Robert B. Stephenson: **CAMPUS PLANNING IN AUSTRALIA**

August 1966

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Part One: AN INTRODUCTORY OVERVIEW

Tertiary education in Australia is broadly the conern of three separately-organized types of institutions: universities, teachers' colleges, and technical and related colleges. Universities account for the largest share of the total enrollment in courses of a "tertiary nature" and the teachers' colleges the smallest. In this report, attention is focused exclusively upon the universities, although this should in no way imply that the other tertiary institutions of Australia do not present planning and design concepts and problems as interesting or as vexing as do the universities.

Australian universities have developed more in the English and Scottish tradition than along, say, the lines of German or American universities. Organization, administration, curricula, traditions, and even campus architecture, all resemble to some degree the English system. The administration of Australian universities centers upon the Vice-Chancellor, who is the chief executive officer--the title of Chancellor being mainly honorary--and the Council or Senate, which is the governing body politic and corporate, composed of between 24 and 40 members including representatives of the state government, ex officio members, persons

elected by convocation, and so on. The universities are public in that most of their revenue derives from state and Commonwealth sources and in that they have the theoretical responsibility of accepting as students all persons who desire entrance.

The history of universities in Australia began in 1850 with the founding of the University of Sydney, soon followed by the University of Melbourne in 1853. The period 1850 to 1911 may be considered the first stage in the development of Australian universities, for during this span of time six universities were established, one in each of the state capitals.

It was not until after the Second World War that another university was founded--the Australian National University, 1946--although two affiliated university colleges were set up previous to this: Canberra University College in 1930, affiliated with Melbourne, and New England University College in 1938, affiliated with Sydney. The former college has since become the undergraduate division of the Australian National University, and the latter in 1954 a university in its own right. In 1951, a university college was created at Newcastle, affiliated with the University of Sydney. The most significant development during this period, however, was the establishment in 1948 of the New South Wales University of Technology, now the University of New South Wales. This was significant in that the curriculum and academic emphasis deviated from the traditional Australian pattern. This period--1930 to 1954--is then the second stage in the development of the university system in Australia.

The third and present stage of development can properly be said to have begun in December of 1956, when Sir Keith Murray, chairman of the University Grants Committee in Great Britain, was invited by the then Prime Minister, Robert Menzies, to head a Committee of Inquiry into the future of the Australian universities. The Committee was asked particularly "to inquire into such matters as:--

(1) the role of the University in the Australian community;

(2) the extension and co-ordination of University facilities;

(3) technological education at University level; and

(4) the financial needs of Universities and appropriate means of providing for these needs."[1]

The Committee's report, filed in September of 1957, recommended the creation of an Australian University

Grants Committee and, until such an organization could be authorized, a series of emergency grants to enable the universities to better meet their more pressing needs and responsibilities. The Committee also recommended the founding of a new university in the Melbourne area. Probably the most important consequence of the Murray Report, however, was its effect in stimulating the interest of both the public and the government in universities and in bringing about a more realistic awareness of their problems and opportunities.

The broad recommendations of the Murray Committee were accepted by the Commonwealth government: the emergency grants were paid out and the Australian Universities Commission* was formally established in May of 1959. This was the beginning of a new era of Commonwealth interest in and support of universities. Except in the Australian Capital Territory, financing of university education had up to then been essentially a matter of state concern, as universities were and are created by Acts of the State Parliaments. Originally, the universities managed to subsist financially almost entirely upon revenues provided by fees, gifts, and endowments, but over the years it became increasingly necessary for the states to accept a greater degree of responsibility for the expenditures of the universities.

Commonwealth financial support is relatively recent. Although the Constitution makes no specific mention of universities, under Section 96 ("...the Parliament may grant financial assistance to any State on such terms and conditions as the Parliament thinks fit.") the Commonwealth government has been able to justify its evolving financial interest in university education. The first instance of such assistance was prior to the Second World War when the Commonwealth made research grants available to the universities. Following the War, an assistance scheme for returning servicemen--the Commonwealth Reconstruction Training Scheme--was instituted. This involved not only assistance to the servicemen, but also financial aid to the universities to permit them to better cope with the expansion demands created by the increased number of students. The next significant step was "...in March, 1950, (when) the Commonwealth appointed a committee under the late Professor R.C. Mills to examine and report upon the finances and the requirements of the universities, and to recommend what action might be taken by the Commonwealth to assist them...An interim report was submitted to the Prime Minister in August, 1950, and this became the basis of Commonwealth legislation in 1951, and of Commonwealth assistance to universities up to the end of 1957."[2] The next and biggest step was the establishment of the Australian Universities Commission--the A.U.C.--in 1959. As the Commonwealth

*Although a different name was chosen, the A.U.C. has the same functions as the University Grants Committee proposed by the Murray Committee.

grants now represent the largest single source of revenue for the universities and as the A. U. C. is the statutory body that recommends to the Parliament the size and nature of these grants, it is no surprise that the A. U. C. has quickly become the most influential force shaping the development of Australian universities today.

The appointment of the Murray Committee, the subsequent acceptance of its major recommendations, and the recent overall expansion and development of universities, both old and new, are reactions to a series of trends that are by no means unique to Australia. The "population explosion" and the "war babies" have only compounded the effects that an increasingly technological and specialized economy and culture have had in enlargening the demand for and the essentiality of higher education. The university is less the ivory tower that it once was; it has of necessity become more accessible to a wider segment of the society. It is now almost a prerequisite for the "good life," be it for the individual or for the nation. As a consequence, there has been a great strain placed upon the university facilities of Australia, as well as those of other countries. Following the War, in 1946, there were about 25, 000 students enrolled at Australia's universities; to day, in 1966, only twenty years later, there are over 90, 000, an increase of approximately 250 per cent. And it has been predicted that this figure will have risen to 125, 000 by 1975.[3]

During the decade since the Murray Committee was appointed, the states, the universities, and the Commonwealth government have attempted to meet the demands of both the present and the future. In quantitative terms the results have nearly eclipsed what had previously taken over one hundred years to produce. Since 1956, two new universities in the Melbourne area have been established--Monash and La Trobe--and Macquarie University is currently in the first stages of construction in Sydney. Flinders University in Adelaide registered its first students this year. In 1965, Newcastle University College became the autonomous University of Newcastle and has now started moving to a new campus. The University College of Townsville, also developing a new site, will no doubt gain autonomy in the near future. In all probability work will soon begin on a second university for the Brisbane area at Mt. Gravatt, and funds may be made available during the next triennium for the planning of a second university in Western Australia. But capital development has not been limited just to the new campuses. The older universities have been undertaking quite ambitious expansion programs of their own, not only on their existing campuses, but in the case of the University of Sydney--and soon at the University of Melbourne--expansion into areas adjacent to the original development.

Before passing on to Part Two, it might be best to point out several additional aspects of Australian university education, the knowledge of which is necessary for a proper understanding and appreciation of the

problems and opportunities facing the universities. First in importance is the fact that university enrollments are by no means entirely limited to full-time students. Only about 60 per cent are full-time, 30 per cent part-time, while the remainder are external, that is not in attendance. This situation obviously has certain implications when it comes to campus planning. Basically it means that the universities are not as large as they appear to be. As an example, the University of Queensland has a total enrollment second in size only to the University of Sydney, but when it is taken into consideration that Queensland has only about 6, 500 full-time students (primarily at the University during the day), 5, 000 part-time students (primarily there at night), and 2, 700 external students (not at the campus at all), the physical demands upon the campus are in reality quite substantially less than if the total enrollment was full-time. A similar extreme case is the University of New England, which has an enrollment of 4, 200 although only about 1, 500 students are actually in attendance at the campus.

A second important point to keep in mind, one that also has planning implications, is the composition of the student body. With respect to sex, although the proportion of women students to men has been increasing over time, in 1965 women still represented only about one-quarter of the total enrollment. Distribution as to field of study has in the last few years reflected the increasing demand for scientists and engineers, although the faculty of arts still remains the most popular choice of students. Likewise, there has also been an increase in higher degree enrollments: In 1953, they accounted for only 3 per cent of the total, a percentage that has since trebled.

Table 1: University Enrollments as a Percentage of the Population aged 17-22

Year	Population aged 17-22	Percentage
1946	742, 000	2.3
1950	719, 000	3.3
1955	706, 000	4.3
1960	842, 000	6.3
1963	972, 000	7.1

Source: Martin Report, Table 6, p. 12.

Table 2: Australian Universities: Degrees Conferred during Year ended 31 July, 1964

Faculty	Percentage of Total
Arts	29
Economics-Commerce	10
Science	23
Medicine	9
Engineering	12
Law	4
Other, including post-graduate	13

Of these, 92 per cent were Bachelor's degrees, 5 per cent Master's degrees, and 3 per cent were Phd. degrees.
In 1953, approximately 97 per cent were Bachelor's degrees.

Source: Commonwealth Year Book No. 51, 1965, p. 719.

Table 3: First Degrees Completed in Relation to the Population of the Appropriate Age Group, 1963

Country	Per cent
United States	17.9
Sweden	5.5
France	4.6
Belgium	4.0
Australia	4.0
Italy	3.4

Source: Martin Report, Table 17, p. 24.

Table 4: Australian Universities: Foundation Date, Location, 1966 Preliminary Enrollments

University	Foundation date	Location	1966 Enrollments Full-time	Part-time	Sub-total	External	Total	E. F. T. S. *
Sydney	1850	Sydney	12 843	3 428	16 271	-	16 271	14 557
Melbourne	1853	Melbourne	9 164	3 924	13 088	515	13 603	11 255
Adelaide	1874	Adelaide	6 145	2 838	8 983	356	9 339	7 653
Tasmania	1890	Hobart	1 507	617	2 124	226	2 350	1 872
Queensland:								
St. Lucia	1909	Brisbane	6 530	5 027	11 557	2 745	14 302	9 730
Townsville	1961	Townsville	334	167	501	-	501	418
Western Australia	1911	Perth	3 370	1 759	5 129	320	5 449	4 330
A. N. U.	1930	Canberra	1 849	1 245	3 094	-	3 094	2 471
New England	1938	Armidale	1 379	146	1 525	2 734	4 259	2 141
New South Wales:								
Kensington	1948	Sydney	6 915	4 771	11 686	82	11 768	9 321
Wollongong	1962	Wollongong	220	634	854	-	854	537
Newcastle	1951	Newcastle	941	997	1 938	-	1 938	1 440
Monash	1961	Melbourne	4 877	1 017	5 894	-	5 894	5 386
Flinders	1966	Adelaide	388	26	414	2	416	401
Macquarie	1967	Sydney	-	-	-	-	-	-
La Trobe	1967	Melbourne	-	-	-	-	-	-
Mt. Gravatt	?	Brisbane	-	-	-	-	-	-
			56 462	26 596	83 058	6 980	90 038	71 511

Notes: The foundation date is given for the first twelve institutions; the opening or expected opening date is given for the remaining five.
New England received university status in 1954, Newcastle in 1965. Canberra University College and the A. N. U. merged together in 1960. Mt. Gravatt has not been established as yet.
*"Equivalent Full-Time Students:" Computed by counting full-time students as equalling one student, part-time 1/2, external 1/4.

Source: Commonwealth Bureau of Census and Statistics, Social Statistics: Australia, No. 42: Universities (Preliminary Bulletin), released 26 July, 1966, Table 5, p. 8.

Part Two: PLANNING THE AUSTRALIAN CAMPUS

Chapter One: An Overview

2:1 Introduction. All human activity to some extent involves planning. It may be planning of a very deliberate and structured sort, such as might be done by a large and progressive industrial concern, or it may be closer to the simplistic, often unconscious variety that we as individuals do every day. Despite its characteristics or its level of sophistication, though, planning is a process both preliminary to and concurrent with nearly everything that people or groups of people set out to do. The question is not really whether or not one should plan--in this case whether or not to plan universities--rather, it is how to plan, and more precisely, how to plan so as to arrive at the best solution to the problem at hand. A city or a university may be ugly or congested, but if this is so it is not because of an absence of planning; on the contrary, it is because of the quality and nature of the planning: There may have been too little planning or too much; or maybe the planning was not long-ranged enough or the goals upon which it was based were faultily formulated; perhaps there were

too many planners implementing at the same time too many conflicting plans. There can be many reasons put forward to explain any end result, but the total lack of planning in itself is not one of these.

2:2 Campus Planning as a Process. That planning is a process is a phrase one constantly comes across when reading planning studies and reports. It is a process because it can be defined, structured, organized, and formalized, and because there can be rules created for its use.

Richard P. Dober has defined campus planning as "the premeditated guidance of the amount, quality, and location of facilities for higher education so as to achieve a predetermined objective. The objective is the plan."[1] This definition obviously allows for a great deal of leeway as to the comprehensiveness and thoroughness of the planning. "Guidance" may be in the form of a one sheet site plan showing possible development at some time in the future, or it may constitute a full-scale planning effort, heavily researched and documented, involving a number of professional consultants and utilizing a highly specialized and complex approach.

Campus planning as a process differs little from other types of formalized planning. Differences occur not so much in the process itself, but rather as to the nature of the client and the framework within which the planning must be done. Within the present context, the client is the university, while the framework is the organizational channels and structures of the university and such secondary bodies and interests as, say, the A. U. C. and the local community.

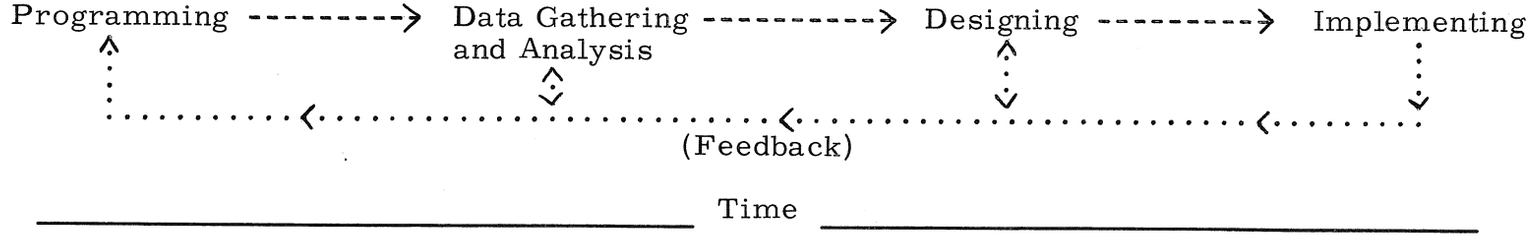
The basic planning process may be thought of as involving several steps:

1. Programming. This includes (a) the formulation of the policies (objectives, goals, and assumptions) that will determine the nature of the plan; (b) the determination of the criteria that will structure the plan; and (c) the determination of what information will be necessary for the preparation of the plan as well as the most efficient method of scheduling its collection and analysis. In short, a planning program constitutes a scheduled series of instructions.
2. Data Gathering and Analysis. This involves the carrying out and analysis of any studies or surveys suggested by the program.
3. Designing. This involves the translation of the policies and facts collected and refined in steps 1 and 2 into plans and specific courses of action, and from there eventually into physical design.

4. Implementing. This step represents the initial end-product of the planning process, and is usually manifested, at least at universities, in the construction of facilites.

Two associated elements affect this generalized four-step process: time and information feedback. On the one hand, the thing which is being planned--the campus or a portion of it--changes over time, and not just in physical terms. The techniques and data available to the planner also change over time. As a result, the planning process must of necessity be of a continuous and flexible nature in order to properly deal with these consequences of change. On the other hand, during the process of planning, certain facts and variables that were previously disguised, unappreciated, or unknown may take on new importance, having the effect of altering, refining, or reinforcing the original policies and premises upon which the planning effort is based. This is known as feedback.

