100	41·4	2,110	..	....	2,200,000	1,040
Adelaide	6,850	8,300	1,450	54·7	793	..	113,000	2,007,000	2,530
Western Australia	4,252	6,513	2,261	52·4	1,180	..	93,000	2,307,000	1,960
Tasmania	1,484	1,870	386	53·9	208	..	192,000	1,608,000	7,730
Australian National University— Institute of Advanced Studies	160	240	80	100·00	80	15,000	315,000	3,572,000	20,770
School of General Studies	1,042	1,400	358	25·8	92				
Total Australia	60,280	81,648	21,368	..	12,320	1,166,000	2,043,000	29,105,000	2,360
Universities in New South Wales	24,652	31,765	7,113	..	4,997	865,000	820,000	8,315,000	1,660
Universities in other States	34,426	48,243	13,817	..	7,151	286,000	908,000	17,218,000	2,420
All State Universities	59,078	80,008	20,930	..	12,148	1,151,000	1,728,000	25,533,000	2,100

(*a*) *Report of Australian Universities Commission.* October, 1960. Table 13.
(*b*) *Report of Australian Universities Commission.* October, 1960. Table 14.
(*c*) Assuming percentage of full-course enrolments remains constant.
(*d*) The separation into divisions is deduced from stated items in the total grants.
(*e*) Teaching purposes include teaching, staff and administrative accommodation.
(*f*) See paragraph 6.32 below.

6. 26. Capital costs incurred by universities arise under many headings, of which the most important might be stated as under.

(1) Building provision for increases in enrolments.

(2) Building to overcome conditions of overcrowding and to replace temporary accommodation.

(3) Furnishings and equipment for additional building.

(4) The establishment of halls of residence.

(5) Site purchases, site services and site developments.

(6) Building and/or remodelling and other costs arising from the replacement of unsuitable buildings and obsolete equipment.

(7) Building and equipment for special purposes not normally associated with enrolments, e.g., the development of special research projects, the establishment of special schools.

(8) A special problem is the cost of establishing teaching hospitals.

RELATIONSHIP OF CAPITAL GRANTS TO ADDITIONAL ENROLMENTS

Approved capital grants for Australian universities, 1961-63

6. 27. We first direct attention to the capital grants to universities approved for the current triennium 1961-63. In Table XI the grants are compared with the increases in enrolments anticipated by the universities in their submissions to the Australian Universities Commission. These show a total anticipated growth in enrolment from 60,280 in 1961 to 81,468 in 1964. The recommendations of the Commission were based on an estimate of growth from 60,000 to 80,000. We do not know whether the revised figure was due to a reduction of the estimates of particular universities or whether a common formula for reduction was applied to all universities. If the second alternative applied all the figures shown in the last column of Table XI are subject to an error of 7 per cent.

6. 28. Calculations of costs of buildings are normally based on their use by full-time students, on the assumption that part-time students are able to duplicate their use. The Commission has given figures for "full-course" rather than for "full-time" students. The terms are only loosely equivalent. For the purposes of the argument in this section the error which is involved in their interchange is ignored. The number of full-time students will normally be less than the number of full-course students. The use of numbers of full-time students would therefore cause an increase in the figures in the last column of the table.

6. 29. The building programs for 1961, 1962 and 1963 have been assumed to provide for the growth of enrolments between 1961 and 1964.

6. 30. It is apparent from Table XI that the relationship of grants to increases of enrolments is most variable and it seems that other factors which influence capital expenditure have played a very important part in the determination of allocations. The importance of some of these will receive attention when we point out the special problems faced by universities in New South Wales. At this stage certain remarks are pertinent and are stated in the following paragraphs.

6. 31. Had the division of capital funds between the States been based on actual 1960 enrolments in universities the allocation to New South Wales universities would have been £13,000,000 instead of £10,000,000. Had funds been divided on a population basis between the States the amount would have been £12,000,000.

6. 32. The grant for the University of New South Wales includes provision for the transfer of students from the Technical College at Ultimo to the Kensington site. Money available for building for new enrolments at Kensington is considered to be about £2,500,000 so that the figure in the last column of Table XI, if interpreted to mean the amount available for building provision for each additional student, must be reduced to approximately £1,000. Of the funds available to the University of New England, £75,000 was for excess costs incurred in the previous triennium, while £275,000 provided for Physics and Chemistry will do little more than replace obsolete buildings without making provision for additional students. We estimate that for the University of New England half the total grant for buildings for teaching purposes, i.e., £275,000, is available for housing additional students, and that therefore the figure shown in the final column should be halved to give the amount available for housing each additional student. We have no knowledge of the extent to which factors such as these affect universities in other States.

University of Sydney

6. 33. The grant to the University of Sydney has severely curtailed a building program designed to relieve acute problems of accommodation.

6. 34. Referring to the Universities of Sydney and Melbourne, the Universities Commission stated that "the financial proposals of the Commission are framed in anticipation of both universities stabilizing in the near future preferably at figures not exceeding 12,000."(1) This statement applied also to grants for recurrent expenditures, to which reference will be made later. The University of Sydney is, of course, quite unable to stabilize its enrolment at 12,000 without the application of severe restrictions, until such time as the University of New South Wales, the University of New England and new universities are able to give relief. In our opinion it cannot avoid a total enrolment of approximately 16,000 throughout at least the next decade. Already the University of Sydney has had to abandon the principle of open entry in order to try to limit its total enrolment to 16,000 by about the middle of the decade.

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(1) *Report of the Australian Universities Commission.* October, 1960. p. 22.

6. 35. We consider that the determination of the size of a university should be a matter of agreement between the State Government and the university concerned. The conclusions of this report are based on that assumption. Presumably, in accordance with the provisions of the Australian Universities Commission Act 1959, recommendations regarding grants have been reached after discussion between the Commission and the State Government. On a matter of such importance as the size of a university and its related problem of the enrolment of matriculants we consider that the specific concurrence of the Minister for Education should be obtained and that the Minister would reach a decision only after consultation with the university concerned in the light of the policy of the university and of the State Government on the provision of tertiary education. No other course would ensure stability of policy.

University of New South Wales

6. 36. In Table XI the amount of £5,340,000 is shown as being available to the University of New South Wales to provide buildings for teaching an estimated 3,280 additional students. After making allowances for the costs of site development at Kensington, building required to replace temporary accommodation at Ultimo, Newcastle and Wollongong and building for additional enrolments at Newcastle and Wollongong, we estimated in paragraph 6.32 that the amount available to provide buildings for additional enrolments at Kensington is £2,500,000. Later in this chapter we calculate that the average cost of building provision for an additional student is £1,300. The sum of £2,500,000 provides for the housing of 1,920 students on this basis. This is considerably less than the number of students who are expected to enrol. It is unquestionable therefore that the total grant to the Universities of Sydney and New South Wales is inadequate for the housing of all additional students coming forward during the triennium. The position is in fact aggravated by the necessity to spend £2,100,000 on schools of medicine and the biological sciences at Kensington where the cost per student is considerably in excess of the figure of £1,300 which we have used in our calculations.

University of New England

6. 37. The figure shown for the University of New England is somewhat inflated in comparison with other universities by the method of calculation of full-course students and does not give an adequate picture of the extent of use of the University's capital investment in buildings. It should be remembered that the University is performing an essential State service for external students and that all its residential and a great part of its teaching accommodation are in use for fifty weeks in each year. (Attention is invited to the comments in paragraphs 6.92-6.94.)

Provision in Great Britain

6. 38. It is appropriate to direct attention to costs incurred by British universities. The University Grants Committee of Great Britain stated in 1958:[1]

> "In October, 1957, total full-time student numbers reached 94,600. They were higher by 5,899 . . . than the corresponding figures for October, 1956."
>
> . . . . . .
>
> "The amount of non-recurrent grant to which we are authorised to commit the Treasury in respect of the capital cost of buildings started in the calendar year has been increased as follows—

Year	Limit of grant commitment on buildings started in the year £m.
1957	10.4
1958 and 1959	12.0 each
1960-1963	15.0 each

> "These sums are exclusive of the cost of sites, fees and equipment . . . The later part of the programme is of a provisional nature and subject to review if the economic position changes substantially."
>
> . . . . . .
>
> "Before making recommendations as to future building programmes we had discussions with each university and college on our grant list, the purpose of which was to reach agreement with them, in terms of increased student numbers and new buildings to accommodate them, as to the part which each should play in a co-ordinated programme of university expansion designed to meet the increased demand for university education and the increased need of the country for highly qualified personnel. These discussions were based on an estimated overall increase to about 124,000 students by the mid-1960's with the possibility of a further increase of about 10 per cent in the second half of the decade."

The London *Times* of 3rd February, 1961, published an announcement by the Chancellor of the Exchequer that the 1962 grant would be increased to £25m., the 1963 to £25m. and the 1964 and 1965 to £30m. each, for an anticipated enrolment in 1970 of 170,000.

6. 39. Taking the figures given by the University Grants Committee we assume that for the growth from 95,000 in 1957 to 124,000 in 1965, provided for by grants from 1957 to 1964, the total money available would be £94,000,000, slightly in excess of £3,200 per full-time student. The later figures suggest an increase in this amount. The whole expenditure is concerned in providing for new buildings, the modernization of buildings and the provision of halls of residence.

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[1] University Grants Committee, *University Development* 1952-1957. London, Her Majesty's Stationery Office, 1958. pp. 74-75.

6. 40. We have already pointed out that the increase of enrolments in New South Wales during the next decade 1961-1971 might be 24,600 (Table IV, paragraph 3.7). On the assumption that an approximate 70 per cent will be full-time students, the cost involved at £3,200 per head would be £55m. It is important to note, however, that the costs of building in Britain are lower than in Australia. The University Grants Committee in a statement regarding standards for science buildings suggests that the cost of building need not exceed 77s. per square foot. Australian costs are more than double this amount. It becomes apparent, therefore, that the British standards of accommodation must be more generous than anything that has been attempted in Australia, at least in the major States. An expenditure of the nature of £6,000 per additional student has only been exceeded in Tasmania and the Australian Capital Territory.

Bases of recommendations in this report

6. 41. From the Australian point of view, a more realistic approach to the problem is set out in evidence submitted by the University of New South Wales, which has used data quoted by H. L. Wells, Vice-President and Business Manager of North Western University in Illinois.[1] Wells quotes a survey of 1,386 colleges in the United States and suggests standards of building for teaching, administration, services and amenities derived from the survey. The University of New South Wales has recommended a modification of the standard to provide for a total of 195 square feet of floor space per student for all requirements except those of site services and residence, bases its costs on estimates of £1,000 per square for laboratories, workshops, research space and service and maintenance spaces and £800 per square for all other building, and arrives at an estimate of £1,710 per full-time student, based on an average building cost of £880 per square. These figures assume a balance of faculties within the University. However our recommendations for the University provide for a concentration on the technologies, and this would increase the estimate.

6. 42. In 1954 the University of Sydney provided approximately 195 square feet per full-time student on its campus, the faculties of Law and Dentistry being accommodated elsewhere. In 1960 the accommodation had deteriorated to approximately 150 square feet per full-time student. The 1954 standard provided only 24.8 square feet of teaching space (i.e., exclusive of library, administration, amenities, etc.) per student for 2,046 students in the Faculty of Arts.