Figure 1: The Planning Process



2:3 The Levels of Campus Planning. In the introductory paragraph above, the word "planning" was used in its widest and most general sense to include both formalized and non-formalized campus planning. The former presupposes an organization of some sort which has been authorized by the university or government, and it is primarily to this variety of planning that attention will be directed in this report. Before doing so, however, it is important to recognize that campus planning is not always limited just to the more discernible and formalized variety.

In addition to those directly responsible for campus development--the Vice-Chancellor and his sub-officers in the administration, the planning officer, the Buildings and Grounds and similar committees of the Council,

the A. U. C., and so on--others are involved in the planning of individual elements of the total university: Every professor plans for his department; college masters and councillors plan for their colleges; the librarian plans for a new library or for alterations to the existing one; the union plans for a theatre or for additional dining facilities; and so forth. Planning such as this may be in the form of thoughts and ideas in the minds of administrators and academics, or it may consist of extensive drawings and carefully-prepared reports. It may be with the knowledge or assistance of those responsible for overall campus development or, as is often the case, it may be done in near secrecy, uncoordinated with related planning efforts being undertaken by one or several other persons or groups.

These levels are all internal to the universities or the governmental bodies directly concerned with them. A second series of both formalized and non-formalized planning levels exists which involves groups and individuals external to the universities. To take the University of Sydney as an example: There are several local or state government bodies that have jurisdiction of one kind or another over the area within which the University is situated. The Water Board has water mains running beneath the campus, and thus they must be consulted when some University action may affect them, and vice versa. The Department of Main Roads is responsible for the two major traffic arteries in the vicinity of the University--Parramatta Road, bounding the campus on the north, and City Road, which divides the University Extension Area from the main campus. They are also the planning and construction authority for the proposed Sydney expressway system, which, when completed, will cause the University to become virtually an island between two limited-access highways. The Cumberland County Council Plan--which is still in effect although the Council itself no longer exists--had an important impact on the planning and development of the University when it proposed that a 36 acre site in adjacent Darlington be used for the purpose of campus expansion. On the other hand, an opposite approach has usually been taken by the Sydney City Council, which is generally opposed to the expansion of the University when it results in displacing voters or removing property from the tax rolls. At other Australian universities one finds similar examples of government bodies being in the position of affecting a university's plans through plans and actions of their own.

Also external to the university structure itself is the planning done by individuals, businesses, and institutions located near the university campus. They too are all involved in planning of a sort: they may be intending to expand or relocate or alter their houses, premises, or physical plant.

Consequently, in developing and administering a university there are many levels of planning and decision-making--formalized and non-formalized, internal and external--that are often, if not usually, reflections of

different goals, viewpoints, values, and interests, and thus are more often than not in conflict with one another. Hence, the final solution to a problem facing a university is either one conceived through compromise or one resulting from the victory of one interest over other less powerful ones. Regardless of the solution, consideration must be given to these other levels and to the needs and objectives that they represent.

Chapter Two: Organizing for Campus Planning

2:4 Introduction. Campus planning may be organized within the university in a variety of ways, the needs and circumstances of any particular university dictating the most effective and workable system. The several approaches described below are by no means mutually exclusive and combinations of two or more are the rule rather than the exception.

1. Committee Action Approach. Involves the formation of committees composed of academics and/or administrators for the purpose of investigating and reporting on various aspects of development. This may result in a plan or it may simply be a means of obtaining suggestions and a body of information sufficient enough to permit someone else to devise plans.
2. Senior Staff Approach. Involves the assessment of needs and the listing of priorities for the individual divisions and sections of the university by the respective academic and administrative department heads. Although the product of this approach may be a series of "little plans," it again is usually the task of someone else to integrate them into a single functional plan.
3. Planning Officer Approach. Involves the establishment by the university of a permanent planning section. The planner's role may reflect varying degrees of responsibility and effectiveness; his function may range from simple routine tasks to full-scale comprehensive planning. Typically, the planning section is responsible to the standing committee of the university Council concerned with physical plant and development matters and/or the Vice-Chancellor.
4. Consultant Approach. Involves the commissioning by the university of a planning consultant for the purpose of preparing plans or undertaking specific studies. Generally, he would work in conjunction with the department heads concerned, various committees, the Vice-Chancellor, and so on, often with the planning officer--if one exists--acting in a liaison capacity.

To some degree all four of these approaches, and combinations or variations of them, are employed by one or another of the Australian universities:

2:5 Committee Action Approach. All the universities organize ad hoc project committees when a new facility is under consideration. Such committees, which include representatives of the future tenants of a building, play an important role in the project planning prior to the construction stage, in that they serve as the architect's main source of information as to space and design requirements.

In addition, ad hoc committees are often established which are outside the normal planning mechanisms but which may nonetheless be involved in matters with definite planning implications. Most common are committees organized for the purpose of investigating either the problem of parking and traffic congestion or the residential accommodation needs of students. Two fairly comprehensive studies of the latter were recently done by Senate committees of the Universities of Sydney and Queensland. Ad hoc committee action has in some instances been directed at the overall problem of campus development. A notable example of this approach, again from the University of Sydney, is the committee appointed by the Senate in 1957 "to prepare a development plan for the future development of the University grounds and the location and general nature of the buildings to be erected in the future."[2] The preparation of the Committee's report was undertaken by the Assistant Principal--the senior administrative officer dealing with buildings, grounds, and development--and the University's Architect-Planner, but irrespective of this the policies and decisions included in the report resulted from committee action. Incidentally, this report still serves as the basis of the University's campus plan.

The committee action approach is not exclusively of an ad hoc nature, however. The Senate or Council of each Australian university maintains a standing committee which has the responsibility of coordinating all activities and approving all plans relating to the physical plant of the university and its development, and which is answerable only to its parent body. Although its title may vary depending upon the university, it is most often known as the Buildings Committee. In all cases, the Buildings Committee has an administrative officer responsible to it who functions both in a staff and advisory capacity.

These committees, both standing and ad hoc, typically include ex officio members, as well as persons

representing divisions or departments of the university that are or will be affected by the business before the committees, and persons connected with the university, such as architects, town planners, and civil engineers, who have special skills and knowledge related to university development.

A committee action approach to campus planning may work well, but generally only when it is integrated with other planning approaches. One danger lies in the possibility that too much committee-level consideration and decision-making may result in a plan that is watered down to such an extent through compromise and avoidance of controversy that it lacks the necessary force to be effective in accomplishing its objectives.

2:6 Senior Staff Approach. Plans and decisions must relate to and evolve from some body of analysed information. The many academics and administrators that represent the various elements of the university are the main source of this information. Depending upon what the information is needed for (long-range planning, project planning, policy planning, academic planning), it may include present and predicted departmental enrollments, inventories of space and equipment, current and future accomodation and staff requirements, alternative courses of development, and general advice and suggestions. This information-gathering and advice-giving function exists regardless of the degree to which the department heads, deans, and administrative officers are in on the planning and decision-making itself. They may just be gatherers and givers, or they may also be the central figures in the ensuing analysis and planning, or their position may lie anywhere between these two extremes.

Individual Australian universities do differ as to the relative power and role of the senior staff in the planning process. Much depends upon the internal politics of the university and, of course, ultimately upon the personalities and followings of the individual professors and administrators. A particularly forceful professor can be a major factor behind the growth and expansion of a department or a faculty: Through his efforts and influence may come a new building or additional equipment or more research money. Conversely, a department or a university facility like a library may decline in importance, efficiency, or prestige because of a politically-weak administrator.

The development or planning reflected in this sort of campus political scramble does not, however, occur within a structured organizational framework; rather, it is a personal, informal, give-and-take process. Nonetheless, it is often the way things get done, notwithstanding how the formal framework appears on paper. The older universities in Australia are more open to this type of behind-the-scenes planning, simply because

they have been around longer and a more complicated and involved power structure has had time to evolve. The Universities of Adelaide and Melbourne probably offer the best--or worst--examples of this.

One effect of basing planning and development decisions on personal and subjective criteria, as this approach often does, is that the campus becomes more susceptible to disjointed building activity, especially in the form of out-of-place extensions and additions, and to an overbuilding on the site. This has happened at Melbourne and partially, no doubt, as a consequence of the uncoordinated and often irrational planning carried on by professors and deans within a context of professional jealousy and politics. This context will, of course, always exist to some extent, and in the correct relationship and proportion it can be of great advantage; but an approach to campus planning that encourages disproportionately such a context will rarely bear worthwhile fruit, either academically or physically.

2:7 Planning Officer Approach. All Australian universities have an administrative officer who is exclusively concerned with development and planning matters. This "planning officer" may be called the Staff Architect, Architect-Planner, Buildings Officer, or any of a number of similar titles, depending upon the particular university in question.

In most but not all instances there is also an intermediary officer positioned between the planning officer and the Vice-Chancellor and the university Council, and to whom the planning officer is immediately responsible. This officer, again depending upon the university, may be the Registrar, Bursar, Assistant Principal, Business Manager, etc. He may have functions to perform other than those pertaining to plant development and planning, or he may be assigned this task as a full-time job. He may have a position at the apex of the policy and decision-making pyramid, or one of significantly less importance. This can also be said of the planning officer: Some, either because of their personality and nature or because of the authority and position of their office, are more powerful and have a larger voice in what happens than others. This is most likely to be so when the planning officer is at the same time the senior administrative officer responsible for development. Examples of such a situation would include both Flinders and Macquarie Universities.

Generally speaking, the planning officer functions in a staff and advisory capacity, most decisions made by him being of a short-range or technical sort, while his superior, the senior officer, functions more as an overall coordinator of those activities connected with the physical plant of the university, as well as having a greater role to play in the policy and decision-making process.

Richard P. Dober sees the university planning officer as having five actual or potential functions. These are:

1. Intelligence function: This involves measuring and evaluating existing activities and physical plant; and secondly, predicting which of those items will be affected in the future by changes in curriculum, institutional goals, and enrollments.
2. Community relations function: This activity involves all those studies, communications, meetings, and measures necessary to coordinate institutional and community growth objectives.
3. Programming function: These duties include the identification of development problems, the posing of alternative solutions, and the preparation of those documents necessary to ensure that project designs will reflect long-range development policy.
4. Physical plant development function: This activity may include the preparation of capital improvement budgets, the preparation of preliminary and final project plans, and the supervision of construction.
5. Secretariat function: This includes the responsibility for keeping all the records, documents, and other materials necessary to carry out planning, programming, physical plant development, and whatever related tasks are assigned to the planning office.[3]

Dober goes on to point out that, in fact, very few universities have organized these functions, much less under one officer, be he labelled a planner or not. Australian universities are no exception to this rule, as in no case are these five taken as a whole, seriously, actively, and systemmatically the concern of the planning officer, his superior, or the university in general. Of the five, only the physical plant development function, and those elements of the other four that directly and very definitely contribute to its workings, have been organized or pursued to any considerable extent. In fact, it would be more accurate to refer to the planning officer as the Physical Plant Development Officer.

Regardless of what additional functions he may have, the planning officer at an Australian university is basically concerned with two related tasks: (1) determining what capital projects are necessary during the next planning period (since the establishment of the A. U. C., university capital programs are of three-year duration) and presenting the university's case to the A. U. C.; and (2) planning, staging, and implementing the projects once they have been approved. Of course, the planning officer neither accomplishes this job, especially the first stage, alone or without the assistance and the approval of the various departments, divisions, and committees of the university, nor is he usually the only one responsible for the actual preparation of the university's submission to the A. U. C. But he is the central figure in at least the technical or

architectural side of it, both in the sense of overseeing the preparation of the building briefs and the production of the first preliminary sketch plans that are necessary for A.U.C. project approval, and also in acting as the liaison officer between the university and the project architects and contractors.

As the best part of the planning officer's time is spent in consideration of these two tasks, it can be said that he functions primarily as a project planner; that is, he concerns himself more, on a short-range basis, with matters pertaining to the planning, design, and construction of individual elements of the campus, than, on a long-range basis, with the overall development of the campus. At some Australian universities, notably Flinders, Macquarie, and the University of Western Australia, the planning officer does function both as a short-range project planner and as a long-range "master" planner, but even so the latter function all too often is given only cursory attention.

Less capable of easy classification are the various miscellaneous jobs which the planning officer may be saddled with, such things as designing furniture and signs, doing landscape work, overseeing small extensions and alterations to existing buildings, and occasionally designing entire buildings.*

*A list of the typical duties of a planning officer appears in the Appendix.

If the planning officer has the time, staff, and ability to properly undertake long-range campus development planning, in addition to program and project planning, there are many advantages to letting him do so. By having all done internally to the university and its problems; he will have a clearer idea of what can be done and what cannot; he will know how and where to get the information he needs; and, most importantly, he will always be present at the university and thus will be able to observe how development is progressing as well as being in a better position to reshape and redirect the planning effort as new conditions arise. And as there is such a close relationship between project, program, and development planning, each having implications for the other two, it is advisable to have all at least somewhat within the province of one officer.

2:8 Consultant Approach. Consultants are generally commissioned by a university to serve in either of two capacities: They may be asked to solve problems or undertake studies that the staff members of the university, because of a lack of time or experience, are incapable of giving the appropriate attention; or they may be assigned the more ambitious task of preparing a long-rang development plan for the university. Just one example of the former is a cost control study of two recently-completed residential colleges at the University

of New England carried out by a Sydney planning and architectural firm. Instances of the latter include many of the new Australian campuses: Monash and La Trobe were initially planned by consultants. Flinders University and the new campus of the University College of Townsville were planned by the planning officers of the respective institutions in conjunction with Professor Gordon Stephenson, the Consultant Architect at the University of Western Australia. Responsibility for the master planning of the Australian National University has since 1954 been assigned on a consulting basis to Denis Winston, Professor of Town and Country Planning at the University of Sydney.

When the job of campus development planning is given over to a consultant, the ensuing relationship, vis-a-vis the university and the consultant, may either be a limited one, for instance only as long as it takes to complete the job, or of a more permanent nature. Since planning is or should be a continuous process, the latter relationship is to be desired over the former. Such is the case at Tasmania, New England, and the A. N. U. La Trobe University will probably retain its consultant on a permanent advisory basis, but Monash has already minimized its dealings with the firm that did the original development plan. At Macquarie University long-range planning is being done in the office of the Architect-Planner, but a number of investigations and feasibility studies have been commissioned out to consultants.

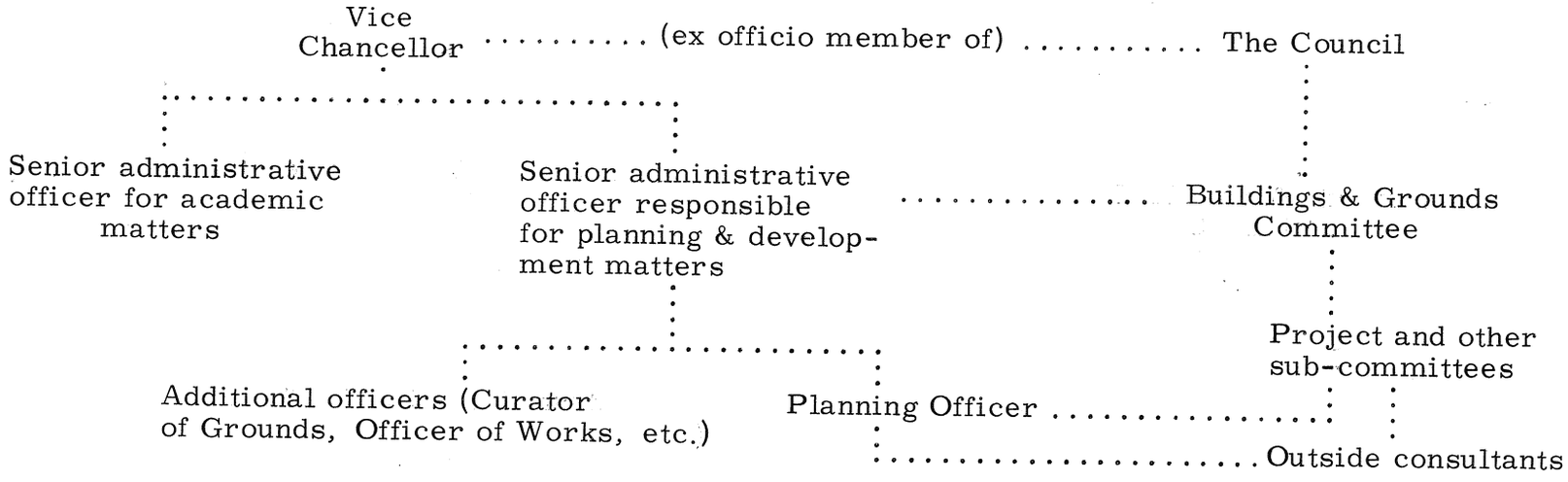
Of course, the services of consultants are employed more often for engineering and architectural design of individual buildings and facilities than they are for planning purposes. Nearly all of the university building projects in Australia are let out to private architects, who, in turn, retain their own consultants. There are, however, some exceptions: Most of the new buildings at New England and Tasmania were designed by the same public agencies that have long-range planning responsibilities for these universities. Several building each at the Universities of New South Wales, Melbourne, and Queensland were designed by the planning officers of the individual universities. And at the University of Western Australia, the Consultant Architect automatically works "in association with" the outside project architects.

2:9 The Integration of the Four Approaches. The Discussion above should serve to point out that elements of all four approaches to campus planning organization are to found in one form or another at each of the Australian universities. Differences in organization between individual universities are for the most part only reflections of the manner in which these four are mixed and the relative emphasis accorded to each. To repeat briefly what has been outlined above, the typical formalized organization for campus planning involves a planning officer, a Buildings Committee of the Council or Senate, and usually an intermediary officer between the two. The following table and diagram should summarize the situation:

Table 5: Formalized Organisation for Campus Planning at Australian Universities

University	Planning Officer's Title	Immediately Responsible to Whom
Sydney	Architect-Planner	Assistant Principal
New South Wales	Executive-Architect	Bursar
Macquarie	Architect-Planner	Deputy Vice-Chancellor
New England	Buildings Officer	Registrar
Newcastle	Staff Architect	Vice-Principal
Melbourne	Staff Architect	Vice-Chancellor
Monash	Buildings Officer	Comptroller
La Trobe	Coordinator of Buildings and Services	Business Manager
Tasmania	Senior Administrative Assistant to the Vice-Chancellor	Vice-Chancellor
Adelaide	Staff Architect	Registrar
Flinders	Staff Architect	Vice-Chancellor
Western Australia	Consultant Architect, Buildings Officer, University Architect	Vice-Chancellor
Queensland	University Architect	Deputy Vice-Chancellor
Mt. Gravatt Townsville	(under the University of Queensland)	
A. N. U.	Planning Officer	Associate Registrar

Figure 2: Organization for Campus Planning within a Typical University Administration, showing Generalized Lines of Responsibility and Communication



There is not a great deal of deviation from this organizational pattern; most variations and exceptions arise with respect to the functions and relationships of and between the persons and positions involved. Most of these have already been dealt with but it might be well to mention some additional ones:

The system employed by the University of Western Australia is similar to that of most other Australian universities except for one important point: There is a planning officer--the University Architect--responsible to the Vice-Chancellor but working in conjunction with the Buildings Officer and the Consultant Architect.* The position of Consultant Architect is what makes the situation unique. His duties and responsibilities are as follows: "The Consultant Architect shall be responsible to the Vice-Chancellor and through him to the Senate and shall--

1. Advise, in consultation with the University Architect, on the planning and development of the campus, including the siting and arrangement of new buildings.

2. In collaboration with the University Architect advise on the selection of commissioned architects for each major building.
3. Comment on all new building schemes at the sketch plan stage before submission to the Australian Universities Commission.
4. Continue membership on the Buildings Committee
5. Continue to serve on the Vice-Chancellor's Landscaping Committee."4

The Consultant Architect's most significant contribution stems from his role as long-range planner for the University. The current planning scheme was produced by his office, and being permanently at the campus--as well as enjoying a high position within the University's administrative and academic structure--he is able to review and alter the plan as circumstances and conditions warrant it.

The University of Queensland differs from other universities not in its internal organization for planning and devlopment but in the role that the State government plays in the process. The Coordinator-General of Public Works is formally the official who appoints the architect for all University building projects. In addition, his office is the construction authority for the University, which means that it either constructs the building itself or makes arrangements for it to be put up for private competitive tendering. As it turns out, the University Architect has in recent years been chosen as project architect for probably fifty per cent of the new buildings. Potentially a system such as this, and the somewhat similar one involving the University of Tasmania, could straitjacket a university's development if the government failed to be sympathetic to the demands and the needs of the university.

*The position of University Architect is newly-created and about to be filled. Previously, the Consultant Architect performed most of the duties proposed for the University Architect (see Appendix).

At both the Universities of Tasmania and New England, much of the work that would ordinarily be done by the planning officer is done instead by the Public Works Departments of the respective State governments, although in the case of New England the New South Wales Public Works Department is retained just as any private consultant would be and has nothing approaching statutory powers over the University.

Monash University also relies upon consultants to take over some of the tasks handled internally at most of the other universities. Much of the preliminary project planning--preparation of briefs and diagrammatic building plans--is undertaken by outside architects.

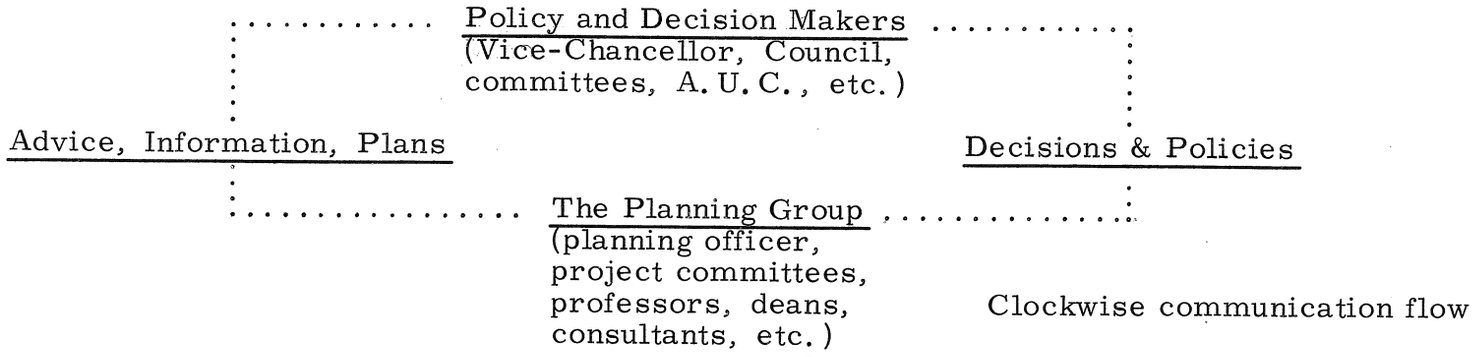
2:10 Secondary Functionaries. There are others within the administration of most Australian universities who, although not often directly and actively involved in planning and development decisions, are nonetheless associated in one way or another with the physical plant of the university. Included within this category would be those officers in charge of building maintenance (cleaning, painting, repairs, etc.), grounds maintenance (gardening, roadways, etc.), furnishing of buildings, allocation of accomodation, operation of utilities and services (heating, electricity, telephones, etc.), and so on. In as much as campus development undoubtedly affects the nature and extent of these jobs, and since the planner must be aware of the consequences in maintenance time, effort, and expense that a proposed project will be likely to generate, as this in turn will affect the plan, the necessity for some form of communication between these officers and those making the planning decisions becomes obvious.

Chapter Three: Types of Campus Planning

2:11 Introduction. As yet no adequate discussion has been made of the characteristics of and differences between the three basic types of campus planning, except to indirectly define them and to point out that two, program and project planning, are more common and have evolved to a higher degree in Australia than the other, development planning. In this chapter attention will be directed primarily to the procedures and mechanisms involved in all three types of planning, to the actual characteristics and content of the plans, and to the ways in which the various planning approaches, committees, and individuals described in the last chapter are utilized in each type of planning.

However, before considering separately each type, it should be recognized that they all relate to a single generalized planning and decision-making model; that is, regardless of the nature of the planning, the persons and interests concerned, or the individual stages and sequences of the process, the total effort still functions within a common context.

Figure 3: A generalized Campus Planning Model Applicable to Australian Universities



2:12 Program-Project Planning. Short-range development planning encompasses two related but distinct activities: At one level is program planning, the object of which is to produce a blueprint or program for the university's capital development which is submitted to the Australian Universities Commission every three years. At another level is project planning, which is planning of a more detailed sort that must precede the construction of those projects outlined by the program. This means that a single program may result in as many as ten or more project plans. To some degree, then, project planning does in depth for a single project what program planning does superficially for a range of projects.

It would, however, be a mistake to think of project planning as only occurring after the program has been compiled and approved. In actuality, it precedes, merges with, and follows program planning. The preliminary planning at department level of several projects may be taking place simultaneously and all prior to the university's commencement of program planning. The programming, once begun, includes a consideration of these preliminary plans and then leads to a decision by the university as to which projects should be included in the next triennium's program, which should be excluded or postponed, and which should be altered. Following action by the A. U. C., the individual projects approved will pass on to the final project planning stage and eventually the implementation stage. This relationship between program and project planning is illustrated on next page:

Program-Project Planning: Simplified Sequence of Stages

I Preliminary Project Planning	II Program Planning		III Action by the A. U. C.	IV Final Project Planning	V Implementation
Proposed projects: a ..... b..... c ..... d ..... e ..... f ..... g	(preliminary integration of project plans) Program finalized at the university level; some projects altered or dropped	b... c... d... e... g...	(final integration of project plans) Program finalized at state & national level; some projects altered or dropped	b..... c..... e..... g.....	Projects b, c, e, g, constructed

I. Preliminary Project Planning
   A. Programming and Data Gathering and Analysis Stages
      1. Recognition of the need for a new building, etc., by both the department concerned and the university, as a result of action on the part of....
         -the department or faculty through the professor or dean or through committee action.
         -the university, through the planning officer, planning consultants, committee action, etc.
      2. Appointment by the university of an ad hoc Project Committee composed in part of those who will use the facility.
      3. Preliminary determination by the Project Committee, with the professional assistance of the planning officer, consultants, and/or others, of the requirements, criteria, objectives, etc., of the facility, its location and siting, and so on.
   B. Designing Stage
      1. Preparation by the planning officer or consultant of a rough preliminary sketch plan and cost estimate for the facility.

II. Program Planning

Preliminary plans and estimates submitted by departments and divisions considered at university level in light of long-range plans, policies, etc., by the planning officer, senior administrators, Buildings Committee, Council, etc., and organized into a preliminary three-year capital program.

III. Action by the Australian Universities Commission
Consideration of all preliminary programs of all universities by the A. U. C., culminating in a final capital program for each university, and a final national capital program for Australian universities taken as a whole.

IV. Final Project Planning
B. Designing Stage Continued
1. Appointment by the university of a project architect
2. Review, reevaluation, and final determination of the building brief after communication between the project architect and the Project Committee, planning officer, etc.
3. Completion of design and working drawings by the project architect.
4. Approval of final drawings by the university and the A. U. C.

C. Implementation Stage
1. Contracts let for the construction of the facility.
2. Construction begins.
3. Construction completed.

Note: This sequence of stages is organized to reflect the planning process described in section 2:2 and diagrammatically presented in figure 1. Also note relation to model depicted in figure 3, section 2:11.

The project planning aspects of this sequence, especially the preliminary ones, may take years to complete, as so much depends upon the priority attached to a particular project by the university. Since the entire building program of a university must be reviewed and finalized every three years, it is a rare occurence when a proposed project gets included in the approved program on the first time around. It is more usual for several building programs to come and go before the project in question wins approval and the necessary money is made available.

Information feedback, as mentioned in section 2:2, is very much an element in this sequence. At its most obvious level, it occurs in the form of suggestions and advice offered each time consideration or approval is required by the university or the A. U. C. Feedback also occurs whenever the number of persons involved in the planning increases: When the Project Committee is appointed or the architect chosen, new and different ideas, values, and opinions are likely to be expressed that have the effect of altering or reaffirming those previous assumptions and objectives that guided the planning up to then.

Although many of the same people and bodies are involved in both program and project planning, the former is concentrated at a higher level of the university's administrative structure. This is quite understandable in as much as programming functions to select and coordinate appropriate projects and hence has a university-wide significance as opposed to the more localized context of project planning. Also, program planning implies a higher degree of policy and decision-making than does project planning, which tends to deal more, especially in its final stage, with specialized technical problems capable of less controversial solution.

2:13 Development Planning. Not until the establishment of Monash University in 1958 was any Australian university planned in what could legitimately be described as a systematic and long-range manner. Previously, planning and development were always piecemeal undertakings; they could almost afford to be since change was so relatively slow in occurring. But in this present era of rapid university expansion, something more than just a three-year building program is needed. Since Monash, six new campuses have been planned, five of which are now being utilized or will be by the end of 1967, and all of which are being planned in a more thorough and realistic way than were the universities created before them. This type of planning is development planning, a process that is both more comprehensive in its content and context, and more farsighted in its projections and proposals than either program or project planning.

In its most minimal and inadequate form, development planning simply consists of extended program planning; that is, stringing together several sequential triennial building programs into one plan, generally reflected in a series of time-staged site plans. In its higher forms it may consist of extensive surveys, analyses, and policy systematization, all oriented towards producing a comprehensive plan on the one hand, and outlining the manner in which the plan is to be implemented and how it can be continually updated, reviewed, and reevaluated, on the other. Australian universities taken as a group tend to gravitate towards the less ambitious form, which, although not the best, is nonetheless the simplest and the cheapest approach.

Although long-range development planning necessarily represents the major share, at least initially, of all planning activities undertaken by the new universities in Australia, the same cannot unfortunately be said of the older universities, which devote the greater part of their attention to the shorter-ranged program and project planning. Those universities at which a basic campus structure has had time to develop, all too often adopt the attitude that there is no longer a need for formalized planning beyond that necessitated by the grant-giving mechanisms of the A.U.C. This, of course, is poor reasoning on the part of the universities: If there is no long-range plan or statement of goals, policies, assumptions, etc., what will the short-range physical development of the university relate to or reflect? There is, no doubt, some thought given to these matters

and some sort of policies are certainly formulated, but the effort and the result is almost always too half-hearted, too general, too often done by too few people, too often not publicized, and/or too often disregarded.

However, the need for an added emphasis on development planning has not totally escaped recognition by the universities: This is what one Vice-Chancellor recently had to say about the situation:

> "We have, I suspect, been inclined to exaggerate the importance of minor developments, and have tended to proceed ad hoc depending upon the persuasiveness of heads of departments or the voting power of the various faculties. As a result the submissions made by the University to the Australian Universities Commission have been rather hand to mouth affairs aimed at solving immediate problems often of minor consequence, rather than submissions aimed at the orderly progress of the University in accordance with an accepted plan of academic development. It seems to me that the time has now come when we should clarify our own minds as to what the University should look like when fully developed..."[5]

The values and advantages inherent in development planning are that it deals with an entire system over a longer and less-definite period of time, making it possible for one to gain a perspective overview of both the university and the society in which it exists. Whereas program and project planning are concerned with the scheduling and designing of university facilities, development planning permits, among other things, the consideration of many forces and facts that often appear unrelated to physical development--and thus might otherwise be overlooked--but that have, on closer view, significant implications for physical planning and development. As an example, the academic characteristics, both present and future, of a university are important factors in the shaping of physical development. The campus and buildings of the University of New South Wales, for instance, reflect the University's academic curriculum. When the University was in its earlier stages of growth, its curriculum was exclusively of a technological and science-based nature; even today it leans heavily in this direction. As a consequence, the campus is more akin to an industrial estate than to the traditional "Oxbridge" concept of how a campus should look (all of which is fine if that is what is desired by the University). The University of New England is another instance: Because its curriculum stresses courses related to agriculture and rural science, parts of the campus have taken on some of the characteristics of a farm, complete with animal pens and the like. If the development of either of these two universities had been carefully considered in long-range and comprehensive terms at the outset, such patterns that exist today could have been avoided or reinforced--depending upon what is thought desirable--to a more successful and workable level. But short-range specialized planning is not properly geared to the consideration of such questions and thus to be effective it must function within the wider framework that can only be provided

by a development plan.