6. 43. The University of New England has estimated a cost of about £1,500 per full-time student for teaching accommodation to enrol an additional 2,000 full-time students. This figure is not regarded as throwing doubt on the estimate of the University of New South Wales, since it does not include the more costly building programs involved in providing for engineering courses.

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[1] H. L. Wells, *Higher Education is Serious Business.* New York, Harper, 1953.

6. 44. Having examined these figures, we consider that pending a more detailed investigation, the following figures will lead to a satisfactory estimate of the building costs.

(1) The basis of cost for the University of New South Wales should be raised to 220 square feet per full-time student at a cost of £900 per square, say £2,000 per full-time student on the assumption of a specialization of development in the fields of technology.

(2) The basis of cost for the University of Sydney should be fixed at 200 square feet per full-time student at a cost of £850 per square on the assumption that the balance of enrolments would remain approxmately at the 1954 distribution, and that therefore the concentration on technologies would be less than in the University of New South Wales.

(3) The non-residential building costs of the University of New England should be estimated at £1,500 per full-time student.

6. 45. It will be noted that the costs for the Universities of Sydney and New South Wales would be approximately the same at about £1,300 per unit of total enrolment if the University of Sydney were to enrol one part-time student for each three full-time students and the University of New South Wales one part-time for each two full-time. We will use this figure in our deductions.

ESTIMATES OF NECESSARY CAPITAL EXPENDITURE

6. 46. We return to the headings listed in paragraph 6.26, showing the components of capital costs and will attempt estimates of the requirements of universities in New South Wales under the various headings for the triennium 1961-63 and the period 1961-70. The estimates are made with the reservation already stated that accurate determinations can be made only in reference to particular projects and a short period of time. The aim of this section is to obtain orders of magnitude of costs.

6. 47. Table XI above shows the growth of enrolments anticipated by universities over the period 1961-64 to be

Sydney	2,900
New South Wales	3,280
New England	933

The sum of these estimates is 7,113. In Table IV (paragraph 3.7) we estimated the growth to be 7,200. The error obtained by taking one figure rather than the other is approximately one per cent, which is well within the order of accuracy of our calculations. Moreover, we are concerned with a State expenditure rather than that of individual universities, so that the division of enrolments between the universities will have little effect on the results of calculations. In these circumstances we shall follow the estimates made by the universities as stated above.

(1) BUILDING PROVISION FOR INCREASES IN ENROLMENTS

6. 48. (1) *1961-63.* The following building program will have to be carried out during the triennium 1961-63 to provide for the enrolments expected in 1964.

(*a*) *University of Sydney.* The cost of housing 2,900 students at £1,300 per student is £3,770,000.

(*b*) *University of New South Wales.* The cost of housing 3,280 students at £1,300 per student is £4,264,000.

(*c*) *University of New England.* 933 additional students are expected, of whom one-third, or 311 are assumed to be in residence. The cost of housing each student in residence is assumed to be £2,000 for residence and £1,500 for teaching. The whole cost is £1,089,000.

(*d*) *New university.* The sum of £1,000,000 should be included in costs in the triennium. It is hoped to house some students before 1964, but these have been ignored in the calculations above because of the uncertainty involved.

The total of the items above is £10,123,000.

(2) *1961-70.* The estimated building program which we regard as necessary to provide for increased enrolments includes provision for the establishment of a new university.

(*a*) Subject to fluctuations in costs the basic expenditure involved in the enrolment of additional students in the period 1961-70 will approximate the sum of the number of full-time students enrolled in the University of New England x £3,500, the number of students enrolled in other existing universities x £1,300, and the cost of enrolments in a new university.

(*b*) The University of New England plans to enrol an additional 1,750 full-time students in residence in this period in a total increase of enrolment of 4,000. The cost involved is 1,750 x £3,500, i.e. £6,125,000, together with the cost of an administrative building for external students, for which no estimate is made.

(*c*) We envisage the enrolment of 6,000 students in a new university.

(*d*) The whole increase of enrolment is estimated at 24,600 of which 10,000 are accounted for above. 14,600 students would therefore be enrolled at a cost of 14,600 x £1,300, i.e. £18,980,000.

(*e*) With regard to the new university, we estimate that the enrolment of the first 500 students might cost £2,000 per place, which includes the acquisition and development of a site, the total cost being

£1,000,000. Thereafter the enrolment of students should cost considerably less than £1,300 per student, since provision would not be made for teaching technologies and there should be a high proportion of part-time students. We place the cost conservatively at £1,000 per student and assume 5,500 additional enrolments at this figure, costing £5,500,000. The total sum involved is £6,500,000.

(*f*) The total cost under this heading is £6,125,000 + £18,980,000 + £6,500,000, i.e., £31,605,000.

This expenditure would be increased if the existing trend from part-time to full-time study were to accelerate.

(2) BUILDING TO OVERCOME CONDITIONS OF OVERCROWDING AND TO REPLACE TEMPORARY ACCOMMODATION

University of Sydney

6. 49. Figures on which an estimate may be based are available for 1960 and calculations are based on them. For the purpose of our calculations we assume them to be unaltered in 1961, although they have in fact further deteriorated. In 1960 there were 8,480 full-time students and the floor area of buildings on the campus was 1,202,000 square feet. We have recommended a floor area of 200 square feet per student. The area required on this basis is 1,696,000 square feet which is 494,000 square feet greater than that available. We place the average cost at £850 per square. The cost of provision of the additional area required is 4,940 x £850, i.e., £4,199,000. This figure includes the cost of building for the Faculty of Law and provision for studies in the first years of Dentistry on the university campus.

6. 50. With regard to the area determined above it may be pointed out that to restore the conditions existing in 1954 would require the provision of 367,000 square feet of floor areas. This makes no provision for the urgently required transfer of teaching in Law to the university campus.

6. 51. Of the whole expenditure involved we consider provision for a building for Law should have urgent priority. The University estimates its cost at £750,000 of which £20,000 is provided for planning in the present triennium. The remainder of the amount of £4,199,000, namely £3,449,000, is not given so high a priority. The estimate of £750,000 given here is greater than that given by the University to the Australian Universities Commission and is a result of revised planning. Provision is involved for 1,000 students at £750 per student. The estimate is considered to be reasonable.

University of New South Wales

6. 52. The University had a floor area at Kensington of 600,000 square feet at the beginning of 1961 and enrolled approximately 7,600 students in Sydney. We have recommended provision on the basis of 220 square feet per full-time student, assumed to be two-thirds of the total, at a building cost of £900 per square. The area required for this enrolment is 1,115,000 square feet which is 515,000 square feet in excess of that available. The cost of provision of this area is £4,635,000. This figure includes the cost of housing students on the Kensington site who are now housed elsewhere.

6. 53. The effective number of students who were housed away from the campus at the beginning of 1961 is difficult to determine, since it included students who also attended the Kensington buildings for some of their work. We estimate that the number could not be placed at a lower figure than 2,000 and the cost of their housing on the main campus, on the basis of £1,300 per student, would be at least £2,600,000. This is regarded as expenditure which should be undertaken in this triennium. The balance, £2,035,000, while requiring quick attention, is not regarded as having the same priority.

6. 54. It will be necessary at the proper time to transfer the Newcastle University College to its own campus. The cost involved is estimated to be £3,000,000, which represents a higher cost per student than that used above owing to the expenditure involved in site preparation. The expenditure involved in the transfer has not been recommended for the present triennium.

University of New England

6. 55. No satisfactory calculations can be made on the same basis for the University of New England. However, there is a considerable amount of temporary accommodation within the University which could be considered under this heading or under the heading of obsolete buildings. It is included here so that costs involved may be considered in Table XII below in relation to funds provided in this triennium.

6. 56. About 130 students are accommodated in unsuitable conditions in houses in Armidale and should be transferred to the University as soon as possible. This implies an expenditure of £260,000. A great part of the teaching accommodation is in wooden buildings which must be regarded as temporary. The Department of External Studies occupies temporary accommodation in a modified cottage and no permanent home has yet been possible for the Department of Adult Education. We estimate the expenditure required for these projects to be £250,000 in addition to that provided in the present triennium which in paragraph 6.32 is estimated to be £275,000. The whole cost is therefore £785,000.

SUMMARY OF CAPITAL EXPENDITURE FOR BUILDINGS

6. 57. The expenditures involved under the two headings discussed so far—(1) building provision for increases in enrolments and (2) building to overcome conditions of over-crowding and to replace temporary accommodation—are summarized in Table XII.

TABLE XII

Estimates of additional expenditures to provide buildings for increased enrolments and relief of overcrowding and temporary accommodation

University	Building for increase of enrolments. Priority 1961-63.	Building for relief of overcrowding and temporary accommodation. Priority 1961-63	Total.	Amount provided in grants for buildings. See Table XI.	Difference for provision Priority 1961-63.	Building for relief of overcrowding and temporary accommodation. Priority 1961–unstated.
	£000	£000	£000	£000	£000	£000
Sydney	3,770	750	4,520	2,425	2,095	3,449
New South Wales ..	4,264	2,600	6,864	5,340	1,524	5,035 (*a*)
New England	1,089	275	1,364	1,165	199	510
New University ..	1,000	..	1,000	..	1,000	..
Totals	10,123	3,625	..	8,930	4,818	8,994

(*a*) Includes £3,000,000 for transfer of Newcastle University College to a new site.

(3) FURNISHINGS AND EQUIPMENT

6. 58. The Murray Committee's recommendation, applied in the triennium 1958–60, was that provision should be made under this heading to the extent of 16 per cent of building costs. The Commission has recommended a reduction to 5 per cent for the triennium 1961-63 and has made provision for special expenditure on items of capital equipment costing more than £5,000. The effect of this grant is to make the total funds available about 10 per cent of the building program. We regard this figure as being low; far too low in the case of faculties of Science, Medicine, Engineering and Applied Science. For Medicine, recent experience would suggest at least 30 per cent and Engineering and Applied Science will probably be much the same. We have already

pointed out that the problems associated with the provision of buildings for increased enrolments are so diverse as to require continued consultation with the universities concerned. This is also true of the provision of furnishings and equipment. It is with this reservation that we take the lower limit of their costs arising from the building estimates stated in the preceding sections to be 10 per cent of the building expenditure.

6. 59. The costs would be as follows:

(1) Building for new enrolments, 1961-63 triennium:

Table XII estimates additional expenditures on building to be the difference between £10,123,000 and £8,930,000, i.e., £1,193,000. The minimum cost of furnishings and equipment is 10 per cent of this amount, say £119,000.

(2) Building for new enrolments, 1961-70:

Total building costs were estimated at £31,605,000 involving minimum costs of furnishings and equipment of £3,161,000, including the amount provided for 1961-63.

(3) Provision of buildings to relieve overcrowding and replace temporary accommodation:

The amount required under this heading is a matter for investigation in each case, since some equipment, such as that used in temporary accommodation, is already provided. The whole capital cost of building under this heading is £12,619,000. On our assumption that the cost of equipment is 10 per cent of capital cost of building, the equipment cost involved would be less than £1,262,000, which includes 10 per cent of the amount set down for 1961-63 priority, namely £361,000.

(4) HALLS OF RESIDENCE

6. 60. It is considered that a long-range program of expenditure should be envisaged to bring the extent of residential accommodation available to students in New South Wales up to the standard applying in other States. Almost all full-time students of the University of New England are in residence, although some are placed in town houses which, it is hoped, will eventually be replaced by colleges within the University grounds. The Commission has shown that, at the end of 1960, the percentages of full-course students in residence in State universities other than New England were: [1]

Sydney	8.1
New South Wales	3.0
Melbourne	14.6

[1] *Report of the Australian Universities Commission.* October, 1960. Table 54.