Development planning at Australian universities, regardless of its characteristics or the form that it follows, generally involves the same persons, committees, etc., that are responsible for program and project planning, although it is concentrated higher up in the university's academic-administrative structure, in the same way and for the same reasons that program planning is when compared to project planning. Because of its more general nature and its emphasis on broad policy formulation, development planning is in itself less specialized than program or project planning, and thus is more suited to the committee action approach, supplemented by the efforts and advice of the planning officer or a consultant when technical questions need answering or reports need preparing. However, the most important and necessary ingredient of effective development planning is a wide and varied level of participation. It cannot be truly comprehensive or representative if only a handful of people are involved. Everyone concerned with and potentially affected by the university should, theoretically at least, be able to present their views and suggestions. But unfortunately the level of participation in the planning of universities is quite low, not only in Australia but elsewhere. All too often it is the Vice-Chancellor, the senior officer in charge of the university's physical plant, and certain influential members of the Council or the Professorial Board, whose own ideas and conceptions of how things should be, become, in effect, the development policies and plans of the university, this all occurring unilaterally without an adequate opportunity being given for direct communication or participation from below or outside this centralized apex.

The process of development planning may yield a varied range of plans and reports. These may include:

1. Site Plans. Produced separately or in conjunction with plans and reports of one sort or another. They may reflect stages of development over time, generally corresponding to the A.U.C. triennia, or they may simply show the desired development pattern either at some stated or unstated future time, or when the university reaches a certain predetermined enrollment. The two former approaches are the most common in Australia and elsewhere. Possibly the only example of the latter is the Flinders University development plan.
2. Comprehensive Planning Reports. In Australia such reports have almost entirely been limited to the new universities. The best of these in approach, context, and comprehensiveness are those that were prepared for Flinders and La Trobe Universities. Of the more established universities, only Sydney has prepared a development plan report in recent years. In the case of a new university, consideration might be given in a planning report to such things as site characteristics, the academic program and its physical implications, enrollment projections, basic

development policies, objectives, assumptions, etc., the building program (requirements, siting, standards, etc.), roads and parking, landscaping, staging and other implementatory measures, and so on. Site plans, as described above, would, of course, also be included.

3. Policy Plans. Although often included in a comprehensive planning report, a statement of policies may also occur separately. Irrespective of where or how it occurs, it is a basic aid to coordinating and giving direction to all planning activities. It involves the formulation of a policy system centering upon assumptions, objectives, principles, and criteria, which can later be interpreted and translated into physical terms.
4. Miscellaneous Studies and Plans. This residual category includes all separate studies, reports, schemes, and plans that do not fall into the categories above, and that cannot be classified as program or project planning. Parking and circulation surveys, less-than-campus size area or precinctal planning, and student enrollment projections are all examples. Although they may be carried out within a context defined by a development or policy plan, such plans and studies are organized and presented separately. The older universities often rely on this approach guided by the misconception that it will alone eventuate in a unified development plan. At best, it only produces a fragmented network of overlapping or conflicting plans and information. Its true value lies in the role it can play in supplementing and reinforcing an already existing development plan.

It should be recognized, however, that development planning--for that matter all planning--does not, or should not, function solely for the purpose of producing a written or graphic plan. Some sort of tangible plan usually results, but of equal significance is the effect that the planning process has in creating a way of looking at things not as isolated and unconnected parts but as related elements of a balanced whole, and in establishing a context within which decisions can be more easily and efficiently made.

2:14 The Planning Hierarchy Internal to the University. Before moving on to a discussion of the roles played by the state and Commonwealth governments in campus planning, it might be best to conclude this chapter on the types of planning internal to the university by summarizing the hierarchy and relationships that characterize the three types of formalized campus planning and by adding to what was earlier said in section 2:3. Thinking of the three types of planning as falling into a range, passing from project to program to development planning there occurs....

-a decreasing degree of specialization
-an increasing degree of comprehensiveness

-an increasing conern for the totality of the university environment
-increasingly ill-defined and organized channels and mechanisms for planning
-a decreasing degree of dependency upon other levels of planning
-an increasing reliance upon high-level internal policy and decision-making
-increasingly longer periods of time to plan for
-increasingly larger physical areas to plan for
-an increasing need for more representative and wide-spread participation
-an increasing possibility of it not being done at all or not being done properly or thoroughly enough.

Table 6: Development Planning at Australian Universities

University	1. Was there an original plan for the campus?	2. If yes, done by whom?	3. Approximate Date	4. Subsequent plans
Sydney	no			Wilkinson Plan (1928); Senate Committee Report (1961); Redevelopment of the Extension Area (1964)
New South Wales	no			Only within context of triennium planning
Macquarie	yes	University Architect-Planner	1965	Still in early stages of construction
New England	no			NSW Gov't Architect's Outline Development Plan (1958). Revisions (1963, 1966)
Newcastle	yes	private architectural firm	1964	Still in early stages of construction
Melbourne	no			State Dept. of Works' Plans; 15-year Plan (1967-1981) on triennial basis
Monash	yes	private architectural firm	1959	Replanning of Science Area (1964)
La Trobe	yes	private architectural firm	1965	Still in early stages of construction
Tasmania	yes	State Public Works Dept.	1956	Revisions of site plan
Adelaide	no			Improvement Plan (site only, no date)
Flinders	yes	Staff Architect & consultant	1964	Still in early stages of construction
Western Australia	yes	winner of architectural competition	1914	Wilkinson Plan (1927); Stephenson Plan (1954); revisions (1959, 1965)
Queensland	yes	private architectural firm	1937	Post-1961 Master Site Plan by University Architect
Mt. Gravatt	yes	University Architect, University of Queensland	1966	University not established as yet
Townsville (new campus)	yes	University Architect, University of Qld. & consultant	1964	Still in early stages of construction
A. N. U.	yes	consultant	1947	Winston & Rudduck Plan (1955); various plans and studies by consultant since

University	5. Who presently does development planning?	6. Is present plan substantially more than a site plan?	7.	8.	9.	10.	11.	12.
			If yes, is consideration given to....					
			future land use & siting	circulation & parking	utilities & services	landscaping	development staging	enrollment projections
Sydney	Architect-Planner	yes	yes	yes	yes	yes	yes	yes
New South Wales	Executive-Architect	no	yes				yes	
Macquarie	Architect-Planner	yes	yes	yes	yes	yes		
New England	N.S.W. Gov't Architect	yes	yes	yes		yes	yes	
Newcastle	private architectural firm	yes	yes	yes	yes		yes	yes
Melbourne	Staff Architect	no	yes				yes	
Monash	private architectural firm	yes	yes	yes	yes	yes		yes
La Trobe	private architectural firm	yes	yes	yes	yes	yes	yes	yes
Tasmania	State Public Works Dept.	no	yes					
Adelaide	Staff Architect	no						
Flinders	Staff Architect	yes	yes	yes	yes	yes	yes	yes
Western Australia	Consultant Architect	no	yes				yes	
Queensland	University Architect	no	yes				yes	
Mt. Gravatt	University Architect of Qld. University	yes	yes	yes	yes	yes	yes	yes
Townsville	consultants	yes	yes	yes	yes	yes	yes	yes
A.N.U.	Site Consultant	yes	yes	yes	yes	yes	yes	

University	13. Does development plan include an organized presentation or report?	14. Does development plan include a statement of policy outlining long-range planning goals, objectives, etc?	15. Is development planning more than just program-project planning extended ahead through several triennia?	16. To what year does development plan go?	17. For what maximum enrollment is university being planned?
Sydney	yes (1961, 1964)	yes	yes	*	16,000
New South Wales	no	no	no	1969	25,000
Macquarie	no	yes, but no in report form	yes	ulimate stage	12,500
New England	yes (1958, 1963)	yes	yes	ca. 1980	3,500
Newcastle	yes (1964)	only as to architectural policy	yes	1972	15,000
Melbourne	no	no	no	1981	13,000
Monash	yes (1959)	yes	yes	no date	12,000
La Trobe	yes (1965)	yes	yes	1975	10,000
Tasmania	no	no	no	no date	4,000
Adelaide	no	no	no	--	8,000
Flinders	yes (1964)	yes	yes	in terms of enrollment	6,000
Western Australia	no	yes	yes	to saturation	10,000
Queensland	no	no	no	no date	16,500
Mt. Gravatt	yes (1966)	yes	yes	ultimate stage	10,000
Townsville	yes (1964)	yes	yes	ultimate stage	10,000
A.N.U.	yes (1955)	yes	yes	ultimate stage	7,000

*The 1961 report is now out of date as far as staged development is concerned; 1964 report shows proposed ultimate development of extension area.

Source: Materials and data supplied by the universities and personal interviews by the author.

Chapter Four: Campus Planning at the State Level

Education in Australia is constitutionally the concern and responsibility of the individual states, the only exception being the Australian Capital Territory where education is under Commonwealth control. However, because of the level of autonomy granted to the universities, state involvement in their affairs is mostly limited to certain aspects of financial assistance. Previously-mentioned exceptions to this include the role played in university planning and development by the Coordinator-General of Public Works for the State of Queensland and the Public Works Department of Tasmania. And now with the A. U. C. in operation, financial involvement is increasingly being shared by both the states and the Commonwealth.

Indirectly, the states exercize an additional measure of control in that the governing body--Council or Senate--of all the universities include some representatives of the state government, members either appointed by the Governor or elected by the state parliament. In some instances they even constitute a majority or near majority of the membership: This is so at both the Universities of Queensland and New South Wales.

Especially relevant to planning is the Architectural Panel that functions at the University of Tasmania. Established by the State Cabinet, it passes judgment on each proposed building project as regards architectural fitness and suitability. The Panel consists of three members with the Chief Architect of the Public Works Department serving as Chairman. All in all there exists at Tasmania, as discussed in section 2:9, a greater degree of state control over university planning and development activities than at other Australian universities.

Despite these few elements of state control over, guidance of, and involvement in the physical planning and development of universities, in no state does a public body exist which has the explicit task of coordinating state-wide university development. With the exception of Tasmania and Western Australia, each state has two or more university institutions, and it appears that even Western Australia may soon be in this category, too. This situation would seem to suggest, therefore, that some state-level public body is, in fact, needed which could be assigned functions of the following sort:

1. Coordination function: Encouraging the balanced and coordinated growth, development, academic emphasis, etc., of the universities located within the state by means of a systematization of state-wide policies, goals, objectives, etc., relating to university education.
2. Research function: Making studies, preparing projections, gathering statistics, etc., to aid the universities in their planning efforts. A clearing-house for information.
3. Planning function: Determining where, when, and how new universities or campuses should be established.

Similar bodies have been proposed before. Although never effected, one of the best proposals was included in the recommendations of the Committee for Development of Tertiary Education in Victoria (Ramsay Committee):

> "...the State of Victoria should have a Co-ordinating Authority for Higher Education, free to put forward its plans and to discuss them publicly. This Authority should have an independent full-time Chairman, a representative of each of the several universities, and sufficient independent members to ensure a disinterested view of the needs of the individual universities. The Authority would not be regarded as a super-administrator of the existing universities, but would be responsible for the planning of future university development in Victoria, which is not the responsibility of the existing universities. Whether Victoria has two, three, four, or any other number of universities in the future, the Co-ordinating Authority should have the power to co-ordinate the requirements of the universities for presentation to the A.U.C., to recommend to the State legislature in what way university development should take place--whether new institutions should be autonomous, or affiliated with an existing one, and so on, and to ensure that unnecessary duplication of facilities is avoided."[6]

The Martin Committee, on the other hand, has since recommended the establishment of state "Institutes of Colleges," which would act to develop and coordinate non-university tertiary education. Apparently no need was seen to do the same for universities.

With the expanding role of the A.U.C. perhaps being a constraint, it is unlikely that the state governments will find it either desirable or possible to involve themselves to any great extent in the planning of individual universities or in the preparation of state plans for university development.

Chapter Five: Campus Planning at the National Level--The Australian Universities Commission

2:15 Introduction--The Murray Committee. The Australian Universities Commission was briefly mentioned in Part One of this report, and of course it has been referred to often enough since then. As will be remembered, the work of the Murray Committee helped to issue in a new era in university education in Australia, one characterized by the rapid development of both new and existing universities, the growth and diversification of student enrollments, and the unfolding of a greater awareness of the problems and opportunities facing the universities.

The Murray Committee proposed the creation of the A. U. C., and although this in itself was a great step forward, it tends to overshadow many of the Committee's other far-sighted and significant observations and suggestions. The Committee not only considered the more tangible aspects, needs, and problems of the universities, it also directed its attention to such vague but basic questions as what is the role of the university in the community? should a national policy on universities be formulated? and so on. In approaching these questions, the Committee was quite thorough and progressive. When discussing in its Report the role of the university, it did not stress unduly the usual "university-graduates-are-vital-to-the-economy" line of reasoning; rather, it presented a balanced picture which, if anything, emphasized the role of the university as guardian of and a force in the moral, cultural, and intellectual life of the total community. It also took the view that "universities have not only to teach subjects; they have also to be equipped to give young human beings an opportunity to stretch their mental powers and to learn something of their fellow human beings."[7]

> The Committee discerned the need for a closer attention on the part of the universities to development and policy planning: "Within each single university, also, it will be necessary to give consideration to the best method of forming plans and determining policies if the universities are to succeed in performing their proper functions. In the first place the world...is constantly changing and any university programme and policy demands constant review; building for the future undoubtedly calls for the best collective wisdom and prescience which a university with its wide variety of specialists should be able to command. In the second place, for many years to come, resources are likely to be insufficient for all the urgent needs, and it will be necessary to plan everything well and in the right order. At present, it seems to us, the universities have within themselves no very satisfactory planning or policy-making machinery."[8]

With similar sagacity the Committee also recognized that "university planning and policy-making call for a marriage of academic experience and insight with a knowledge of affairs and business good sense,"[9] implying, in effect, that participation of the broadest possible sort should be encouraged in arriving at a university's development plan or policy framework. Over and above this, the Committee observed that "... there is a irrefutable need for the development of a national policy for Australian universities... There must be collaboration, co-operation and coordination between the universities, the Commonwealth Government and the State Governments if unnecessary duplication and wastage of scarce resources are to be avoided..."[10]

In essence, the Murray Report came closer to being in itself a national plan for universities than any document before or since. It set forth goals and objectives, surveyed the problems, needs, and resources, suggested solutions and courses of action, and proposed the creation of the machinery -- the A.U.C. -- which could continue the national planning effort, coordinate university-level planning, and implement the Committee's own recommendations.

As a national plan it has displayed a measure of success: the A.U.C. was, of course, established. The Committee's plea for greatly heightened financial assistance for universities was heeded. Its recommendations supporting increased residential accomodation at universities have been accepted. Many, if not most, of the changes and new developments, both physical and academic, that have occurred during the last eight years on the campuses of Australia's universities owe their occurrence directly or indirectly to the efforts of the Murray Committee.