Queensland	23.1
Adelaide	10.3
Western Australia	19.2
Tasmania	22.2

The fraction of all students in residence in New South Wales to all full-course students in the State is 9.2 per cent. It is apparent, therefore, that a program of building must be envisaged which would bring this State more into line with general Australian practice.

6. 61. In Table X proposed enrolments were stated for existing universities, which envisaged residence for 2,350 students in the University of New England at the end of the decade.[1] We have assumed the State enrolment in 1971 to be 48,200 students, of which 70 per cent, or 33,700 students, might be full-course students. The University of New England therefore plans to provide for the residence of 7.0 per cent of all full-course students in the State. A case could therefore be established for the provision of residence for at least an equal number of students elsewhere. Since the residence of students at the University of New England would be principally for the purpose of studies in faculties other than those concerned with technologies, particular attention should be paid to the possibility of residence in Sydney of students enrolled in technological studies. The plan would be achieved if the University of Sydney continued to maintain its percentage of residential students and the University of New South Wales increased its proportion of residential enrolments to a comparable percentage. Development at this University is particularly important in view of the proposed use of the Kensington campus for the enrolment of students who have completed early years of study in country colleges.

6. 62. To achieve the plan outlined it would be necessary to provide residence for about 1,500 students in the metropolitan area in excess of those in residence at the beginning of 1961. The cost involved at £2,000 per head is £3,000,000. The University of New England has estimated its expenditure for halls of residence to accommodate 2,350 students by 1971 to be £3,095,000 in excess of the amount of £250,000 provided in the present triennium, representing a total expenditure of £3,345,000. It is estimated, therefore, that the whole cost of providing residence by 1971 for 14 per cent of all students in the State would be the sum of £3,000,000 and £3,345,000. This represents an expenditure of £635,000 per annum, that is £1,905,000 in the present triennium, of which £865,000 has been provided. To maintain the rate of expenditure necessary to achieve the objective an additional £1,040,000 would need to be provided in the present triennium.

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[1] The 2,620 students shown in Table X comprise 2,350 full-time and 270 part-time (non-resident).

(5) SITE PURCHASES, SITE SERVICES AND SITE DEVELOPMENTS

6. 63. The difference between the amounts sought by the universities for expenditure in the period 1961-63 and the amounts approved for expenditure are shown in the following table.

TABLE XIII

Expenditure for site purchases, site services, and site developments

University	Requested	Provided	Purpose of funds
	£000	£000	
Sydney	75	75	Extension of services to new buildings.
	924	400	Purchase of sites.
	30	..	Services to Engineering Precinct.
	100	..	Sport and recreation facilities.
	350	..	Purchase of site and buildings of Royal N.S.W. Institution for Deaf and Blind Children (Darlington).
Total, Sydney	1,479	475	
New South Wales ..	175	170	Miscellaneous site development
New England	150	75	University servicing centre.
	245	100	Services university area.
	115	..	Services residential area.
Total, New England ..	510	175	
Total, all universities ..	2,164	820	
Difference	£1,344,000		

6. 64. Table XIII shows that the difference between the amounts requested and those provided was £1,344,000. Of this amount £200,000 has been made available by the State Government for the University of Sydney, and may be regarded as offsetting portion of the cost of acquisition of the Royal New South Wales Institution for Deaf and Blind Children. The balance is £1,144,000.

6. 65. All of these items are regarded as being essential to programs of development, and therefore of high priority.

6. 66. It is impossible to predict the amount required under the heading of this section for the period 1961-1970. Certain costs however are inevitable, such as the acquisition of land by the University of New South Wales for the development of halls of residence.

6. 67. The cost of acquiring a site for the proposed new university has been included under heading (1) in paragraph 6.48.

(6) REPLACEMENT OF UNSUITABLE BUILDINGS AND OBSOLETE CAPITAL EQUIPMENT

6. 68. Large expenditures could be incurred under this heading by the University of Sydney. Much of its accommodation is quite unsuited for the purposes for which it is used, is incapable of expansion to meet the needs even of existing students and is wasteful of site space.

6. 69. When the University was asked to state what expenditure would be involved in increasing its enrolment to 20,000 it produced estimates which led to the deduction that the sum of £5,000,000 might be included under this heading. However, no deduction can be made from this figure regarding the extent of replacement which will be necessary in order that the enrolment might be stabilized at 16,000. It could be considerable. The exact amount of expenditure, however, will only be determined when plans are being made for the erection of particular buildings to replace existing accommodation and the expenses incurred in the alterations and renovations which would be involved in the use of the displaced building for some other purpose. Some buildings will have to be demolished.

6. 70. We consider that this item should not be neglected in estimating expenditure over a long period and, in the absence of more detailed knowledge, estimate the cost at £2,000,000.

6. 71. The University of New England is also concerned with expenditure under this heading but this has been included in dealing with temporary accommodation (paragraphs 6.55 and 6.56).

(7) BUILDING AND EQUIPMENT FOR SPECIAL PURPOSES

6. 72. No estimate of costs is made under this heading. This does not deny the importance of the association of universities with special research projects, which we should be the first to point out. Expenses under this heading are normally of considerably less magnitude than those associated with the usual provisions for undergraduate and post-graduate study. Every university, however, must encourage the development of advanced studies in its various departments.

(8) COSTS OF TEACHING HOSPITALS

6. 73. Up to this point we have been concerned with costs which might occur in the schedule of grants recommended by the Australian Universities Commission which are subject to the normal basis of distribution of capital costs between Commonwealth and State. An expenditure which is more particularly the concern of the State is that concerned with the provision of teaching hospitals.

6. 74. The Committee has no figures on which to base the possible needs of the Sydney University Medical School for clinical facilities, but these cannot be very large as the School is established and operating. A sum of £500,000 is included for extension and improvement of these facilities.

6. 75. For the Medical School in the University of New South Wales, clinical provision has still to be made, and the need is extremely urgent. The total requirements may be stated roughly as follows:

	£
Modernization of Prince Henry Hospital and conversion for teaching (700 beds) ..	3,000,000
New hospital at Randwick for teaching (350 beds)	3,500,000
Conversion of Eastern Suburbs Hospital for 200 paediatric beds	1,500,000
Women's Hospitals—adaptation for teaching	500,000
Provision for teaching facilities in other hospitals	500,000
	£9,000,000

An additional £9,500,000 will therefore have to be spent in hospitals to provide for the training of doctors, together with the provision for patients simultaneously involved.

PROVISION FOR RECURRENT EXPENSES

6. 76. Recurrent grants proposed for universities in New South Wales will be inadequate to meet their requirements in the triennium 1961-63. Submissions by universities to the Australian Universities Commission were based "upon a policy of meeting existing commitments, allowing for foreseen increases in enrolments, assuming an improvement in conditions (for example staff/student ratio, equipment, etc.) which the University considers practicable by the year in question."[1] We have endeavoured to demonstrate in this

[1] Australian Universities Commission. Questionnaire A.U.C./Quest/59.1. Question 5 (1) (*b*).

chapter that the estimates of universities in New South Wales for capital developments were based on a necessary and carefully planned program of expansion over of number of years. We have every reason to believe that estimates of recurrent expenditure were as realistic and as soundly based as those concerned with building programs. It is shown in Table XIV, however, that their total grants for recurrent expenditures in the triennium are £4,689,000 less than the estimates which they submitted to the Commission in 1959, adjusted now to make allowance for salary increases which took effect in February, 1960. Over the triennium the amount of £4,689,000 represents 13.7 per cent of the adjusted total of the universities' estimates. The amounts needed for recurrent expenditure vary with capital developments, since the latter are an important factor in determining student intakes and therefore influence the employment of additional staff. Maintenance expenses are also influenced by the provision of new buildings.

TABLE XIV

Recurrent Grants 1961–63. *Universities in New South Wales*

Totals of State grants, fees and Commonwealth grants

University	1961 £000			1962 £000			1963 £000		
	(i)	(ii)	(iii)	(i)	(ii)	(iii)	(i)	(ii)	(iii)
Sydney .. .. (*a*)	4,409	..	..	4,888	..	..	5,370	..	..
(*b*)	329	..	..	352	..	..	375	..	..
(*c*)	4,738	4,452	286	5,240	4,897	343	5,745	5,142	603
New South Wales .. (*a*)	3,935	..	..	4,657	..	..	5,135	..	..
(*b*)	260	..	..	292	..	..	325	..	..
(*c*)	4,195	3,847	348	4,949	4,328	621	5,460	4,869	591
New England .. .. (*a*)	1,728	..	..	1,984	..	..	2,183	..	..
(*b*)	94	..	..	109	..	..	120	..	..
(*c*)	1,822	1,305	517	2,093	1,436	657	2,303	1,580	723
Annual totals			1,151			1,621			1,917
Total for triennium ..						4,689			

(*a*) Original submissions of universities.
(*b*) Plus allowance for salary increase from 1.2.60, not included in submissions.
(*c*) Total, (*a*) + (*b*).
(i) Requirements.
(ii) Grants.
(iii) Differences, (i) – (ii).

6. 77. When even a seemingly small reduction is made in recurrent income the results may be serious. The income is applied to meeting expenditure under a number of headings: the payment of salaries for teaching, servicing and administrative staffs and general employees, the promotion of research, library expansion and administrative costs including maintenance, cleaning, light, power, telephone charges and

the like. It is often seriously affected by increasing scales of costs. When income is reduced the first costs affected by economies are those related to teaching and research. A reduction of 5 per cent in the recurrent income of the University of Sydney, for example, would be more than the University has recently been able to spend on additions to academic staff and twice as much as it has been able to allocate to research.

6. 78. We are impressed by the frequency with which inadequacy in research funds has been pointed out in submissions of academic boards and faculties. Universities cannot hope to recruit teachers of good quality unless they can hold out a reasonable assurance that their research will be supported. The position will not be satisfactory until universities are able to allocate adequate funds to maintain research and are able to increase the funds in proportion to additions to the academic staff and expansion of post-graduate work. The Committee estimates that the universities at present are able to allocate less than 50 per cent of the sum needed for research.

6. 79. The proposed grant to the Australian National University for 1963 is £3,350,000[1] and the anticipated enrolment of equivalent full-course students is estimated at 1,030.[2] The proposed recurrent income is thus about £3,250 per equivalent full-course student. In the same year the corresponding figure for students in the State of Tasmania will be £640, in Victoria £510, and less than £500 in other States. In certain representative British universities in 1958 the cost per effective full-course student averaged £A562 compared with £A448 in the Australian universities.[3] These figures give cause for alarm regarding the position of State universities. If the magnitude of recurrent grants is unaltered there will develop a concentration of post-graduate and research work in the Australian National University to the detriment of corresponding schools in the State universities. Nationally and educationally this would be disastrous. Every university needs its school of advanced studies.

6. 80. The other major effect of inadequate recurrent funds is the ability of universities to recruit staff and the consequent perpetuation, if not aggravation, of a high student/staff ratio. This may be illustrated by considering the case of the University of Sydney. To maintain its existing ratio the appointment of additional academic and

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(1) *Report of the Australian Universities Commission,* 1960. Table 48.

(2) This anticipated enrolment is arrived at by (1) assuming the division of 1,289 enrolments in 1963 in the School of General Studies (A.U.C. Report, Table 13) to be in the same proportion of full-course to part-course as shown in A.U.C. Report Table 14 for 1960, (2) counting each part-course student as one-half of a full-course student, and (3) adding the enrolments in the Institute of Advanced Studies.

(3) *Report of the Australian Universities Commission,* 1960. Tables 44 and 45.

non-academic staff for the 1961–63 triennium would cost approximately £760,000 in salaries; to appoint the additional staff on a desirable basis of a student/staff ratio of 10 : 1 would cost approximately £990,000; to improve the ratio to 10 : 1 for all staff would cost £2,460,000. Actually the position could be reached, if recurrent grants are not improved, where it would be impossible to find funds for any additional staff towards the end of the triennium.

6. 81. The estimates of the Universities of Sydney and New South Wales were based on proposals to improve their student/staff ratios to an extent which seemed reasonable and within their capacities to recruit suitable staff. We have pointed out the difficulties associated with staff shortages. It is important that a university must be in a financial position to employ the right person when he is available.

6. 82. In view of all the evidence it is reasonable to regard the assessments of the universities as stated to the Commission to be responsible estimates of basic requirements. We therefore propose to include an additional amount of £4,700,000 for recurrent expenditure during the current triennium to cover the needs of the three universities. This figure, which is an approximation of the amount of £4,689,000 deduced in Table XIV, would be affected by unanticipated variations of projected enrolments, salary scales, general cost factors and by the extent of capital expenditure. This amount represents an increase of about 15 per cent of the total amount of fees and approved recurrent grants as shown in Table IX above.

6. 83. The method applied by the Australian Universities Commission to the growth of recurrent grants from 1961 to 1963 is as follows.

University	*Growth of grant from* 1961 *to* 1962 *per cent*	*Growth of grant from* 1962 *to* 1963 *per cent*
Sydney ..	10	5
New South Wales	12½	12½
New England ..	10	10

The smaller growth for the University of Sydney is associated with the proposal of the Australian Universities Commission "to encourage the University of Sydney to stabilize its total student body".(1) We have already stated our attitude to such encouragement in reference to the inadequate provisions for capital expenditure suffered by the University, and find it no more acceptable here.

(1) *Report of the Australian Universities Commission,* 1960. p. 44.

Summary

6. 84. The financial requirements dealt with under previous headings are summarized in Table XV.

TABLE XV

Summary of expenditures, 1961–70

Item of expenditure	Additional expenditure to meet existing or urgently pending needs		Whole expenditure including grants already provided
	1961—63 Priority 1 £000	1961— unstated Priority 2 £000	1961—70 £000
(*a*) Buildings for additional enrolments in existing universities. Building and site costs for new university. (*b*) Establishment or restoration of adequate standards of accommodation for existing enrolments on university campuses.	4,818 under headings (*a*) and (*b*)	8,994 under heading (*b*)	31,605 under heading (*a*) + 12,619 under heading (*b*)
Furnishing and equipment for above.	119 + an amount less than 363	An amount less than 899	3,161 + an amount less than 1,262
(*c*) Halls of residence.	..	1,040	6,345
(*d*) Site purchases and works.	..	1,144	An amount greater than 1,144
(*e*) Replacement of obsolete buildings and equipment.	..	..	2,000
(*f*) Buildings on university campuses for special purposes.		Not calculated	
Total capital expenditure for buildings on university campuses.	Approx. 5,300	Approx. 12,077	Approx. 58,136
(*g*) Fees and grants for recurrent expenditure.	4,700	Not stated	
(*h*) Cost of development of hospitals.	9,500	Not stated	

6. 85. The method of arriving at these figures is sufficiently independent of that for arriving at the estimates of Table X to serve as a check on them. The sum of £58,136,000 for capital expenditure in 1961–70 in Table XV includes an amount of £4,423,000 for furniture and equipment. The capital cost is the difference, namely £53,713,000. The total of £62,753,000 shown in Table X is also exclusive of furniture and equipment. The estimates of Table X provide for a greater final enrolment than that in Table XV and if

proportionally reduced would approximate £56,505,000. The estimates of Table X and Table XV are therefore approximately equal, that of Table X being greater by about 5 per cent.

6. 86. It is impossible to make accurate statements of financial needs in relation to any of the items listed in Table XV without prior detailed discussions with the university concerned at the time each project is being considered. Therefore we do not regard the amounts stated in the table as anything more than figures which indicate the order of magnitude of the costs involved and the headings under which they fall. Those of first priority are listed in the first column. Those which occur in the second column are mixed in their priority, some needing early attention while some could be postponed until the next triennium.

6. 87. The first column of Table XV estimates the necessary urgent additional capital expenditure in the triennium 1961–63 to be £5,300,000 including furniture and equipment or £4,818,000 excluding these items. The last column estimates the whole expenditure over ten years to be £58,136,000 including furniture and equipment and £53,713,000 excluding them. The latter amount represents an average annual expenditure of £5,371,000 which, if applied to the whole period 1961–63, totals £16,114,000. Of this sum £10,000,000 has been provided. The difference is £6,114,000. It should be noted that expenditure at the average annual rate would be insufficient to provide for a rapid correction of many deficiencies in accommodation for which initial expenditures would need to be larger than those towards the end of the decade. No allowance has been made for changing cost factors over the decade.

6. 88. In summary, the additional expenditure in this triennium which is regarded as urgent is approximately £4,818,000 and that anticipating a uniform program over the whole decade is approximately £6,114,000 for the triennium; each of these sums is exclusive of furniture and equipment. Additional recurrent funds will be needed and these might approximate £4,700,000.

6. 89. Despite the approximate equality between the total expenditures deduced from Tables X and XV, the costs listed must be regarded as approximate. We have no reliable means of determining their order of accuracy. The costs involved in building at Monash University are greatly in excess of our estimates for faculties of Science and Engineering and are not so high in the case of Arts. If further building costs in this State follow the Monash pattern of costs we have certainly underestimated the needs of the University of New South Wales and have probably done so also for other universities. If the higher costs arise largely from the establishment of a new institution we have seriously underestimated the cost of a new university. We have thought, however, that one principal function of the Committee has been to provide evidence which may cause a review of the grants proposed by the Commission and that therefore our calculations must be on a conservative basis.

6. 90. Furthermore, the division of these funds between the universities is only partially indicated by the amounts deduced in the various calculations, since they are often based on assumptions of enrolments predicted two years ago. The division of available funds can only be determined by analyses of actual enrolments and current predictions of enrolments and an examination of individual proposed projects. This should be the duty of the Universities Committee whose establishment we propose.

6. 91. We have aimed in this analysis of costs to establish sections within which capital building grants might be determined and we consider that a pattern of analysis such as we have used above might well be the basis of the determination of grants, which should be approved under appropriate headings. Funds for recurrent expenses should indicate the overall staffing ratio which they are designed to achieve.

APPENDIX

University of New England

6. 92. Throughout this report we have endeavoured wherever practicable to follow the statistics supplied in the 1960 Report of the Australian Universities Commission. We wish to draw attention, however, to our disagreement with the Commission's method of calculation of the ratio of equivalent full-course students enrolled at the University of New England and therefore with the conclusions which arise from it.

6. 93. External-course students are enrolled in a number of State universities and apparently the Commission has considered it necessary to apply a uniform formula in determining their relationship to equivalent full-course students. We have observed at first hand the organization of external studies in the University of New England and are convinced that there is no satisfactory basis for assessing the teaching load involved other than the number of courses in which students are enrolled. Course for course, as much staff time is involved in teaching an external as an internal undergraduate, and there is satisfactory provision for teaching at the post-graduate level. The average number of courses taken by an internal student is 2.7 and by an external student 1.6. We therefore consider that each external student should be considered as being equivalent in staffing and cost calculations to 16/27 of an equivalent full-course student. Using this fraction the student/staff ratio approximates 8.1 in 1960 and not 6.3 (later corrected to 6.1) as stated in Table 36 of the Commission's Report and the running cost in 1961 becomes, not £1,031 per student as estimated in Table 46 of the Report, but £731 per student. We regard this expenditure as reasonable in view of its contribution to the pattern of education in this State.

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6. 94. Our opinion is that the development of the University of New England is essential to the overall provision of university education in the State. The capital costs of establishing the University have already been incurred, and the facilities developed should be utilized to the fullest for its further growth as a matter of priority in rural education. We draw attention to the following points.

(1) The University provides a service which is State-wide, not local.

(2) The provision of residential accommodation has been alternative and not additional to residential developments in other universities.

(3) Its external courses provide a unique opportunity for many practising teachers to take university degrees.

(4) It has well established honours and post-graduate schools.

(5) It will operate more economically through an increase of enrolments.

(6) Further enrolments do not demand the recruitment of additional numbers of highly qualified academic staff to the same extent as in other universities.

(7) Its organization and the development of its courses are well adapted to make a special contribution to rural education.

CHAPTER 7

UNIVERSITY EXPANSION: EDUCATIONAL FACTORS

7. 1. There is considerable evidence to show that it would be cheaper to provide all the required additional accommodation in the existing universities without establishing any new universities at all, than to hold the existing universities to their present sizes and to provide all additional accommodation in new institutions of the same type. A combination of the two approaches—development of the existing universities to their maximum effective size and simultaneous controlled new development—would involve a cost substantially above the present rate of allocations. Before making a firm recommendation on the pattern of future development we turn to a consideration of some basic issues concerning the size and organization of a university.

7. 2. Opinions vary regarding the optimum size of a university. There would be more likelihood of reaching an answer if the question were in the form: What is the maximum number of students who can live on one campus and still remain full participants in the benefits which a university may offer? There are many universities abroad which have much larger enrolments than the universities in this State. They are normally organized on a number of sites. The Australian Universities Commission quotes, for example, the University of California as having 48,000 students on seven campuses, and at least finds no objection to its organization. There are others with enrolments above 20,000 on one campus. At the same time the Commission has suggested that the optimum size of the University of Sydney is 10,000, of New South Wales 10,000 and New England 2,000 and has stated an enrolment of 8,000 as an optimum size for a university of the Australian type. The estimate of 8,000, however, can only be accepted as an opinion that if a university is established on one campus and organizes full courses of undergraduate and post-graduate study in a variety of faculties, it will cease to function efficiently in some or all of its activities if its enrolment grows above 8,000.

7. 3. It is important that this State should have a clear policy on the optimum size of universities. The immediate problem is the provision of university education for rapidly increasing numbers of students. Because of the lateness of the hour, some restrictions on admissions have now become inevitable. But if there is sufficient building and purchase of sites, suitably qualified students coming forward in the near future could be provided for almost without exception and the position could be recovered. If we think of the problem simply as one of accommodation, the additional places needed could be provided within the three existing universities, which have indicated the numbers they could accommodate by 1970, given the means of erecting the necessary buildings.

7. 4. The University of Sydney estimated some years ago that, before any reasonable notice of intention to restrict enrolment expired, nothing could stop the University from running up to 16,000. After a period of stability at that figure, further increases to about 20,000 would be physically possible. But even 16,000 may be too big for effective working and if this is so it is hoped that the enrolment of the University may eventually be stabilized at a lower figure. On educational grounds the University of Sydney would place this figure at 12,000.