2:16 Organization and Generalized Functions of the A.U.C. The Australian Universities Commission is a statutory body of the Commonwealth Government organized within the Education Division of the Prime Minister's Department, and is immediately responsible to the Minister in Charge, Commonwealth Activities in Education and Research and ultimately responsible to the Prime Minister and the Parliament. The Commission consists of a full-time chairman and six part-time members appointed by the Governor-General.

As set out in the Australian Universities Commission Act (No 30 of 1959), the Commission's functions "are to furnish information and advice to the Minister on matters in connexion with the grant by the Commonwealth of financial assistance to universities established by the Commonwealth and of financial assistance to the States in relation to universities, including information and advice relevant to--

(a) the necessity for financial assistance and the conditions upon which any financial assistance should be granted; and
(b) the amount and allocation of financial assistance."

The Act goes on to stipulate that "the Commission shall perform its functions with a view to promoting the balanced development of universities so that their resources can be used to the greatest possible advantage of Australia."

2:17 Financial Functions and Procedures. The largest source of university revenue in Australia is the Commonwealth government, which contributes about 42 per cent of the total money spent. The individual states account for 36 per cent; donations and endowments, 8 per cent; student fees, 10 per cent; and miscellaneous sources, 4 per cent.[11] The amount and distribution of government grants to universities are established through a lengthy and complicated process conducted and coordinated by the A. U. C. and involving mutual consideration and agreement on the part of both the states and the Commonwealth. The grants, as eventually finalized, are of two types: recurrent and capital. The grants for recurrent expenditures are earmarked for administrative, academic, and research purposes as well as for salaries and the maintenance of the existing physical plant, and are made in accordance with a matching ratio whereby the Commonwealth makes available $1 for every $1.85 of state money. More related to planning and development are the capital grants, from which are met nearly all of the expenses related to the building program.* In this instance, the matching ratio is on a one-to-one basis. As a rule of thumb, total recurrent grants are about three times greater than capital grants.

As mentioned in earlier sections, these grants are made every three years, the university presenting their submissions to the A. U. C. nearly two years prior to the triennium in question. The submissions are reviewed by the A. U. C., and then, if necessary, altered. Eventually, if everything proceeds smoothly, the A. U. C. issues its report four or five months before the start of the triennium and approval is given by Parliament.

*By way of comparison, building programs at public universities in the United States are financed 55 per cent from government sources, 35 per cent is borrowed (especially revenue bonds), and 10 per cent derives from gifts and current funds.[12]

Table 7: Totalled Commonwealth and State Capital Grants to Universities, in Dollars, by Triennia

University	1958-1960	1961-1963	1964-1966
Sydney	$4 100 000	$5 800 000	$9 488 000
New South Wales	4 900 000	12 490 000	11 112 000
Kensington (main campus)			8 474 000
Newcastle University College (now autonomous)		breakdown unavailable	2 480 000
Wollongong University College (est. 1962)			158 000
Macquarie	--	--	4 200 000
New England	1 800 000	2 680 000	4 540 000
Melbourne	3 500 000	4 224 000	9 372 000
Monash	1 830 000	15 560 000	10 960 000
La Trobe	--	--	3 260 000
Tasmania	3 020 000	3 600 000	2 202 000
Adelaide	1 488 000	4 240 000	1 564 000
Flinders	12 000	150 000	6 550 000
Western Australia	2 270 000	4 800 000	4 342 000
Queensland	3 100 000	4 200 000	5 414 000
Mt. Gravatt	--	--	200 000
Townsville University College	--	200 000	1 560 000
A. N. U.	3 940 000	7 804 000	7 022 000
College Construction	2 400 000	4 000 000	4 800 000
Furnishing and Equipping	2 362 000	3 114 000	--
TOTAL	$34 722 000	$72 862 000	$86 586 000

Notes: Funds for furnishing and equipping buildings were made separately, on the basis of 5 per cent of the project costs, during the first two triennia. Starting with the 1964-66 triennium, these funds are included in the general grants. Grants for halls of residence are included within the general grant, while grants for colleges are listed separately. These latter grants represent twice what the Commonwealth offers, although more is probably spent but from private sources.

Source: The first and second Reports of the A. U. C.; figures from the research officer of the A. U. C.

With regard to capital matters, the submission takes the form of a building program, the preparation of which was covered in section 2:12. The program typically includes a list of projects arranged as to priority, accompanied by a very generalized sketch plan for each of the proposals, indications of the total area, location and siting, rough estimates of cost, and other pertinent information.

The A.U.C. has little to do with the actual compilation of the individual capital programs; this is left up to the universities. But as would be true in any similar situation, the universities invariably ask for more than they really imagine they will be able to get, and as a consequence, to assure the public that its money is being spent, if not wisely and well, at least not extravagantly, the A.U.C. set out first to determine whether or not these programs have been accurately portrayed by the universities; second, to designate which projects are absolutely indispensable and which can be delayed; and third, to administer various standards and review and approval procedures that are designed not only to accomplish the above tasks but also to bring about a more efficient implementation of the finalized programs.

Once the universities are given the go-ahead, they must submit as soon as possible to the A.U.C. both specific sketch plans for each project in the program, "developed to a stage which will show precisely the design of the building with all the sections clearly marked and the areas noted, together with a vertical section indicating the heights and number of floors,"[13] and revised estimates of cost, information as to building finishes, and other relevant details. All this is then reviewed once again by the Commission, with the assistance of the Commonwealth Department of Works, and appropriate action is taken. When final approval is given and the working drawings completed, construction of the project may begin.

2:18 Project Evaluation. To aid it in evaluating the costs of proposed projects, the A.U.C. has developed no sophisticated formulae or cost-control techniques, or at least none that are publicized or made known to the universities. Rather, it appears to employ the somewhat arbitrary system of comparing the costs of the project in question to the costs of similar projects proposed by other universities either in the same triennium or to projects built during previous triennia giving all too often only a cursory consideration to the locational variations in unit costs of construction or to the requirements of the particular situation. If comparisons with past projects are made, there arises the additional problem of how to accurately compare costs over time. Some universities take as a guideline a 3 per cent annual rise in costs; others assume a rate as high as 12 per cent. The A.U.C., however, has itself set no official estimate to assist either its own or the universities' costing procedures. This rather informal approach to project cost control and evaluation taken by the Commission has had the effect of creating as cost prototypes for future

projects, those projects that in the past cost least to construct. This may be quite a legitimate technique, but only if each such prototype is viewed not in cost terms alone but also as to appropriateness and quality of design. And the cost itself should not be expressed solely as a total; it must be broken down, each element being considered separately.

The University Grants Committee in Britain, after which the A. U. C. was modelled, has set a maximum cost allowance for the construction of various types of facilities, above which no university may go. Formally, at least, this has not been done by the A. U. C., and perhaps it is just as well that it hasn't. Only in existence for eight years, the Commission probably still lacks the experience and a sufficiently broad base of information necessary to establish or administer such a system. When more has been done towards reaching a better understanding of university building costs in Australia, the A. U. C. may see fit to adopt such a policy. Whether doing so would help or hinder matters is open to question.

A related technique used by the University Grants Committee has, however, been adapted to the Australian scene by the A. U. C. This is the use of recommended scales for accomodation whereby areas in square feet on a per person basis are suggested for staff offices, lecture theatres, seminar rooms, drawing studios, science laboratories, and departmental libraries. The Commission notes that these scales may be varied to suit special circumstances or conditions of a particular form of construction or modular plan system adopted for a building, but to do so requires the presentation of a powerful case by the university.

The A. U. C. has devised other standards and criteria in an attempt, on the one hand, to make more systematic and equitable the grant-giving process, and, on the other, to keep expenses at a minimum: Central heating and air-conditioning are restricted to certain building types or to certain geographic areas. Design concepts, room sizes, minimum facilities, and permissable cost per student place have been suggested for colleges and halls of residence. Other standards no doubt exist but are informally made known to the universities by the A. U. C. and are not specifically set down in written form.

One critic of such cost and quality control procedures has described the universities as "the cheapest-and-nastiest big builders in the country," going on to lay the blame on the A. U. C. whose "... costing no longer allows plastered internal walls, reasonable sound-proofing, durable low-maintenance finishes, efficient heating or cooling, except at the expense of each other, or at the expense of smaller buildings than were needed, planned and approved. Beyond these elementary necessities it flatly prohibits most architectural imagination,

most possibilities that our universities might be visible objects of pride."[14]

The usefulness of design and cost standards, controls, and guidelines is dependent upon both the level at which they apply and the purpose for and the manner in which they are devised. Neither should they be so restrictive that innovative and original solutions are discouraged or architectural incentive stifled, nor should they be so loose and general that no effect is gained by having them. At the national level, they must offer sufficient leeway to permit each university to develop its own campus image and sense of place; while at the university level, they must be definite enough to help in establishing and reinforcing these campus qualities.

2:19 Other Functions Related to Planning and Development. One by-product of the A. U. C.'s job of recommending triennial grants is the accumulation of data. To make its decisions and to formulate its policies, the Commission requires from the universities certain facts and figures, many of which eventually appear in the A. U. C.'s triennial reports. Before the establishment of the Commission, this data was largely unavailable on a national scale. This growing body of information serves not only as a basis for the determination of grants, but it is also, for comparative purposes, useful to the individual universities for their own planning activities. Unfortunately, though, too little has been done in the way of standardizing or analyzing this information, or making it conveniently available to the universities or interested persons. In fact, the research function of the A. U. C. as a whole has not been given the attention that it deserves. Certainly too, more could and should be done on an experimental basis, academically, administratively, and architecturally. Case studies dealing with current planning problems in Australia could be of great use to the universities, as could periodic newsletters, etc., describing new techniques or approaches related to development.

Like the universities themselves, the A. U. C. is too involved in the demands of short-range problems and deadlines to give appropriate thought and consideration to the equally-significant but less tangible and immediate problems of the long-range future. It may try to encourage universities to take the long view, but its own level of success at doing so offers no additional inducement. Some argue that the A. U. C. does think in long-range terms, the proof being that several new universities have been established in the last four years. This would, however, be overlooking the fact that they were established well after the demand for them was amply demonstrated and thus had to be planned and developed--as they still are today--on a rush schedule.

The best that the A. U. C. has been able to do in considering the long-range situation is represented by the work of its specially-formed Committee on the Future of Tertiary Education in Australia (The Martin

Committee). The Committee directed its investigations at a larger problem--all forms of tertiary education--than did the earlier Murray Committee, which only considered university education. Reporting in 1964, the C Committee made two controversial recommendations: one, that growth in tertiary enrollments should be channelled to a greater degree into the non-university sector; and two, that the A. U. C. should be expanded to include consideration of all tertiary institutions. The latter recommendation and some of the supporting recommendations that would have helped to accomplish the former, were not accepted. In dealing specifically with the universities, the Committee had little to say in their report regarding physical planning or development matters, much less presenting any form of a national plan. It did include some enrollment estimates up to 1975, and it devoted a page or so to the recurring question of what is the optimum size for a university ("...universities may be faced with difficulties inherent in their size if student numbers are less than about 4, 000 or more than about 10, 000"[15]). One important but belated conclusion noted that "the planning, erection and maintenance of buildings require the full-time attention of a senior administrative officer."[16] Although few recommendations of the Committee had direct significance for campus planning and development, many did have implications. Unfortunately, the Committee failed to properly recognize or amplify them in their report, and so what is perhaps an admirable effort for tertiary education as a whole, is a disappointment for universities alone.

2:20 Standardization versus Diversification. Many persons have expressed apprehension as to what eventual effect the A. U. C. and growing centralized control may have on the way universities look and function. With an increasing reliance being placed upon costing, size, and building standards, coupled with the Commission's widening experience and confidence in administering them, these fears may be justified. As explained by Professor Denis Winston:

> "One of the dangers of the activities of the Australian Universities Commission...is that, being aware of the total demands of all the Australian universities, the shock of the large sums of money involved may encourage the application of rigid standards by which a laboratory, a lecture room, or a professor's study are calculated down to their minimum size, finish and furniture, and the result applied from Western Australia to Queensland: in that case our universities will become more like army cantonments than centres of spiritual and intellectual nourishment. Rationalisation and rationing there will have to be: but let them be on the higher levels of overall policy and not on the detailed arrangement of departments."[17]

Academic standardization, on the other hand, is certainly a fate just as important to avoid as architectural standardization. But is it, in fact, being avoided? Another noted academician questions:

> "...should we expand our provision for higher education mainly by expanding our present institutions and by multiplying institutions of the same type, or should we try to build up a greater variety of institutions with their different and specialized functions? ...Should we continue our practice of keeping all our universities generally uniform in character and standard or should we, like the Americans, develop universities and colleges with different characters and functions, and reaching different academic and intellectual levels? ...as we get more universities...they should be encouraged to diversify their functions to some extent and to specialize, with different universities giving different degrees of emphasis to different functions."[18]

It would appear that the A.U.C. holds this same view: The Martin Committee remarked that "It may be neither wise nor necessary for new universities to attempt to cover the whole range of courses. As the number of universities within a state grows, specialization of function rather than duplication might be a desirable goal."[19]

Despite such publically-voiced observations and criticisms, academic diversification is slow in coming. Hopefully, Macquarie, Flinders, and La Trobe Universities will offer new opportunities, approaches, and attitudes that will have the effect of changing this situation for the better. And if academic diversification occurs, it is likely to have the additional effect of lessening architectural standardization: Different academic and administrative systems can imply different physical elements, arranged differently and looking differently. But what eventually happens is largely up to the A.U.C. and the nature of and manner in which they apply their policies and standards, guidelines and criteria. If any single interest or group is in a position to influence what Australian universities will look like or how they will function in the future, it is the A.U.C.

2:21 Other Criticisms. Many of the criticisms levelled at the A.U.C. have been previously mentioned or suggested: the lack of a suitable research program; the over-attention to short-range concerns and the consequent under-attention to long-range objectives, goals, policies, and plans; and the trend towards standardization and its effect upon design. Those at the university level such as the planning officer who must deal often with the A.U.C. are naturally quickest to criticize the various aspects of communication between themselves and the Commission: the approval and review mechanisms, the paperwork, and the red-tape. Some are of the opinion that the A.U.C. does too little, others say it does too much; but the one criticism and failing mentioned universally by all regards time: As now organized, and as earlier described, the system of triennial capital grants requires the universities to make estimates of the cost for each project included in their building program. These estimates are made two or more years before the triennium in question commences, and since after A.U.C. approval each project must be further planned to a final "working drawing" stage, it may be up to five years before the project is actually constructed. Not only is this an often unnecessarily long

period to wait, but the project is all along based on the original estimates. Of course, these estimates made by the universities are only approximate, but they are not always treated as such by the A. U. C. And although both make attempts at it, neither the universities nor the Commission has developed any accurate or acceptable means of adjusting these estimates to changes in building costs over time.

It has been suggested by one university administrator that an improvement in the system might be initiated by dissassociating "the building programme completely from the triennial estimates" and undertaking it separately along some other more satisfactory lines, an alternative already in practice in the United Kingdom.[20] The A. U. C. has recognized the existence of these problems and has tried to partially clear them up by permitting the universities to plan through the "working drawing" stage the two highest priority projects contained in their program, before the program is, as a whole, approved. This has the effect of letting the universities start construction immediately after the triennium gets under way, rather than being obliged to spend another few months or a year in the final planning stages. This may help the situation somewhat, but other alterations in the standard procedure are still warranted.

The most significant criticism, however, comes to the surface when the success of the A. U. C. is questioned. That it fulfills its functions as a dispensing authority for Commonwealth financial aid with at least some administrative success is admitted, although with certain reservations, and that it "has led universities to inquire more closely into the functioning of their physical plant, "[21] even if on a short-range basis, is also evident, but as to whether or not it plans--using the most comprehensive meaning of the word--the appropriate answer must be : "yes, but not nearly as well or as thoroughly or as progressively as it could or should." How or towards what objectives the A. U. C. will direct itself in the future is unknown, but its efforts will be wasted and its accomplishments diluted if its perspective and outlook are not widened and extended.