7. 5. The University of New South Wales has outlined a plan which would enable it to develop its enrolment steadily up to 20,000 (15,000 day and 5,000 evening students) by 1970 on the Kensington site while it continued to develop colleges within the metropolitan area, at Newcastle (2,500 students), Wollongong (1,500 students) and, to a minor extent, at Orange and Broken Hill. The Kensington site could have thereafter a further capacity of 5,000 evening students.

7. 6. The University of New England has advised that it could plan to increase its residential accommodation so as to provide for 2,350 full-time students in 1970 with corresponding increases in part-course and external enrolments.

7. 7. Details of the proposals are shown in Table XVI and, for purposes of comparison, the 1960 enrolments as published by the Australian Universities Commission are shown in brackets. It will be noted that the 1960 figures in Table XVI differ slightly from those in Table I (paragraph 1.7); the differences arise mainly because of differences in the methods of classifying students as full-course or part-course.

TABLE XVI.

Estimates of the universities' capacities for enrolment in 1970 on basis of their developmental plans.

(1960 enrolments (*a*) in parentheses)

University	Capacities for enrolments in 1970							
	Total enrolment		Full-course		Part-course		External	
Sydney	20,000(*b*)	(11,850)	14,000	(9,100)	6,000	(2,750)		
New South Wales ..								
Kensington	20,700							
Newcaslte	2,500 } 24,700	(7,719)	14,700	(5,843)	10,000	(1,834)		(42)
Wollongong	1,500							
New England	6,220	(2,225)	2,350	(686)	270	(114)	3,600	(1,425)
Totals	50,920	(21,794)	31,050	(15,629)	16,270	(4,698)	3,600	(1,467)

(*a*) *Report of the Australian Universities Commission*, 1960. p. 19.

(*b*) See paragraph 7. 4.

Additional enrolments are proposed by the University of New South Wales for its colleges at Broken Hill and Orange and in colleges in the metropolitan area for first-year students. The total capacity of

50,920 shown in Table XVI excludes predicted enrolments in colleges of the University of New South Wales at Broken Hill, Orange and in the metropolitan area, and is in excess of the Committee's estimate of 45,800 for 1970 (paragraph 3.8). It appears, therefore, that if sufficient buildings were provided rapidly enough in the existing universities there might be no need to establish another university within the next ten years or for the enrolment of the University of Sydney to go beyond about 16,000.

7. 8. What are the factors, then, which have prompted the Australian Universities Commission to advocate an upper limit to the size of a university? Two points of view have been urged in the Committee's discussions. In one view the unrestricted growth of a university is not incompatible with the efficient teaching of its students and indeed there may be an advantage in the development of strong schools of research. It is urged that a large department needing a large staff may have scholars with diverse interests and this is an advantage to both staff and students. Staff may be more readily recruited to an institution which provides a variety of scholarship and the work of individual members of staff benefits by association with those who have other specializations. Students themselves are provided with an increased number of fields in which they can develop interests and experience, and the important expansion of post-graduate schools becomes of value to the students themselves and the community. This is important in the fields of technology because of the community's developing reliance on the contributions of universities to industrial and scientific development.

7. 9. The opposing view is that a stage is reached at which the advantages of size are fully enjoyed and at which further increases in size become an impediment to the true working of a university. When an academic department reaches a certain size it begins to lose cohesion and unity. The teaching and research team begins to fall apart. Some would put the limit at 25 to 30. The growth of enrolments involves an increase in the administrative duties of the teaching staff and academic administration tends to become remote and formalized. In a university that is too large and scattered, students, like teachers, find it hard to feel that they belong to a single academic community.

7. 10. A common-sense policy would be to aim at enjoying all the advantages of size while avoiding the dangers. Not economy but effective educational work is the first consideration. In designing a co-ordinated policy over the long term it may be necessary to choose between the two points of view. A course may perhaps be set between them, and the Committee generally favours the encouragement of diversity. The Committee feels that the following principles apply:

(1) Universities must be allowed to specialize in broad fields and large enrolments in such fields are appropriate. In particular, industrial and scientific advances require extensive specialization in research which is only possible through the existence of adequate student numbers.

(2) Special attention needs to be given to the welfare of pass degree students in large departments.

(3) The fact that a university organizes a large department in a sphere of specialization is not a justification for the general growth of the university in all faculties.

(4) Small universities may be established to meet local requirements. Their growth, however, must be under control. They should not develop faculties which would be wasteful duplication of facilities available in other universities.

(5) Every university develops its own individuality in scholarship, and it is this which attracts staff and students. A permanent organization of junior colleges for the teaching of first-year students must be justified on grounds other than the physical incapacity of a university to provide teaching on its own campus. A junior college training only first-year students would have trouble in developing a character of its own. At best it would be a device to meet a practical necessity, but the comparatively greater ease of establishing it would never be a good reason for hesitation in making provision for further university establishment.

(6) The organization of large universities is educationally unjustified if the growth is due to excessive class sizes.

7. 11. Having stated these criteria, reference might be made to a further statement made in the Report of the Australian Universities Commission, which reads as follows:

> "It would hardly seem to be practicable to continue creating new universities all patterned on the 19th century models. The problem of future university development is a very large one and, no matter what changes are introduced, it is impossible to imagine them being carried out very quickly; certainly not in time to affect materially the financial needs of the universities during the next three years."(1)

7. 12. The "19th century model" is interpreted to be that of a university with enrolments in a variety of faculties designed to meet the overall needs of a community, and restricted to a maximum of 8,000 students (the Commission's figure being taken) organized on one campus. It is agreed that the pattern of a number of such universities in New South Wales would be wasteful and that some degree of diversification of universities should be encouraged. The nature of each university should determine the size to which it should grow. A detailed long-term program of development, however, will not be attempted in this report. The attitude taken here is that whatever pattern is developed, in the words of the Commission it cannot "affect materially the financial needs of the universities during the next three years." The urgent action required is to expedite the plans of organization defined by the universities so that the exclusion of students, which cannot be avoided entirely, can be reduced to a minimum in the near future and removed as soon as possible. Even if an additional university were approved forthwith the processes of planning, acquisition of site, building, and recruitment of staff could not reduce the pressure on existing universities in the immediate future.

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(1) *Report of the Australian Universities Commission on Australian Universities* 1958-1963. pp. 74-75.

7. 13. The general pattern of development which we recommend is much the same as that already envisaged in Great Britain, where existing universities are being asked to expand and new universities are being founded.(1)

7. 14. The rapid expansion of student enrolments in the universities in Great Britain, in the United States and in Australia, producing extensive demands for new facilities, buildings and equipment, has in each country caused the question to be asked: Could the universities use their facilities more intensively and thus reduce their demands for new capital expenditure? The case for more intensive use is usually put in one of two ways: firstly, it is pointed out that many universities use their classrooms, laboratories and workshops for student instruction for from 25 to 30 weeks in the year, and that for the remainder of the year these facilities are wholly or partly idle; secondly, attention is drawn to the fact that in many faculties teaching commences at nine in the morning and finishes about five in the evening, and it is then pointed out that such operations could perhaps be carried on from eight in the morning until ten in the evening, which would enable a larger number of students to be taught.

7. 15. These statements are in some cases true, but they present a very over-simplified picture of the situation. They cannot, however, be dismissed without examination, since examples can be found where both the suggestions made above are practised, as for example the co-operative system in the United States and extensive activities in evening study in some British, American and Australian universities, and it would be hard to say that these universities are unsatisfactory.

7. 16. On the other hand the preliminary discussions of this matter which the Committee has had have shown that there are many objections to both practices. In the Australian scene no university conducts regular undergraduate classes for more than 30 weeks in the year. The general figure is less than this. Laboratories and classroom facilities are, however, used for a variety of other purposes during vacation periods, and of course some time is necessary for maintenance and for preparation for the classes to come. Universities which conduct a large amount of evening teaching, such as the University of New South Wales, are conscious of being placed at a definite disadvantage when it comes to staff recruitment, because academic staff do not generally like teaching in the evenings, and when staff is scarce and alternative employment freely available this handicap can be a serious one.

7. 17. The problem does not really arise in the case of the University of New England, which uses its facilities during normal vacations to provide for its in-college training for its external students. The University of Sydney conducts evening courses in the faculties of Arts and Economics while the University of New South Wales provides evening courses in most fields other than Medicine and Arts. There is a definite tendency for the number of students seeking evening courses

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(1) See paragraph 1.19.

to diminish in favour of day courses, and this trend seems likely to continue. In general in the future it seems likely that if provision is made in buildings for the day students who are offering, then evening students can be accommodated. The Committee does not feel at this stage that it could recommend direction of students with respect to day and evening classes.

7. 18. The extension of university terms, the running of two separate student groups each for a six months' period during the calendar year, and other such arrangements have been before the Committee's notice. The Committee considers that such proposals require the most careful scrutiny and considers that indeed they could not be embarked upon without producing a chaotic situation in the existing overcrowded and under-staffed university institutions. Such proposals would crowd out of the universities some of the most valuable activities that they foster.

7. 19. The Committee believes, therefore, that at the present time the universities should continue to operate in their present manner. It is true that the efficiency of usage of university accommodation is not high, but this is a common pattern in many Australian industries where shift working is not adopted even though it would reduce capital expenditure and operating costs. Australia as a nation does not like shift working except where it is unavoidable, and the Committee does not feel that the place to commence a major change of this kind is in the universities. Such changes will greately aggravate staff shortages and if adopted in one university or one State would place those institutions at a serious disadvantage with the probability that they would lose many of their staff to other universities, to other States, or overseas.

7. 20. The Committee therefore does not recommend that any steps be taken at the moment to change the present university practice in these matters, but it does suggest that the permanent Universities Committee proposed elsewhere in this report might arrange for a close study to be made of the whole problem for consideration at a later date.

7. 21. Before leaving this matter, the Committee wishes to point out again that in this State extensive university facilities are available to people who do not wish to attend universities as full-time students, and that many people make use of these facilities. Apart from the evening courses available at the Universities of Sydney and of New South Wales, a large number of students take external courses of the University of New England.

7. 22. Taking into consideration the information available to it, the Committee is of the opinion that the existing universities should be given the means to develop their building programs to enable them to take their maximum effective enrolments. But the Committee believes that if the size of each university is kept within educationally desirable limits, the maximum effective development of the existing universities will not adequately cater for all future needs, and the Committee therefore envisages the establishment of additional universities.

CHAPTER 8

ESTABLISHMENT OF NEW UNIVERSITIES

8. 1. The Committee has given careful consideration to the number of additional universities likely to be needed, and to their location. In considering location, the Committee has had before it submissions pressing the claims of places both within and outside the Sydney metropolitan area as suitable sites for new universities.

University development outside the Sydney metropolitan area

8. 2. In examining proposals for the establishment of universities or university colleges outside the Sydney metropolitan area the Committee has regarded as important the considerations set out in paragraph 8.3-8.16.

8. 3. If the full-course students attending universities in New South Wales in 1960 had been distributed in the same proportion as the population of geographical regions, the number of students living in each region would have been as stated in Table XVII. The figures show a slight error of excess since they have assumed that all full-course students are native residents of New South Wales.