Part Three: THE AUSTRALIAN CAMPUS - ITS CHARACTERISTICS, PROBLEMS, AND OPPORTUNITIES

Chapter One: The Campus and the Community

3:1 Campus Age, Size, and Location. The age of a campus, its size, and its location are three inter-related factors that go a long way in explaining many of the features, design concepts, and problems characteristic of Australian universities and their campuses. In most cases, the newer campuses are further from the central city and are on larger sites, and generally the larger the site the more dispersed the campus development. These three factors have a definite connection with or a determining effect upon such other soon-to-be-discussed elements as accessibility, the forms of development surrounding the campus, neighborhood relations, campus design, and the housing and automobile problems.

The following table should provide an adequate summary of these three factors.

Table 8: Campus Age, Size, and Distance from Central City

University	Approximate age of campus in years	Size of campus in acres	Approximate distance from central city in miles
Sydney	110	167	2
Melbourne	110	86	1
Adelaide	90	33	less than 1
Western Australia	50	148	4
A. N. U.	35	315	less than 1
New England	28	903	$2\frac{1}{2}$
Queensland	18	247	$4\frac{1}{2}$
New South Wales	18	95	6
Tasmania	10	250	3
Monash	5	250	12
Flinders	1	350	$6\frac{1}{2}$
Newcastle	1	235	6
Macquarie	due 1967	332	11
La Trobe	due 1967	500	8
Townsville (new campus)	due 1967	640	7
Mt. Gravatt	?	406	6

Note: Acreage is for main campuses only, including residential areas (except in the case of Adelaide which also excludes playing fields). Substantial development at the A. N. U. did not begin until about 20 years ago, although the campus site was allocated earlier.

Source: University and A. U. C. reports, interviews, and city maps.

3:2 Accessibility. Australian universities are commuter universtities. Students or staff members living on or near the campus are the exception rather than the rule. With most Australian universities located in large metropolitan areas, throughout which the campus population is residentially distributed, the daily journey to and from the campus takes on an added measure of importance. Rarely is it a matter of walking across the street to classes; most students and staff members must spend a great deal of time, money, and effort to get to the campus each day. Consequently, a campus should be located where it will be as easily accessible as possible to all who wish to use it. If, like Brisbane, Hobart, and Perth, a city has but one university, it

is best located centrally if accessibility alone is the criterion (as it turns out the universities associated with these three cities are not centrally located). If, on the other hand, a city has one or more existing universities, as do Sydney, Melbourne, and Adelaide, an additional campus may be better placed in a suburban or other less central location. This presumably is the reasoning which led, in part, to Macquarie, La Trobe, Monash, and Flinders Universities being located where they were. Such reasoning, however, is based upon the assumption that students, if they plan to commute, will go to the university closest to their home. This, to a degree, is a misguided assumption in that it presupposes that all universities in one metropolitan area will be the same, giving or specializing in the same courses, having the same traditions, and offering the same advantages. It is true that Australian universities are quite similar to one another in many respects, but they are not that similar.

The modes of transportation utilized by the commuting campus population have much to do with determining accessibility. If public transportation must be relied upon, as it is by most, maximum accessibility implies centrality. For those using private transportation, i. e. cars, the traffic congestion and parking problems characteristic of a centralized location may well make a decentralized location more assessible in terms of time even if not in terms of distance. Because of their dispersed locations, the new campuses are and will be more dependent upon the automobile for their accessibility. Fortunately, this has been recognized and provision for adequate parking and road systems have generally been made in the planning of them; whether or not their dependency upon the car is a good thing in itself is another question altogether.

A university should not, however, be accessible only to its students and staff members; perhaps equally important is its accessibility, both physical and psychological, to the general public. A campus should not turn its back on the world outside. It should be used or at least penetrated and seen by as many people and for as many reasons as possible. Even the most accessible campuses in Australia tend to be nine-to-five, five-day-a-week operations. This represents a terrific waste in terms of physical plant utilization and an unfortunate oversight of the many potential opportunities that must exist for greater campus usership. It will be interesting to see if such campuses as Townsville and Flinders will be able to escape from this pattern: It would seem that they are just a little too far out, a little too inaccessible, to naturally and easily become active components of the cultural and social life of their respective communities.

3:3 Campus Neighbors. Like any other land use element, a university campus affects and is affected by the uses and activities that surround it. The interrelation and interdependency existing between campus and environment does, of course, vary from university to university: In some cases it is often difficult to tell where the

university ends and the non-university begins; while in others, there are stone walls or iron fences to clearly define the boundary. But the relationship is not purely physical; the campus may generate human interaction or it may have a spiritual effect, an atmosphere or a way of life that will often overspill its borders.

The relationship between campus and environment in Australia is interesting because it is almost non-existent. If one were able to pluck up and carry away any of the campuses, it is quite conceivable that nothing would remain to suggest that a university had once been there. Even if a wall or a fence does not exist, the boundary between campus and non-campus is just as sharp and clear. It seems a pity that no university communities such as those which have grown up around Harvard and Berkeley, Oxford and Cambridge are to be found in Australia. Even restaurants or pubs catering to students and staff members are rarely if ever seen close to a campus. In short, there is yet to be spawned the sort of campus-oriented commercial, cultural, and social activity and uses that are characteristic of and indeed necessary to many of the overseas' universities. It should be obvious that similar development is both desirable and needed in Australia.

The insularity of Australian universities and the absence of campus communities is thought by many to be only temporary, a situation which will change for the better once the universities grow larger and older. This explanation, however, overlooks the fact that Sydney and Melbourne are both larger in student enrollments than Oxford, Cambridge, or Harvard, and are older than Berkeley. Instead, the underlying cause goes back again to the non-residential nature of Australian universities. If most students and staff members are commuters, a campus community is not going to be an easy thing to create. But to this should be added that much more could be done in this direction than is being done now. The universities themselves are not alone to blame, but they could provide the incentive and leadership that is needed to make a start.

There is, however, more to the campus-environment relationship than just the stimulation--or lack of it --of commercial, cultural, and social activities. The way in which the local residents and businessmen view the university, and vice versa, and the dealings between them, are of great significance. "Town and gown" relationships can often be quite tense and bitter, marred by mutual distrust and absence of understanding; or conversely, the university and its neighbors can work together in a somewhat harmonious manner to further and reinforce such common objectives as neighborhood development and renewal, more and better public transportation and services, better police protection and traffic control, recreational facilities, and so on. Cooperation along these lines has been all too rare in Australia and never ambitious enough, but surely the need for it exists and there is no reason to think that it would be impossible to arrange.

Town and gown cooperation has often proved successful in the United States: The University of Chicago, the City of Chicago, and the residents and various groups in Hyde Park and Kenwood, where the campus is located, have together produced an improvement plan for the university neighborhood, which has already had the effect of clearly upgrading the campus and its environs. The West Philadelphia Corporation, a joint undertaking of two universities (The University of Pennsylvania and Drexel Institute) and three hospitals, and involving numerous local citizen groups, was formed for the purpose of coordinating planning and expansion programs and implementing neighborhood improvement. Probably the most ambitious of these efforts is the University Circle Development Foundation in Cleveland, which is now guiding and integrating the expansion plans of its 34 member institutions.

Examples such as these have certain implications for Australian universities, especially Sydney and Melbourne, both of which are situated in downtown areas that are ripe for renewal. If these two universities were to actively cooperate with the institutions, groups, and citizens in their neighborhoods, many of the problems common to all could be more actively and smoothly faced up to and solved. Such cooperation would certainly be a prerequisite to developing pleasant and lively environments in which students and staff members of both universities would be more anxious to live and spend their time.

The University of Sydney has been dealing with local businessmen and residents regarding the campus extension area, but mostly on matters pertaining to property acquisition and the resettlement of displaced persons and businesses, rather than in an attempt at coordinating University, private, and public efforts at planning and development. In fact, the necessity for barbed wire fencing around some of the completed buildings in the extension area is a sad comment on the prevailing level of town and gown relations. One group that is at least trying to foster understanding and communication between the University and its neighbors is the Sydney University Settlement, a non-political, non-denominational organization founded in 1891 as an attempt at bringing the University into a closer relationship with the poorer and congested areas surrounding it. The activities of the Settlement revolve mostly around the neighborhood center it operates near the extension area.

An exciting opportunity exists for the University of Melbourne to become more active in local affairs and community development: The adjacent Carlton Development Area may well become the object of the first real urban renewal project in Australia. A 30 acre portion of this area is slated for campus expansion. It would appear to be a wise move on the part of the University if it were to mobilize as many groups and interests as possible to help in the rehousing problems and even the planning itself, and not just with regard

to its own 30 acres but for the project as a whole.

Generalized Characteristics of Environment around Australian Campuses

Sydney: very poor; mixed densely-developed industrial, commercial, and residential uses.
Melbourne: fair quality residential to north and west, but poor quality industrial and residential to the south and east.
Adelaide: excellent surroundings although densely developed: government and public buildings, offices and stores, parkland, river frontage.
Western Australia: pleasant residential area; river frontage on one side; parkland close by; some commercial.
A. N. U.: lake frontage on two sides; hospital, public buildings, some residential uses; civic center close by.
New England: no development close by, all open or forested.
Queensland: river frontage on three sides; better residential area of Brisbane: one small commercial center nearby.
New South Wales: poorer quality residential area with some commercial uses.
Tasmania: better residential area of Hobart; wooded open space behind campus, harbor in front.
Monash: located in outer suburban development; no commercial uses close by.
Flinders: new suburban development surrounding campus; some new industrial uses nearby.
Newcastle: suburban development; golfcourse; school.
Macquarie: exurban development; scattered residential; garden farming; no commercial uses.
Townsville (new campus): no nearby uses at present; all forested land.
Mt. Gravatt: suburban development and open space.

Chapter Two: Some Observations on Campus Design

The design of a campus may be viewed in terms of structure, form, and style. Structure refers to the

functional and physical patterns of campus activities and land uses; form involves the "perceptual quality or collective identity of the campus," the manner in which buildings relate to the site and to each other; and style concerns the characteristic architectural expression and quality of the campus buildings.

3:4 Structure. A university provides a setting for academic, administrative, residential, social, recreational, and cultural activities, all of which imply a usage of and a demand upon campus land and buildings. These land uses and the circulation system that ties them together constitute the campus structure.

At each Australian university, a structure has either been planned or has developed that is a reflection of the interaction and interrelation that exists between these activities and land uses. Although some aspects of campus structure are universally accepted as either desirable or undesirable--there would, for example, be no rational motive for siting a sports stadium in the center of the campus--the correct and proper handling of others is less obvious and more dependent upon such factors as the university's academic program, the characteristics of the site, the size and location of the campus, and so on.

The task of categorizing the structures of Australian campuses is made more difficult by the factor of age. As would be expected, the newer universities and those which have yet to open their doors are characterized by a structural clarity not generally found at the older universities. The complex land use patterns of such campuses as Sydney, Melbourne, and Adelaide result, in part, from insufficient efforts at long-range planning during and preceding the spurt of development following the Second World War. Instead of reinforcing and extending their original structures, these universities altered and weakened them by indiscriminantly tacking on additions to existing buildings, by locating new buildings in conflicting use areas, and by generally concentrating on the parts of the campus without thinking much about the whole.

This relative clarity of the new campuses will hopefully remain intact well into the future. The chances of it doing so are probably better than ever before. This optimism grows out of the fact that the campuses being planned today are structurally more flexible and reflect a more realistic and farsighted perspective, especially with regard to the accomodation of future expansion, than campuses planned and built just a few years ago. And in addition, having larger land areas, the new universities are in a better position to deal effectively with unexpected changes and space demands. Consider, for example, the differences between the University of New South Wales and Monash University: They were established only thirteen years apart from one another, the former being the last of the Australian campuses to develop from the out-set unguided by a

major planning effort, while the latter was really the first to do so. At Monash and those universities planned since--Flinders, Macquarie, La Trobe, Newcastle, the new Townsville campus, and Mt. Gravatt--the campus land uses and activities have been arranged, on paper at least, in such a way that the structure hopefully will be extended and strengthened rather than disrupted by currently unforseen expansion demands. New South Wales, however, has what is perhaps the most inconsistent structure of any campus in Australia. The land use pattern appears to reflect few of the natural relationships implied by campus activities: The union is at one end of the site, the library at the other, and most of the other uses are scattered about with more randomness than rationality. And all its present failings are compounded by a type of building development ill-suited to and a site far too small to handle the University's goal of a 25,000 student enrollment. Although New South Wales is an extreme case, the other older campuses are structured in a fashion approaching the same level of disorganization. Of course, this has not always been the situation: In their original and earlier forms, the structures of such universities as Melbourne and Queensland were quite orderly and perceptible. The land use pattern of Melbourne was really very rational: residential colleges sited in a crescent-shaped area, within which were playing fields, all adjacent to the academic area and with the union facilities in the center. Even today much of the basic concept remains, despite the fact that its original sharpness and functional clarity have since diminished. The same can also be said of the Queensland campus, although unlike Melbourne it never did have a rational structure, only a very rigid one. As initially planned and built the campus was essentially a building group sited to form a large "D:" how one goes about successfully expanding and reinforcing a closed structure such as this is a development problem that has been facing the University ever since.

What most of the new universities have accepted as their underlying concept and what the older universities are either striving for or are envious of, is a generalized campus structure composed of a "center" (union, library, great hall, administration), around which lies the academic area (faculties and departments located so as to reflect potential interrelations), surrounded by residential uses, parking, and sports facilities, encircled by a ring road circulation system leaving the inner precincts car-free for pedestrian use. La Trobe, Townsville, Mt. Gravatt, and Flinders all reflect a pattern broadly similar to this.

The concept of a campus center as a vital structural element is currently in vogue amongst universities and justifiably so. In the past little notice was taken of how and where the non-class time of students is spent, and certainly the provision of facilities for extra-curricular activities, entertainment, eating, gathering, and so on was minimal. Now it is realized by most that the time out of the classroom is no less valuable than the time in. As put by Professor Denis Winston:

> "Perhaps the most important things of all to plan for are the unessential things: lecture rooms, and laboratories will be provided one way or another, it is the common rooms and coffee shops, staff and students' club rooms, reading spaces, dining rooms, and sports facilities of all kinds that are likely to be given second place; but these are the things that turn a vocational training centre into a university."[1]

Not only is it vital that such things be provided, but it is also right that they should constitute the "central heart or focus" of the campus, the most accessible spot, as it is in and through these facilities that the maximum amount of interaction and cross-fertilization occurs. Of the Australian campuses now open to students, Flinders is developing what will probably be the most successful physical campus center to date, although more time will have to pass before its functional success can be ascertained. La Trobe offers an interesting variation in that its campus center will not include union facilities, only the library and shared lecture theatres. The individual colleges, which will have as residential or non-residential members all students and teaching staff, will assume those functions ordinarily fulfilled by a union. It seems doubtful, however, that this system will work as well as its creators imagine it will, unless in addition an informal centralized meeting place for <u>all</u> students is as a minimum step incorporated into the plan.

The older universities are at least providing the space and facilities for these non-classroom activities, even if no physical or functional center is created in the process. The University of Sydney, for example, has no one building, group of buildings, plaza, or what have you that is considered by all to be the center of campus activity. But the University has in some form or another most of the facilities usually associated with such a center, although they are scattered far and wide: Three unions and a library, none of which are really very close to one another.

Academic uses, the largest structural component of a campus, are or should be arranged so as to encourage and take advantage of the natural relationships that exist between certain fields of study. Broadly, this usually means that academic uses of the science and technology variety are best placed in one area and those of the arts-humanities-social science variety in another, with most interaction and interchange of students and staff members occurring within rather than between each of these two groupings (Macquarie University, with its emphasis on inter-disciplinary course work, may present a different pattern once under way). At the older campuses, academic uses have over time been mixed freely together, apparently little respect being paid to the inherent compatibility or disparity characterizing certain disciplines. At the newer post-1960 campuses, there is quite a rigid separation of the two major groupings. The typical pattern involves the science-based faculties or schools being separated from their arts-based counterparts by the campus center

and perhaps an open space element. This essentially describes the situation at Monash, Flinders, Macquarie, La Trobe, Townsville, and Mt. Gravatt. The University of Sydney, among others, is now attempting to consolidate its academic structure along precinctal lines. Each precinct is loosely defined by the location of the existing buildings of the various faculties. The precincts will now be planned as units and strengthened to produce a single identity or image. Similar design, materials, colors, etc., may eventually mark each precinct, while unity and harmony may be further encouraged by commissioning a single project architect to design most or all of the new buildings in each precinct. A parallel procedure is now followed by the A. N. U.

Residential uses also constitute an important ingredient of the structure of a university campus. Despite the commuting nature of the majority of Australian universities, residential uses still represent a sizable portion of the total land uses. Because of their large land requirements, the need for privacy and quiet, and their specialized and low-frequency usership, colleges and halls of residence are best located at the periphery of the campus. This is the prevailing pattern at all Australian campuses although variations do exist: For example, the residential area of the University of New South Wales is probably the least peripheral of any campus, while the major college area of the University of New England and the scattered colleges of the University of Adelaide are peripheral to the point of being inconvenient. On the whole, however, the residential areas of Australian campuses are more homogeneous and clearly-defined than the other structural elements of the campus.

Circulation channels, both pedestrian and vehicular, are the links through which the campus structure is unified. It is now considered important and desirable to keep vehicular circulation to a minimum within the main campus, limiting it entirely, if possible, to an outer ring road, and to encourage and make provision for pedestrian circulation within the campus proper. This concept is most clearly seen in the plans for La Trobe, Flinders, Townsville, and Mt. Gravatt, all of which have ring roads and peripheral parking facilities. Of the older universities, only Western Australia has been able to adapt partial elements of this concept to its existing structure: A good portion of the campus is now served by a ring road and the central area of the campus is now a pleasant and effective pedestrian precinct. At the other end of the spectrum is the University of Sydney, which has had the least success at separating cars from pedestrians and has suffered the most by not doing so.

As new campuses are being planned and developed in Australia, it is interesting to observe the trends that are occurring with regard to structure. The newer universities are receiving larger and larger tracts of land for their campuses, and the larger the site the more pronounced is the tendency to spread the campus struct-

ure out over a larger area. There is functional and physical limit to how far this dispersal should go. A common standard is that the distance capable of being covered in ten minutes by walking should be the maximum diameter of the central campus, in other words about 1, 600 feet. But many new campuses have exceeded this rule of thumb: Townsville and Mt. Gravatt have facilities located as far away as half a mile from the center point of the campus. The development densities of Monash and Flinders are more sensible and as a consequence they present a strong and clear design image as well as functioning more efficiently. By spreading a campus structure over too wide an area, a university may, in effect, be limiting its development potential: Once a dispersed structure has been established it is difficult to alter its direction or extend it in the face of unforseen expansion demands, or at least difficult to do well. Unity and imageability are likely to be sacrificed also. Poorly-handled dispersal is probably seen at its worst at the Australian National University; expansion has been accomplished through structural in-filling with the result being disparate architectural styles, clashing functions, confusion, and disorientation.

3:5 Form. Whereas structure refers to the location and interrelation of campus land uses, form concerns the physical buildings and supporting elements that reflect the structure, how they relate to one another, and what their image or perceptual quality is when viewed as a whole. As pointed out by Richard P. Dober, "This can be readily grasped if one thinks of campus form in terms of a series of abstracted opposites such as: vertical versus horizontal; unified versus decentralized; integrated versus insulated."[2] In this context, then, form, like structure, is in part dependent upon the age, size, and location of the campus. The older universities on smaller urban sites tend to have, because of insufficient space, more vertical, densely-developed, and integrated campuses than the newer universities with campuses on larger suburban or rural sites, Melbourne is the most vertical of the campuses, several of its buildings approaching or exceeding ten floors in height. Adelaide has the highest building density by far and has now started to develop high-rise facilities. Of the older campuses, the least vertical is the University of New England. The major exception to the horizontal-vertical pattern is Monash University, the focal point of which is the monolithic twelve story Menzies Humanities Building. Nonetheless, the vast majority of university buildings in Australia are without lifts and thus are limited to a height of two or three floors above the entrance level.

Verticality can serve to strengthen form by giving the campus a visual center point. One building of university-wide significance rising above all others has the effect of focusing attention on the campus; it can become a symbol of the university, a campus and a city landmark. Winthrop Hall at the University of Western Australia, the Main Building at the University of Sydney (although less so now), and the Menzies Humanities Building at Monash are the most obvious examples. The same effect can often be created by stressing horizontal elements as well, this being illustrated by the Main Building of the University of Queensland.

But more important than the contribution of single elements to the whole is the whole itself. Form cannot be created and supported just by the qualities of a great hall or library. The indispensable variables and factors that do much in determining the form of a campus and its quality include scale, the siting of buildings, and the treatment and nature of spaces. The scale should neither be excessively overpowering nor unperceptible or inconsistent. The shape of buildings and the way they are sited must add to rather than detract from the surroundings and the total campus effect. Spaces between buildings must be considered as no less important as the buildings themselves. And the final success or failure of the form of any campus is dependent upon the handling of such unifying and reinforcing elements as landscaping, walkways, street furniture, and so on.

If developed as planned, Flinders University is likely to have the most interesting and unified form of any Australian campus. Distinguished by informal but organized groupings of often inter-connected buildings that are well sited on a crescent-shaped ridge, the campus when completed should present a highly-pleasing and harmonious whole, especially when viewed from a distance. The use of courtyard buildings and their staggered rather than geometric siting should produce a variety of delightful open spaces, shapes, and views, as well as giving freer rein to expansion alternatives.

The form that will probably result at La Trobe is quite the opposite of Flinders. As shown by the site plan, admittedly somewhat diagrammatic, the solution accepted by the University is more ordered and geometrical than that pursued by Flinders. Whereas the Flinders campus is informal and fluid, La Trobe is formal, precise, and balanced. In all likelihood, the greatest problem that La Trobe will face is how to establish and maintain these qualities without sterilizing the effect.

The campus forms of both Townsville and Mt. Gravatt, as implied by their development plans, will be quite similar: informal decentralized siting of individual buildings with little or no building-to-building relationship in an architectural sense. To produce a university in a natural park-like setting is the stated aim behind the planning of both campuses, as it was and still is at the University of New England and the A.N.U.

The campus form of Monash University is interesting not just as a result of its juxtaposition of tall and low buildings, but also in the way the science area has been treated. It is a lineal grouping of two and three-storied buildings, through which runs a connecting covered walkway. There is nothing outstanding about the individual buildings, but the overall effect of unity, space, and organization created by their siting and by the spine that connects them causes the whole to become much more impressive than the sum of its parts.

3:6 Style. Design style, "as it pertains to the collective identity of the overall campus," may be classified as either homogeneous or heterogeneous. The former implies an architectural consistency, an ordered and formal layout, a repetition of certain materials and details, while the latter implies a varied architectural treatment, an informal and often confusing layout, a great range and contrast of materials, shapes, colors, and details. A heterogenous style is by far the most common because it is what usually occurs naturally when planning is at a minimum or when a campus is developed slowly over time, as most are. This is not to say that heterogeneous campuses are inferior or are incapable of being well-planned or pleasant places; on the contrary, often it is just the opposite as such heterogeneous campuses as Oxford, Cambridge, Harvard, and Yale serve to prove. A homogeneous style usually is possible or desirable only when a campus is developed to its limit in a very short time, a matter of a few years. The constant changes and innovations that characterize building techniques, architectural movements, construction costs, availability of materials and craftsmen, and other similar factors, causes the rigid pursuance of a homogeneous style over long periods of time very costly and difficult. Consequently, it is a design objective more suited to small universities or to individual precincts of a larger campus.

In Australia, all campuses are stylistically heterogenous, some, of course, more so than others. The one possible exception to this generalization is Flinders University, which has, at present at least, a homogeneous quality in as much as all existing buildings have been the work of one architect and hence there is a consistency and a repetition of design. It is still too early to say whether or not La Trobe will be homogeneous or not, although the potential for it to be so does exist. In their infancy, when building development was a slow and carefully-considered affair, the older universities had campuses which were much more homogeneous than the same campuses are today. For many years the University of Sydney campus consisted of the Gothic-revival Main Building-Great Hall-Medical School complex and not much else. The saddest example of purposely trying to impose a homogeneous style upon a campus is afforded by the University of Queensland. Even now, over twenty years after construction began, the aforementioned D-shaped grouping of sandstone buildings that consitutes the dominant campus element remains unfinished; and as a result of the very high costs involved in repeating the original building types, the remaining building necessary to complete

it is now being designed in a different although probably compatible style.

Largely as a consequence of the burgeoning post-war enrollment demands made upon the universities and the concomitant pressures for physical plant expansion, the necessary new construction has had to be both speedy and inexpensive. This has had the effect of making prohibitive the duplication of the existing more traditional building designs. But this in itself is not the cause behind the generally cluttered and disharmonious array of styles found at most Australian campuses; the cause may instead be traced to an unsympathetic respect for and attention to the qualities of existing buildings during the designing of new buildings. Except for the University of Western Australia, which has managed on the whole very well, no Australian university has successfully blended its newer buildings into the existing framework of its older buildings. Colors, and materials clash; shapes show too little relation to one another; buildings detract rather than add to the environment. Stylistically, nothing seems to "hang" together; no complete and easily-perceived image is expressed. The new and the old styles fail to complement one another, and thus they both suffer irrespective of their individual quality or excellence.

In an attempt to better blend the old with new, and to strengthen campus form in general, most Australian universities have established certain broad design standards. Typically, these might include for the architect's consideration the university's judgments as to acceptable materials, colors, textures, fenestration patterns, roof profiles, or details such as lighting, floor coverings, hardware, and so on. These attempts represent a step in the right direction, but they are only guidelines and certainly in no way guarantee architecture of quality and sensitivity.

Unfortunately still very much in evidence at many Australian campuses is that uninspiring architectural style "gerry-built temporary." Although many have since been demolished, these wood, fibro-cement, or corrugated-iron sheds, shacks, and buildings, originally put up to provide temporary office and teaching space at a time when campuses were first developing or during periods of rapid expansion, all too often have become more permanent than the "permanent" facilities. Some have been standing for decades. Obviously such structures, inevitably unsightly and unsafe, detract from the form and style of the remainder of the campus. The problem posed by these buildings is greatest at the Universities of Tasmania and New England, and it is not altogether absent at the Sydney, New South Wales, A. N. U., Western Australia, or Queensland campuses.

3:7 Reinforcement. Campus structure, form, and style are not qualities exclusively reflected in, dependent upon,

and involving land uses, buildings, and circulation channels. The forcefulness, clarity, and total effect of these qualities and the campus amenity they create may be reinforced, altered, and made better or worse by the nature of the landscaping and by the use made of such street furniture and elements of "campuscape" as benches, light standards, and signs. The value of and need for a more judicious consideration by Australian universities of such supporting elements has not as yet received the recognition that it deserves. As put by Professor Denis Winston:

> "With austerity in the buildings and a variety of architectural forms arising from different functional requirements and the different philosophies of their designers, the most important element remaining to unify and humanise the university environment, to enclose the open spaces and hide the hot glitter of cars and car parks, is the element of landscape design, the skilful use of trees and shrubs and the choice of materials for footpaths, paved courts, steps and balustrades; and then there are all the notice boards, direction signs, seats and similar furniture that add up to so big a part of what we see. Careful design and placing of these smaller elements, intelligent overall handling of the landscape, and the proper care and maintenance should be major items in any university programme of development."[3]

Landscaping can be effectively used not only to compliment and set off the campus architecture but also to give direction and continuity to pedestrian and vehicular circulation channels and to help in creating campus precincts that have character and spatial identity. Some of the better Australian examples of this use of landscape include the entrance drives of New England and Melbourne, University Avenue on the A.N.U. campus, and the marvellous planting in the Great Court of the University of Western Australia.

One aspect of landscape design worth mentioning is the use of water: Many of the new universities have planned ponds or lakes as major campus elements, the most logical and impressive of which is the lake just completed at Flinders. This could become a vital and important factor in the future amenity of the campus. Also being developed is Sullivan's Creek at the A.N.U., which should aid in bringing some badly-needed unity to the campus. The two reflecting pools at the University of New South Wales are all well done and blend nicely with their surroundings. However despite these few examples, landscaping in general is at a standard well below what it could or should be, this most certainly being so at the Universities of Queensland, New South Wales (the sculpture pool notwithstanding), and Tasmania.

More disappointing than the landscape design of Australian campuses is the way in which other elements of campuscape are used: Only at the University of Western Australia is there any semblance of a unified and

well-designed system of directional signs. Attractive and sensibly-located benches are few and far between on most campuses, and statuary and sculpture are rarely placed where it will be noticed, appreciated, or remembered. Most outdoor lighting is poorly designed and almost never consistent throughout the campus. It is not out of the ordinary to count a dozen different materials in the footpaths and roadways of a single campus, often three or more being used at once. One need only to look at the area in front of the Bank and Post Office Building at the University of Sydney to see what happens when such elements as post boxes, telephone booths, ash cans, parked and moving cars, trees, signs, fire fighting equipment, announcement boards, benches, and at least twenty different colors, materials, textures, and styles of paving and architecture, are all mixed together with little reference to each other or to the whole.

Chapter Three: The Housing Problem

Student housing is a current problem because there is neither sufficient quantity nor quality in the housing choices available at and around most Australian campuses. As stressed before, all universities in Australia are predominantly commuter-oriented, the only exceptions being the University of New England and the A. N. U., which because of their rural locations are special cases.

3:8 Housing Types. If Melbourne and Sydney are at all representative of other Australian universities, well over half of all students live at home with their parents. Fairly recent housing surveys undertaken by these universities indicate that at Sydney, 73 per cent of the student body falls into this category; at Melbourne, 53 per cent. The remainder of the Sydney students live either in colleges (6 per cent), in student hostels (2 per cent), in private boarding houses or rented rooms (9 per cent), or in other forms of accomodation (10 per cent);[4] while the Melbourne students not living with their parents are either in college (9 per cent), in hostels

(4 per cent), in lodgings (11 per cent), living with other relatives (2 per cent), or in their own domiciles (21 per cent).[5]* For other universities the figures that are the most easily obtainable and accurate are those pertaining to the colleges and halls of residence. In 1956, about 15 per cent of all full-time students at all universities were in residence at colleges or halls; at the present, ten years later, the percentage is down slightly to 14 per cent. If one goes back thirty years or more, it is evident that on-campus living has decreased proportionately from what it once was.

The university currently with the greatest percentage in residence on the campus is New England (76 per cent), followed by the A. N. U. (52 per cent). Although the University of Adelaide has the least (6. 6 per cent), it does not differ significantly from the situation at New South Wales (6. 9 per cent) or Sydney (7. 0 per cent). Flinders and Newcastle, although open to students, do no as yet have colleges or halls on their campuses.

3:9 Colleges and Halls of Residence. Although private hostels, houses, and flats located near the campus are important elements in the student residential patterns, it is the colleges and halls of residence that receive the most attention from the universities and that are the most visible to the public. With respect to physical appearance, there is no difference between the two: Colleges are residential institutions, often with religious ties, affiliated with but not the responsibility of the universities; while halls of residence are the responsibility of the universities and are under their direct control. The latter form is a fairly recent development in Australia and is especially prevalent at the newer campuses. The situation is often confused by instances of halls being called colleges when they are in fact not colleges at all. At present count, on the main campuses of the universities there are 36 colleges, and 22 halls of residence, a total of 58, of which 34 are for men, 13 for women, and 11 for both men and women.