TABLE XVII

New South Wales:
hypothetical distribution of university students 1960

Region	Principal towns	Full-course students in proportion to population
Richmond-Tweed	Lismore, Casino, Murwillumbah	404
Clarence	Grafton, Coff's Harbour	257
Oxley	Kempsey, Taree, Port Macquarie	326
New England	Armidale, Inverell, Glen Innes	294
Namoi	Tamworth, Moree, Gunnedah	364
Newcastle	Newcastle, Maitland, Cessnock	1,254
Upper Hunter	Muswellbrook, Singleton, Scone	149
Mitchell	Orange, Bathurst, Lithgow	433
Macquarie	Dubbo, Wellington	286
Lachlan	Parkes, Forbes, Cowra, Young	364
Western Division	Broken Hill, Wentworth	273

TABLE XVII—*continued*

Region	Principal towns	Full-course students in proportion to population
Illawarra	Wollongong, Nowra	632
Monaro-South Coast ..	Cooma, Bega	168
Southern Tablelands ..	Goulburn, Queanbeyan	243
Murrumbidgee	Wagga Wagga, Griffith, Cootamundra	497
Upper Murray	Albury, Corowa	195
Central Murray	Deniliquin, Hay	122
Sydney	Metropolitan, Blue Mountains, Penrith, Windsor, Campbelltown, Gosford.	9,368

8. 4. Outside the Newcastle-Maitland-Cessnock area, the municipality with the greatest population is Greater Wollongong which had a population of 125,090 at 30th June, 1960. On the basis of the same assumption as in paragraph 8. 3 the number of students from this area would have been 522. Again on the same basis, Broken Hill would have supplied 138, Wagga Wagga 90, Goulburn 88, Lismore 81, and Tamworth 78.

8. 5. It is evident that a university established outside the metropolitan area anywhere except in Newcastle would depend upon the establishment of residential colleges for the enrolment of most of its students. At the present time extensions of enrolment in the University of New England and the Australian National University at Canberra depend upon the provision of these facilities.

8. 6. Particular courses of study for which there is sufficient local demand to provide classes of reasonable size might be organized for students without the provision of residential facilities. Such courses are provided by the colleges established by the University of New South Wales at Wollongong, Orange and Broken Hill.

8. 7. In the University of Sydney in 1959 29.9 per cent of undergraduate students enrolled in Arts courses and 10.4 per cent in Science. These are assumed to be the foundation courses of any new university. When they are fully operating and providing all courses in all years they account together for about 40 per cent of student enrolments. The numbers enrolled in the University of Sydney have been taken as the best indicator of the proportion of all students studying Arts and Science. The University of New South Wales, having been initially established for the teaching of Applied Science and Engineering, would not show the same ratio.

8. 8. Within the next ten years the number of university students is expected to increase from about 0.5 per cent to 0.9 per cent of the population. The occurrence of students shown in Table XVII above would therefore be increased in the ratio 9 : 5 during the next ten years.

8. 9. For almost all students the choice between a local university in a rural area and one in the metropolitan area would depend upon an arrangement of accommodation away from home. The number of country students who prefer to arrange accommodation with relatives or friends in the metropolitan area might be at least equal to that seeking accommodation in a residential college in a rural area.

8. 10. The number of courses offered within, say, the Faculty of Arts in a large university is much greater than that which can be made available in a small one. The large university will therefore have more appeal for an intending student.

8. 11. Any anticipation of enrolments must recognize that the demand for university courses is greater in some localities than in others. In industrial centres, such as Newcastle and Wollongong, there is a need for both day and evening classes for undergraduates in technical courses. The demand for part-course study, other than by external courses, in country universities might be very small since it would be confined to those within reach of a university. There seems to be no reason to duplicate the external studies established by the University of New England. The aim should be rather to provide the facilities necessary for that University to meet all requirements for external studies within the State. Any additional university in a rural area would therefore have to depend upon full-course enrolments of students in residence.

8. 12. Taking the above facts into consideration and confining the argument to the question of a new university in a rural area, the enrolment anticipated within the next ten years might be calculated as the product of a number of factors:

(1) the number of matriculants within its area who elect to attend the university,

(2) the increased population in the area during the next decade and varying from say 105 per cent to 120 per cent,

(3) 9/5, the factor representing the increased tendency for enrolment in the period,

(4) 2/5, the fraction of students who would elect study in courses in Arts and Science,

(5) the factor which measures the preference of country students for a rural university and which, for the want of an accurate indicator, is placed at one-half.

Employing all these factors, the natural enrolment of students in a rural university in 1970 might be expected to become one-half of the totals of students shown in Table XVII. This ratio is applied in Table XVIII to show the enrolments which might be anticipated in 1970 if regional universities were established by groupings of regions as shown.

TABLE XVIII

New South Wales. Hypothetical distribution of university students 1970

Regional grouping	Regions	Full-course students in proportion to population	Total	Half total
1	Richmond-Tweed	404	1,645	823
	Clarence	257		
	Oxley	326		
	New England	294		
	Namoi	364		
2	Mitchell	433	1,356	678
	Macquarie..	286		
	Lachlan	364		
	Western Division	273		
3	Monaro-South Coast	168	1,225	613
	Southern Tablelands	243		
	Murrumbidgee	497		
	Upper Murray	195		
	Central Murray	122		

8. 13. The first group of regions in Table XVIII is served by the University of New England which actually enrolled 576 full-course students in 1960 but these, as will be shown below, were recruited from all parts of the State. The University of New England also enrolled 1,557 part-course students, who were almost wholly enrolled in external courses. The second group has no full university establishment. The third group has the Australian National University (School of General Studies) within its boundaries. This University was estimated by the Australian Universities Commission to enrol 216 full-course students in 1960. It is understood that it is anxious to enrol students from the State of New South Wales and looks forward to expanding its enrolments as it can make residential accommodation available. It would be foolish of the State to enter into competition with this University and it is, indeed, desirable that it should be given every encouragement to make a contribution to the education of students in the southern and south-western areas of the State.

8. 14. It has not been possible in the time available to assemble evidence which would show the places of home residence of students attending universities in the State. Table XIX however, shows the distribution of secondary schools attended by those who gained Commonwealth or Teachers' College Scholarships at the end of 1959 to

attend universities in 1960 and therefore to some extent indicates the distribution of matriculants in schools. The numbers of scholarships from the Mitchell, New England and Southern Tablelands regions are much greater than would be anticipated from the population of the regions. This is probably because of the number of boarding schools in these areas. This would also in part explain the number of scholarships awarded to pupils of schools in Sydney. Despite the shortcomings of the table it seems reasonable to deduce from it:

(1) that the University of New England is enrolling students from all parts of the State, and

(2) that in the western regions either the demand for university education is relatively small or that local secondary schools are not preferred by boarding students to those established elsewhere. In either case doubt is cast on the generality of demand and therefore the economic justification for the establishment in this area of a university which would depend for its enrolment on students in residence.

TABLE XIX

Distribution of scholarship holders, 1960

Regions in which students attended secondary schools	University or university colleges attended						Totals		No. of awards per 10,000 of resident population
	New England	Australian National University	New South Wales	Newcastle	Wollongong	Sydney			
Sydney	22	3	132	6	2	823	988	988	4·30
Richmond-Tweed	19	..	3	2	..	3	27		
Clarence	13	..	1	1	..	5	20		
Oxley	6	..	1	9	..	6	22	124	3·14
New England	25	..	..	1	..	4	30		
Namoi	18	..	1	..	..	6	25		
Newcastle	7	..	6	76	..	23	112	123	3·45
Upper Hunter	1	..	1	7	..	2	11		
Mitchell	7	1	9	1	..	11	29		
Macquarie	2	..	3	..	..	8	13		
Lachlan	2	1	1	..	..	9	13	59	1·81(*a*)
Upper Darling	..	..	2	..	..	1	3		
Central Darling	1	..	..	..	..	..	1		
Murray-Darling	..	..	..	..	..	..	..		
Illawarra	..	6	9	..	2	18	35	35	2·31
Monaro-South Coast	2	1	1	..	..	3	7		
Southern Tablelands	2	23	2	..	..	12	39		
Murrumbidgee	2	5	4	..	1	11	23	78	2·65
Upper Murray	1	1	2	..	..	4	8		
Central Murray	..	1	..	..	..	..	1		
	130	42	178	103	5	949	1,407		

(*a*) for Mitchell, Macquarie and Lachlan only.

8. 15. The highest rate of increase in population has been in the Illawarra region where the increase was 28.8 per cent between 1954 and 1959. The next highest was in the Sydney region where the increase was 10.9 per cent. The increase in the Newcastle region was 9.0 per cent.

8. 16. The establishment of a country university to enrol say 700 full-course students would not have any significant effect on the overall problem of meeting increases in enrolments which will probably amount to as many as 18,000 full-course and 6,000 part-course students during the next ten years. The main problems which confront the State are the development of existing universities and university colleges and the provision for the large increases of enrolment in the metropolitan area of Sydney.

8. 17. Summarizing these arguments and considering them in relation to the organization of existing institutions, it appears that the most efficient provision for increased enrolments will be made, so far as areas outside Sydney are concerned, by a plan involving main courses of action listed below.

(1) *The development of the University of New England.* This University has already met the considerable material problems associated with the establishment of a country residential university, in which there are difficulties in the supply of water, electricity, gas and sewerage. It is capable of increasing full-course enrolments without significant additions to its staff and frequently by an increase in the size of classes. It would be more efficient if operating with increased enrolments. It possesses a site adequate for considerable development. Capital provision for the growth of this University would be more economical than that for an alternative provision of a new rural university in some other part of the State, and its expansion would lower its working costs per student. An extension of the external courses provided by the University is, on numerous grounds, essential to the extension of university education in country areas. The basic costs of this service should not be duplicated in another country centre. Additional enrolments in external courses require the expansion of facilities for housing external students during the time they attend residential schools and this can be brought about economically only by increasing the accommodation available for full-course students. In general, the increase of residential accommodation is justified on grounds which would not apply in a new university: the reduction of the recurrent expenditure per student and the extension of external enrolments, for which there is an important and growing demand. It should again be emphasized that the problem facing the country student who desires to attend university is generally accommodation and this problem is almost wholly unaffected by the distance which the student must travel in order to attend a university. The problem is, therefore, the standard of accommodation and its cost. It is considered that the costs and provisions at the University of New England are very satisfactory and that no improvement could be effected by the duplication of them in some other centre.

(2) *The development of the Newcastle College of the University of New South Wales.* In 1961 the Newcastle University College enrolled 1,195 undergraduate and 68 post-graduate students in Architecture, Arts, Commerce, Engineering, Science, and Applied Science. The College was initially established to meet requirements for training in technical fields and has developed to the stage of satisfactory enrolments in general studies. It can be encouraged to grow if local interest is demonstrated. To assist in its development and to provide for the expansion of the Newcastle Technical College, the University College should be established on its own site. A forward-looking policy requires its development towards autonomy.

(3) *The development of the Wollongong College of the University of New South Wales.* The Wollongong University College enrols students in Science, Applied Science and Engineering courses, and so meets important needs of training for industry. The rapid development of population in the Wollongong region suggests that there will soon be a need for other studies such as in Commerce and Arts. The College is placed on its own site and there will be no difficulties in its development when the need arises.

(4) The teachers' colleges at Bathurst and Wagga Wagga have an arrangement with the University of New England whereby selected students may follow first-year university courses in English and History under the guidance of college lecturers and be examined by the University. This fact suggests the possible use of the Colleges as establishments where sufficient first-year Arts courses may be made available to enable the students to qualify for entry into Arts II at the University. Prospective enrolments at Bathurst and Wagga Wagga would not justify the enrolment of second- and third-year students and it is considered that at the beginning there would be too many difficulties in the way of any studies in Science. The organization of first-year studies in Arts, however, would serve as a nucleus for growth and be of advantage to teacher trainees. It would involve the extension of accommodation at the Colleges, the provision of additional selected staff acceptable to the University of New England and the provision of accommodation at the University for the enrolment of successful students in the second and later years of their courses. It would be necessary for all students to follow courses defined by one university and proceed to that university for further studies if they were desirous and successful. As an alternative to residential enrolment for second- and later-year courses students would have the opportunity of enrolling as external students.

University development within the Sydney metropolitan area

8. 18. The Committee considers that all other university development should take place within the Sydney metropolitan area.

8. 19. The selection of a site for a new university within the Sydney metropolitan area must be governed by the geographical distribution of the students for whom it is planned. A university badly situated would not gain a natural enrolment of students and a situation would be created in which the university which it was designed to relieve would need to establish quotas of enrolments and the new university would

be enrolling students rejected from the old. An undesirable distinction of quality would thus be created. The ideal to be sought is a natural distribution of students between universities, each university having such a character and special interests as would make it attractive to a large body of undergraduates. We do not favour the idea of a university able to aim principally at teaching at an honours and post-graduate level. Each university must be able to organize worthwhile honours and post-graduate schools in order to recruit undergraduates and staff of good quality, and each must take its share of the normal work of teaching.

8. 20. The first object is therefore to define the metropolitan undergraduate body. This has been done by exclusion rather than by selection. The University of New South Wales is, or can be, provided with suitable buildings and equipped to serve the industrial and technological developments of the State. To do so it will need to develop on the Kensington site and, as necessary, establish subsidiary colleges in country and metropolitan centres to meet the needs of students who are unable to travel to a university or who, for other reasons, are best served by attendance at a local college. It is not proposed that any additional provision of technological training should be considered within the metropolitan area in another university. The students with whom we are concerned in the establishment of a new university may therefore be roughly defined by an examination of the enrolments at the University of Sydney, the majority of these being in courses other than those concerned with industry.

8. 21. The distribution of the places of residence of these students is not the same as that of the general population. Some outer suburbs of Sydney have large developing populations which do not include substantially large groups of undergraduate age. The rapid expansion of the districts west of Parramatta, for example, and the occurrence of young families in that area lead to the conclusion that there will probably be a special demand for the establishment of a university west of Sydney in the future but at present this area does not demonstrate a priority of need. The immediate problem is created by the present distribution of groups of university age. Furthermore it is apparent that other factors, such as family incomes and traditions in education influence the areas from which students enrol. University-going habits and the desire for enrolment must also be taken into consideration.

8. 22. To illustrate these points, it might be noted that in 1959 27 per cent of the primary school enrolments in metropolitan and near-metropolitan schools occurred in the school inspectorates of Burwood, Granville, Blacktown, Parramatta, Windsor and Penrith, but this area provided only 16 per cent of new enrolments in the University of Sydney in 1960. Again 24 per cent of the whole primary school population occurred in the school inspectorates of Manly, North Sydney, Chatswood, Hornsby and Eastwood. The same area provided 26 per cent of candidates for the Leaving Certificate Examination in the same year. These figures might be influenced by the number of pupils travelling from outside the area to private schools in the district. However, the same area provided 41 per cent of new enrolments in the University of Sydney in 1960.

8. 23. An analysis of new enrolments in the University of Sydney from inside and outside the metropolitan area from 1953 to 1960 is given in Table XX.

TABLE XX

University of Sydney

Distribution of home addresses of new enrolments

Area	1953		1955		1957		1959		1960	
	N	Per cent. (*a*)	N	Per cent.	N	Per cent.	N	Per cent.	N	Per cent.
Cumberland(*b*)										
Group A	211	20	231	18	271	18	359	18	410	18
Group B	231	22	269	20	266	18	352	18	330	15
Group C	149	14	206	16	216	14	317	16	396	18
Group D	78	7	111	8	119	8	167	9	183	8
Group E	395	37	495	38	623	42	770	39	925	41
Cumberland total	1,064		1,312		1,495		1,965		2,244	
Country	285		318		403		406		457	
Asia	34		49		82		155		251	
Other overseas	2		6		3		8		12	
Not known	6		6		6		4		3	
Total	1,391		1,691		1,989		2,538		2,967	

(*a*) Percentage of the Cumberland total.

(*b*) Suburbs have been grouped in terms of local government areas:

Group A: Sydney, Leichhardt, Marrickville, Botany, Ashfield, Drummoyne, Burwood, Strathfield, Concord.

Group B: Woollahra, Waverley, Randwick.

Group C: Rockdale, Kogarah, Hurstville, Sutherland, Canterbury, Bankstown.

Group D: Auburn, Parramatta, Baulkham Hills, Holroyd, Penrith, Windsor, Blacktown, Liverpool, Fairfield, Camden, Campbelltown.

Group E: Hunter's Hill, Lane Cove, North Sydney, Mosman, Manly, Warringah, Willoughby, Ku-ring-gai, Ryde, Hornsby.

8. 24. Table XX indicates that at present the suburbs to the north of the Harbour provide the largest single group of students in the University of Sydney. The rapidly expanding suburbs in the western part of the metropolitan area have not yet begun to match their growing population—which at present contains a large number of young children—with a growth in the number of university students.

8. 25. In establishing a new university in the metropolitan area the following general factors influencing the choice of a site must be taken into account:

(1) It would be desirable to have a site of approximately 100 to 250 acres of open or nearly open land. It should be topographically suitable land which is not too built up or involving a prohibitive cost of acquisition. Although a large site is desirable it is perhaps more important for it to be well located. Present needs seem to indicate that location is specially important. If the site chosen is a small one then the standard of planning and building will need to be high.

(2) The site must have ready access to the major centres of population of the metropolis. A very high proportion of students will come into the university daily and this means that a good transport system

is essential. Access by rail is preferable because this has proved the most efficient method of transporting large numbers of people daily. Therefore a site located near a railway station would be desirable. However the possibilities of a site with excellent road access must not be overlooked. Allied to the question of transport is that of distance from the city. If the site is too peripheral it will be unlikely to draw students from all over the metropolitan area.

(3) It is essential that all urban services should be available on the site, or that it should be possible to have them connected without delay. These services include water, electricity, gas and sewerage.

8. 26. In addition to the general factors listed in paragraph 8.25 there are some specifications which are imposed by present urgent needs and which constrain the choice of site:

(1) The university must be capable of coming into operation and of developing rapidly.

(2) The university must be capable of attracting students from all parts of Sydney.

(3) The university must have its own natural student population to draw upon.

(4) It is particularly important that the university should be able by a natural attraction of students to give relief to the University of Sydney, especially in Arts, Science and Economics. Relief in Science and Commerce will also be needed by the University of New South Wales.

(5) The evidence shows that, to provide for the needs of the community and the aspirations of students, the university should be able to start courses without delay.

(6) The university should, from the outset, be committed to a full program of evening courses.

(7) We consider that the university should become capable of enrolling at least 6,000 students. The university may not contemplate a growth beyond this size. There is every reason to believe that such a university, modest in size by Australian standards but still large by English standards, would have a great attraction for academic teachers of high quality.

8. 27. The Cumberland County Council and other interested bodies have given advice regarding a number of sites and of those submitted the Committee considers that sites defined at Auburn, Liverpool, Parramatta, North Ryde and St. Leonards justify further investigation. The Committee recommends that immediate detailed expert advice should be obtained on the suitability of these sites and of any others which the Universities Committee considers worthy of investigation.

8. 28. In the light of such advice, steps should be taken to acquire a site and proceed without delay with the establishment of a university in the area of the northern suburbs of Sydney. For educational

reasons, the Committee feels that the St. Leonards site is the most suitable of those suggested, although no firm recommendation can be made until expert architectural and planning advice has been received. The educational reasons in its favour may be stated as follows:

(1) Its location is most likely to prove attractive to a great number of students and it should have a natural intake of undergraduates. We have already pointed out that some 40 per cent of Sydney University students live on the north side of the Harbour and they are distributed over all faculties.

(2) The site is most suitably located for transport and would conveniently enrol students from most parts of the metropolitan area. Its position would be of particular advantage to evening students.

8. 29. The developing peripheral populations indicate future planning in two main directions, namely to the west and south, and sites should be acquired in suitable localities in these areas while they are still available. Such sites would not be developed immediately, but would be held for development at the appropriate time. These need not necessarily be at Parramatta and Liverpool, although their selection should take into consideration the availability of teaching hospitals. Indeed, the development of hospitals and of universities need to be considered as inter-related problems. It would appear that the University of New South Wales will need at some time to establish a large college in the western suburbs where there is a good deal of industrial activity. The site suggested at Auburn should be further investigated with this purpose in mind.

CHAPTER 9

CONCLUSIONS

ESTABLISHMENT OF A NEW SOUTH WALES UNIVERSITIES COMMITTEE

9. 1. We consider that a permanent committee should be established, to be known as the New South Wales Universities Committee, whose main function would be to advise the Minister for Education on the development of universities. Its proposed functions would be as follows:

(1) To be responsible to the Minister for Education for advice concerning the needs, welfare and development of education and research in universities and the costs, economics and priorities involved in Governmental action. To this end it would conduct investigations and act as the agent of the Minister as required in consultations with universities, the Australian Universities Commission or such other educational or administrative authorities as may be appropriate.

(2) To provide a secretariat for State Governmental action related to universities.

(3) Having regard for the rights of universities to take autonomous actions in accordance with the powers defined in their Acts of constitution, to provide machinery for the co-ordination of their actions in matters of common interest and the interchange of administrative information among them. To this end it would be concerned with demands for the establishment of new courses of instruction and the co-ordination of their provision; matriculation requirements; the inability of universities to enrol students or provide for their efficient instruction; and any such other matter as may be brought forward by a university.

(4) To serve as a means of disseminating information to universities concerning matters of common educational interest, particularly as it relates to the selection, teaching and examination of students. To this end it would seek the co-operation of universities in planning and carrying out research into such matters.

9. 2. We recommend that the composition of the Universities Committee be as follows:

(1) A full-time Chairman, directly responsible to the Minister, and appointed by the Minister from a panel submitted by the Vice-Chancellors of the universities. The first Chairman should hold office until the end of 1964; thereafter each appointment should be for a period of three years.

(2) The Vice-Chancellors of each of the universities, or their nominees.

(3) An independent member appointed by the Minister.

9. 3. The secretariat of the Universities Committee should include a person of high ability in the field of educational research, capable of advising the Committee on research findings in university education, and of maintaining liaison with research workers in the universities.

ADMISSION TO UNIVERSITIES

9. 4. We commend the principle of open entry into universities of students who have demonstrated that they have a reasonable chance of being successful in university work. We believe that at present the Leaving Certificate gives the best prediction of the necessary abilities. The Board of Secondary School Studies, or its successor, should be so constituted as to give adequate representation to all universities.

9. 5. Having in mind that the determination of minimum pass standards in the Leaving Certificate Examination must be arbitrary, and the evidence that borderline students are capable of improving their qualifications for further study, we consider that particularly at a time when universities are suffering from unavoidable shortages of staff and teaching facilities it is reasonable that a student should be required to gain a defined aggregate of marks in addition to reaching pass standard in a number of subjects. We do not regard this as the imposition of a quota. Rather is it an attempt to ensure that students who are unlikely to graduate are prevented from entering on a course of study from which they will gain little benefit and in which they will create teaching problems likely to be prejudicial to the success of more able students. We think, however, that such a requirement should be applied with three principal qualifications: firstly, that a determined aggregate should not exclude students who have a reasonable opportunity of graduation under satisfactory conditions of study; secondly, that the introduction of a new requirement should not be violent in its action; thirdly, that the requirement should be based on educationally sound reasons and not operate merely as a means of reducing enrolments. We consider that the aggregates of co-ordinated marks bear sufficient correlation to success in university studies to serve as a temporary instrument for defining a qualifying aggregate if such should be necessary. Immediate research should be undertaken with the use of other scales, and other procedures that may improve efficiency in the selection of undergraduates should be investigated.

9. 6. We consider that the general requirements of matriculation should be uniform and that, although it may be necessary to define particular faculty requirements and these may vary from one university to another, diversity should be kept to a minimum. We further consider

that, in order to obtain the desirable co-ordination among the universities, the permanent Universities Committee should provide opportunities for joint discussions among the universities on all matters concerning the admission of students.

9. 7. We consider that the matriculation requirements of universities should be clearly stated in documents easily available to the general public, and that when the requirements are altered, every effort should be made to ensure that the schools are given adequate notice to enable them to make any necessary adjustments to their organization.

9. 8. We consider that all universities should have power to exclude students from enrolment and we would support any request by the University of Sydney to have its power to do this put beyond doubt. In amplification of this statement we wish to repeat our view that we do not support the idea of refusing students admission to universities on any grounds other than their failure to meet defined matriculation requirements but that a university's power to exclude is necessary in its control of emergency situations.

9. 9. We consider that, since in a co-ordinated system for the provision of university education the action of any university in restricting enrolments affects the organization of another, restriction or intention to restrict should be notified to the proposed Universities Committee which will advise the Minister for Education, so that he can take such action as he may deem to be appropriate in the provision of alternative means of study.

ADMINISTRATIVE PROCEDURES INFLUENCING STUDENT WELFARE

9. 10. We consider that, in the determination of funds for recurrent expenditures, special consideration should be given to the necessity of carrying out research within universities into ways of improving efficiency in teaching and in examining, and to the benefits to be gained by the establishment of adequate medical, guidance, employment and similar services.

9. 11. We consider that the individual and collective development of university libraries should be encouraged by every available means; that there should be a special fee for library use which should be available directly for the organization of material for undergraduate study and post-gradute research; that the library of any university should be available for the use of students of all universities; that universities should try to come to agreements regarding the spheres of specialization of their libraries.

DEVELOPMENT OF EXISTING UNIVERSITIES

9. 12. There are now three universities in the State. They were founded in different ways and each is, by experience, able to formulate the services to higher education which it feels best fitted to contribute. We consider that the interests of university education in the State will be well served if the three existing universities follow the courses they have set ahead of themselves and if a new university is established without delay in Sydney.

9. 13. We consider that a statement of the optimum sizes of existing universities would be somewhat artificial unless related to faculties. There are faculties within the University of Sydney which should be allowed to grow and others which should be reduced in enrolments. The University of New South Wales is in a general state of growth and should be allowed to develop in that way which it feels will achieve the maximum educational efficiency. The University of New England is not yet within sight of its optimum enrolments.

9. 14. While general comments are offered regarding all universities, we appreciate that they might well be subject to variations in the light of developments during the next few years. They are given here as a loose framework within which opinions regarding additional provisions are expressed.

University of Sydney

9. 15. The most serious over-enrolments occur in the faculties of Arts, Medicine, Science, Architecture and in the service departments of the Faculty of Science. We consider that they should be reduced by actions which will be detailed hereunder. The problems presented to Law by large enrolments are made worse by the necessity of using scattered, inadequate, partly rented accommodation. The organization of this rented accommodation has been further complicated by a timetable largely dictated by the convenience of those who employ students as articled clerks. The interests of legal education demand that the building of the new Law School on the University campus should be hastened. The enrolments in Engineering and Economics should be stabilized at numbers approximating present enrolments. The indications at present are that developments in Veterinary Science should be within this University until such time as enrolments threaten to disturb efficiency of teaching and then another school might be established as a development in the Faculty of Rural Science in the University of New England.

9. 16. We consider that the University of Sydney should be invited to recommend the most desirable way of expanding the facilities of the Medical School of that University.

University of New South Wales

9. 17. We consider that the development of the University of New South Wales should be consistent with a principal function of providing training at a high tertiary level in the technologies for a long time to come, and certainly beyond the 1960-70 period with which this report has been principally concerned. It is clear that it will be called upon to provide and co-ordinate training in these fields in a number of centres and that to this end it will need to establish technological colleges in both country and metropolitan areas. Such a development will not hinder its planned developments at Kensington in Arts, Commerce, Science, Medicine and Architecture, but faculties organized in these fields should not be allowed to develop to sizes which cause difficulties in providing for its field of special responsibility.

9. 18. We consider that the University of New South Wales should also advise the Universities Committee on methods to be employed to ensure a maximum output of medical graduates.

University of New England

9. 19. We consider that the rapid development of the University of New England is desirable on several grounds. It alone provides external courses. It is capable of absorbing more internal students without significant increases in senior academic staff. A large undergraduate enrolment would make possible extension of courses within the existing faculties. Existing capital facilities and services could be used more. We consider that immediate development should be planned in faculties already established and that the University has a special function to perform in the fields of rural sciences and economics and rural industries. Further development in teaching and research in these fields should be confined to the Universities of Sydney and New England.

9. 20. We have every confidence that demands for enrolment at New England will increase as the many advantages of education in a country residential university become better known. These advantages can be enjoyed at New England at a lower cost to parents than at city universities.

Post-graduate schools

9. 21. Special provision is necessary within each of the universities for the development of research in post-graduate schools particularly in view of the function these play in providing teaching staff not only for their own purposes but for appointment in other universities in Australia.

FURTHER UNIVERSITY ESTABLISHMENTS WITHIN THE METROPOLITAN AREA

9. 22. We consider that a third university should be established in the metropolitan area, and that the most suitable place for its establishment is in the northern suburbs.

9. 23. Our reasons for the establishment are:

(1) the necessity to give relief without delay to the University of Sydney, particularly in the faculties of Arts, Science and Economics;

(2) the desirability of not unduly developing corresponding faculties in the University of New South Wales because of the special responsibilities in other fields which we envisage in the development of that university.

9. 24. On educational grounds we consider that the University might be established at St. Leonards if further investigations into the planning, architectural and economic problems involved show the site to be a suitable one. The educational reasons in favour of that location have been advanced in the body of this report.

9. 25. We consider that the original faculties established should be Arts, Science and Economics.

9. 26. We consider that the University should be autonomous and that the New South Wales Universities Committee should proceed, as a matter of urgency as soon as it is appointed, to recommend to the Minister the procedure to be followed in establishing the University with the minimum delay.

9. 27. We consider that land should be acquired in the western and southern parts of the metropolitan area for university developments that are in the more distant future but are bound in due course to become urgent needs.

ESTABLISHMENT IN AREAS OTHER THAN SYDNEY

9. 28. We consider that the Newcastle University College of the University of New South Wales should be established on its own site with as little delay as possible. We consider that the College should be developed towards autonomy in the faculties of Arts, Science and Commerce, and that faculties dealing with Technology and Architecture should remain a college of the University of New South Wales.

9. 29. We consider that other colleges of the University of New South Wales at Wollongong, Broken Hill and Orange should continue to specialize mainly in their present studies and remain colleges of that University.

FINANCIAL PROVISIONS

Capital grants for building and site purchases and developments

9. 30. Our estimate of the requirement over the period 1961-70 is approximately £54,000,000 which, if applied to the present triennium 1961-63 at the average rate, would amount to approximately £16,000,000. We qualify this estimate by stating that we consider it to be conservative, and that the rate of current expenditure should be greater than the average in order to overcome grave existing deficiencies of accommodation.

9. 31. The grant for the present triennium is £10,000,000. We have given figures to show that in our opinion it has been incorrectly calculated, and that even on the basis of the number of existing students (and the rate of growth of their numbers in this State is comparable with that elsewhere), it should have amounted to £13,000,000. Our estimate of the least satisfactory rate of expenditure is approximately 25 per cent in excess of this amount. It is 60 per cent above that actually being received.

9. 32. We consider that the calculation of grants has not sufficiently recognized the complexity of the problems involved and that the bases of determination should be reorganized.

9. 33. We have stated here amounts to be considered in any addition to capital grants in this triennium; the first, based on urgent expenditure, approximates £4,800,000; the second, based on a long range plan, approximates £6,000,000. Each of these estimates is exclusive of furniture and equipment, which amount to at least 10 per cent of the amounts stated.

9. 34. We have stated that a final determination of necessary additional funds could only be made by consideration of specific projects. The division of available additional funds between universities would also need further consideration in the light of their individual proposals and the effect of such proposals on capacities to increase enrolments. Specific recommendations should come from the New South Wales Universities Committee following on discussions with the Minister.

9. 35. To the above must be added the cost of additional provision for clinical teaching in hospitals, already estimated at £9,500,000 spread over the years 1961-1965.

Capital provision for a new university

9. 36. The Committee considers every effort should be made to achieve or improve on the following time-table:

August, 1961-February, 1962.—Investigation of sites, choice and purchase of site, preliminary site work.

February, 1962-February, 1963.—Detailed design, preparation of contract documents, tenders.

March, 1963.—Main contract let.

March, 1964.—Some buildings ready for student intake on limited scale.

March, 1965.—Stage (1)—for 3,000 students—complete.

The Committee considers funds will be needed at the following rate:

	£
Financial year 1961/62	120,000
Financial year 1962/63	880,000
Financial year 1963/64	3,000,000
Financial year 1964/65	2,500,000
	£6,500,000

Capital provision for Library, plant and equipment (6% of building costs[1]) spread over 1963/65, say £350,000

Recurrent expenditure

9. 37. An estimate of £4,700,000 has been given for the possible additional needs of universities in the present triennium, representing an increase of 15 per cent over approved grants. The actual requirement is dependent on a number of factors including the rate of capital development, price and salary variations, the rate of improvement of student/staff ratios and the extent to which additional funds can be made available for research.

9. 38. The individual requirements of universities and the division of available funds between them can only be determined by an analysis of specific proposals. It is most important that funds should be available for the appointment of additional staff when men with specific qualifications become available. As in the case of capital expenditure, specific recommendations regarding grants should come from the New South Wales Universities Committee following on discussions with the Minister.

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[1] Costs shown for the triennium 1961–63 are included in the amounts shown in paragraphs 9.30–9.34.

Further new universities

9. 39. The Committee does not consider it will be necessary to incur substantial expenditure upon further new universities before 1970, but it will be desirable to acquire several suitable sites and funds will be required to enable this to be done during the next few years.

9. 40. Since at least one of any further universities is likely to be associated with a medical school, the Committee considers that funds for the development of a large new hospital, suitable for teaching, and of a potential 1,000 beds, should be provided before 1970.

FURTHER ACTIVITIES OF THE COMMITTEE

9. 41. In conformity with its terms of reference the Committee now proposes to proceed to enquire into technical education, and teacher education.

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