3:10 A. U. C. Policy. Prior to the Murray Committee's Report, affiliated colleges received no capital assistance from either the government or the universities. The Committee's recommendation that such assistance be, in fact, given was accepted and since then the number of colleges and halls has more than doubled. The A. U. C. has recognized the desirability of having a greater percentage of students living at the campus and has consistently supported efforts on the part of the universities to accomplish this. The following excerpt from the

*In the United Kingdom in 1957-1958, 26 per cent of all full-time university students were in residence, 49 per cent in lodgings, and 25 per cent at home.[6] For all the campuses of the University of California in 1961, 16 per cent of all students were at residence on the campus.[7]

Table 9: Colleges and Halls of Residence at Australian Universities, Selected Characteristics, 1966

University	Number of ... 1. Colleges	2. Halls of residence	3. Total	4. For men only	5. For women only	6. For men & women	7. With religious affiliation	8. Under construction	9. Built since Murray Report	10. Students housed	11. % of full-time students in residence, 1956	12. % of full-time students in residence, 1966	13. % hoped for in future
Sydney	6	-	6	4	2	2	5	1	-	894	10.8	7.0	na
New South Wales	-	4	4	1	-	3	-	-	3	477	4.2	6.9	na
Macquarie	-	-	-	-	-	-	-	-	-	-	-	-	na
New England	-	6	6	4	2	-	-	-	6	1044	82.9	76.0	na
Newcastle	-	-	-	-	-	-	-	1	-	-	-	-	20
Melbourne	10	3	13	8	4	1	9	-	4	1553	16.5	17.0	30
Monash	-	2	2	-	-	2	-	1	2	385	-	7.9	33
La Trobe	-	-	-	-	-	-	-	1	-	-	-	-	40
Tasmania	3	1	4	3	1	-	2	-	4	277	12.7	18.4	na
Adelaide	4	-	4	3	1	-	3	-	-	407	12.9	6.6	na
Flinders	-	-	-	-	-	-	-	-	-	-	-	-	40
Western Australia	4	1	5	4	1	-	3	1*	2	511	22.4	15.2	25
Queensland	9	-	9	6	2	1	6	-	5	1166	28.7	17.9	25
Mt. Gravatt	-	-	-	-	-	-	-	-	-	-	-	-	25
Townsville (new campus)	-	-	-	-	-	-	-	1	-	-	-	-	25
A. N. U.	-	5	5	1	-	4	-	-	4	952	-	51.5	50
TOTAL	36	22	58	34	13	11	28	6	30	7666	14.7	13.7	

Notes: Average number of students per hall or college: 132
A. U. C. policy guideline in reference to column 13 is 25 per cent.
These figures only refer to facilities at the main campus of the university.
*Construction of a new building to replace existing Currie Hall.

Source: The triennial reports of the A. U. C., the research officer of the A. U. C., and the universities.

Commission's First Report indicates its awareness of some of the basic housing problems associated with universities:

> "Satisfactory lodgings are not readily discovered, and often, in spite of good intentions of parents, conditions at home are not ideal for study. Few students living at home enjoy the advantages of a study of their own which is insulated from the cares and distractions of the life of the family. Similarly, lodgings are often inadequate and of mean standard. The Commission believes that colleges and halls of residence should do more than provide a place in which to eat and sleep. They play a vital role in the general education of a student and the development of his personality... The importance of living in a closely knit society in which the flux of thought extends far beyond the discipline of any one university school cannot be over-estimated...One of the chief objectives must be to stimulate the growth of knowledge in a student and especially in those fields which his own particular lines of study may not develop. Residence in college or hall promotes the cross-fertilization of ideas between students in different faculties and with different outlooks, but what is also important is that it brings them naturally into touch with members of staff out of lecture-room and laboratory."[8]

Moreover, students are apt to do better scholastically and gain more from their university experience if they are in residence at the campus. According to a study made at the University of Melbourne, the failure rates among students living in colleges or halls is lower than among those living at home or elsewhere. And a University of Sydney survey indicates that the rate of participation in university affairs, extra-curricular activities, clubs, and so on, is also higher among students in residence.

The A. U. C. has suggested that the universities work toward the goal of housing on their campuses 25 per cent of all full-time students. As the percentage nationally is now only 14 per cent, even less than when the A. U. C. first made its suggestion, it should be obvious that a tremendous effort will be required if this goal is ever to be realized. Individual universities have also set goals of their own; most are hoping to eventually house between 20 and 30 per cent of their full-time students, while La Trobe and Flinders have been thinking, perhaps too optimistically, in terms of 40 per cent.

Although most persons involved in university planning and development in Australia are in agreement, at least in principle, with the A. U. C. 's emphasis on residential facilities, there nonetheless are those who are not sufficiently convinced. One critic maintains

> "...that residential college facilities are neither a necessary nor sufficient condition for a satisfactory university education. Some of the finest products of Australian universities, in the sense of persons possessing a well rounded as well as first rate training in their particular disciplines, never attended colleges as undergraduates...it would appear that the Australian Universities Commission's overemphasis on residential colleges should only have a high priority when it is lack of accomodation which is the effective limiting factor governing the rate of growth of a particular university, and which is preventing it from reaping economies of scale as quickly as possible."[9]

3:11 Financial Assistance. One of the major differences between colleges and halls of residence concerns the manner in which they are financed. Since halls are owned and controlled by the universities their capital expenditures are met in the same way as any other university capital project, through the normal A. U. C. grant-giving channels described in Part Two. Colleges, on the other hand, have a greater degree of autonomy, and financial responsibility for them lies not with the universities but with the colleges themselves or the bodies that sponsor them. The colleges do, however, receive Commonwealth grants to help in defraying capital costs. Although not included in the general university grant, grants for colleges are made according to the same one-to-one ratio, the Commonwealth matching whatever the colleges manage to raise on their own. Generally, the states help the colleges in doing this. During the present 1964-1966 triennium, approximately 21 per cent of the total recommended capital grant was earmarked for colleges and halls of residence.

3:12 Size. Pronouncements have been made by many regarding the ideal number of students that should be accodated in a single college or hall. The A. U. C. in its first report in 1960, concluded that the optimum size considering the Australian conditions is somewhere between 150 and 200 students. Most new colleges and halls when first built fall below this optimum, while many of the older ones are well within it largely as a consequence of recent expansion programs, but regardless of this the overall average stands presently at 132 students, the range stretching from 15 to 250. However, this average has been rising over the years: in 1956 it was only 92 students.[10]

Now looming is the prospect of facilities which might eventually accomodate upwards of 800 students in complexes which, although composed of two, three, or four colleges, will functionally at least be single entities. Noting that such forms of residential development were proving to be successful in other countries, the A. U. C. asked its Consultant Architect, Mr. Rae Featherstone, to prepare several designs along the same lines but adapting them to the Australian scene. The resulting four schemes, all involving a central dining-recreational-administrative block surrounded or associated with either two or four living blocks, appeared in the A. U. C. 's Second Report in 1963. One scheme included two ten-storey residential towers, and all are

presumably adaptable to the mixture in segregated areas of both male and female students. Although in no way official, the designs are apparently acceptable to and perhaps even recommended by the Commission. The extent to which the universities have been influenced by these schemes is difficult to determine. Residential facilities reflecting similar concepts were built prior to 1963, as exemplified by Robb College at the University of New England. Irrespective of this, however, many of the halls and colleges built during the last three years have incorporated in their design features similar to ones seen in the A. U. C. 's schemes. Some of the many examples include the Burton-Garran Halls complex at the A. N. U., Goldstein and Baxter Halls at New South Wales, International House at Queensland, the Deakin Hall complex at Monash, and the proposed halls at Flinders, La Trobe, and Macquarie Universities. No complex has, however, approached the 800-student size of the schemes put forth by the A. U. C., although some may eventually be expanded to this size.

3:13 Costs. It was the opinion of the Murray Committee that new residential facilities could adequately be provided by the universities at a rough cost of $4,000 per student place. This figure was also considered reasonable by the A. U. C., that is up until the 1964-1966 triennium at which time it was raised to $4,400. The aforementioned schemes devised in 1963 for the A. U. C. presupposed a per student place cost of between $3,000 and $4,000. Certainly not all recently-built colleges and halls have been restricted to these maximums: As the section on building costs in the Appendix indicates, there is considerable variation from project to project and several are over and above the prescribed mark. This can be partially explained by the fact that building costs are far from uniform at all campuses: they are especially high at Canberra and Armidale. Occasionally a university will find it necessary or desirable to scrimp on other projects in order to provide a better or more impressive hall of residence, or a college will often be more extravagant in its proposals as a result of private gifts or bequests.

3:14 Design Standards. The A. U. C. has strongly suggested rather than strictly imposed certain standards regarding types of accomodation, room sizes, and the acceptability of such items as central heating. It generally feels that the single bed-study unit is the most efficient and workable type and has set for it a minimum desirable size of not less than 120-125 square feet. Oddly enough, many of the newer halls and colleges have study-bedrooms smaller than this in size. Central heating is supported by the Commission for facilities in Melbourne, Canberra, Armidale, and Hobart, but at no other locations. Although few other standards are publicized by the A. U. C. in its reports, others undoubtedly exist in the form of personal understandings between the universities and the Commission. Also, the cost ceilings are effective in standardizing certain aspects of design.

3:15 Student Housing Preferences. By far the most comprehensive and comprehensible of the several student housing surveys undertaken by Australian universities is the one recently carried out at the University of Queensland by a sub-committee of the Buildings and Grounds Committee.* Although it would be risky to assume that the survey results and the committee's conclusions and recommendations are applicable to all Australian universities, it is at least possible to think of them as having certain implications for them.

With regard to how satisfied students are with their present accomodations, it was found that of 1,718 single men and women:

46 per cent rated their accomodation as very satisfactory
49 per cent " " " " fairly satisfactory
4 per cent " " " " fairly unsatisfactory
1 per cent " " " " very unsatisfactory

When asked to rank 18 housing features and characteristics as either essential, desirable, or unimportant, 97 per cent concluded that "privacy when you want it" is the most important consideration:

Percentage of respondents classifying feature or characteristic as essential:

97 privacy when you want it
96 individual study table and chair
90 freedom from distracting external noise when studying
87 freedom to come and go when you wish
82 power point in study
81 freedom sometimes to have guests of the same sex in your room
78 bookshelves
59 proximity to the University
58 being able to make new friends
48 occasional study assistance from a tutor or another student
46 someone who would look after you if you were ill
45 freedom to sometimes have guests of the opposite sex in your room
43 protection from possible intruders
42 living near other students
41 freedom to make reasonable noise in study room

*The University of Queensland, A Survey of Student Residence Preferences, 1965.

32 facilities for cooking
14 proximity to city
12 living with people of your own nationality

The order of preference accorded to various housing types by the students sampled is as follows:

1. university-provided individual study-bedroom, meals included
2. university-provided individual study-bedroom, meals optional
3. with parents or relatives
4. university-provided self-contained shared flat
5. privately rented house or flat
6. university-provided individual study-bedroom, no meals but cooking facilities
7. university-provided self-contained individual flat
8. board with a private family
9. hostel
10. privately-rented room
11. boarding house

These and other results made it possible for the survey committee to offer for University consideration several important recommendations. One suggested "the construction during the 1967-69 triennium of the first portion of a complex of residential buildings ultimately to house 800 students, to commence as a "mixed" residence accomodating 250 men and women, "while another pointed out the possibility of providing shared flats or flatettes to accomodate fifty senior students. In outlining housing criteria, the committee recommended" that the University accomodation

(a) provide comfortable, well-furnished, well-lit, quiet and private study-bedrooms;
(b) have good amenities (laundry services or laundrettes, convenience to public transport and telephones;)
(c) be close to the University;
(d) be close to playing courts and fields, and provided with adequate indoor recreation areas;
(e) offer as varied as possible a diet of attractive and nourishing food;
(f) allow a maximum amount of personal freedom, especially for older students;
(g) encourage residents to interact in positive ways for their own academic and personal development;
(h) be under academic and personal leadership of the highest standard;
(i) provide these facilities at a cost to students of approximately $12.00 per week (on the basis of 1964 standards)."

3:16 Some Other Observations. There have been in recent years in Australia several new approaches, developments, and innovations concerning residential facilities that are worth mentioning. As described earlier, the college system that will be basic to the functioning of La Trobe University is unique in that the individual college complexes--ten of which are indicated on the site plan--will have a residential and non-residential, student and staff membership of between 600 and 1,000, and will provide social and recreational facilities in lieu of a single campus-wide union.

In 1954 an International House was established at the University of Melbourne as a hall of residence to accomodate Australian and foreign students. Since then similar ventures have been or are being inaugurated at Queensland and Sydney and soon at the University of New South Wales. The eight-storey Sydney International House, which is now nearing completion, will include among its many facilities a dining hall, coffee shop, common rooms, music room, recreation rooms, photographic dark room library, laundry, and seminar rooms, in addition to its 120 single study-bedrooms and several double rooms. More halls of residence organized along these lines should be encouraged: They not only expand the range of accomodation offerings but also help in furthering international understanding and friendship.

Although most Australian universities maintain some sort of a housing office that helps students to find accomodation, next to nothing has been done in the way of actually providing suitable off-campus housing. The only two exceptions known to the author appropriately involve the universities at which provision of such housing is most needed because of present deficiencies in neighborhood conditions. At the University of Sydney, the first attempt at university-owned and operated off-campus student housing was launched in 1965. Located just across Parramatta Road from the Sydney campus, the "W. A. Selle Student House" is a grouping of three adjoining terrace houses, remodelled and interconnected, accomodating approximately twenty students on the basis of shared kitchen and bathroom facilites. It is not known whether similar ventures are planned for the future, but indications are that a sufficient demand exists to make feasible the development of more such housing.

A potentially effective and far-reaching program has been sponsored by the Students' Representative Council of the University of Melbourne. In 1964 the S. R. C. set up the Tertiary Housing Administration Company Pty. Ltd., and through it initiated a housing scheme whereby long-term leases secured on properties close to the campus have been sub-leased to students at a low cost. Presently, the Company has leased three properties, accomodation in which costs the 24 student tenants between five and eight dollars per week. A system such as this could be of great value in adding more life, variety, and activity to both the campus and its neighborhood.

3:17 The Housing Problem Restated. To reiterate what was said in the opening paragraph of this chapter, the major deficiency inherent in the present residential programs of Australian universities is the lack of diversity in the quality and quantity of available housing choices. Emphasis upon colleges and halls of residence is certainly justified, but not when other possibilities are overlooked as a result. The opportunities open to the universities are many: housing for post-graduate students, perhaps similar to University House at the A. N. U.; provision of housing for married students--examples also at the A. N. U. --or even staff members; on and off-campus housing; large developments and small "vest pocket" projects; housing integrated with union facilities; and so on. Private developers could be encouraged to design and construct flats for students near the campus; such schemes have proved profitable elsewhere, why not in Australia? The current lack of diversity is really the housing problem. Only by structuring the university's housing program to reflect the many different needs and preferences of students will it be possible for the campuses to be as lively and interesting and the universities as educationally profitable as they have the potential to be.

Chapter Four: The Automobile Problem

Traditional campuses, both in Australia and nearly everywhere else, were never designed to accept easily the automobile. This has been made amply clear at Sydney, Melbourne, and Adelaide, and for that matter at all other universities established prior to 1960. In attempting to make these campuses adaptable to the motor vehicle, the universities have suffered both aesthetically and functionally. Campus tranquility, amenity, and safety have all been diminished to some extent by cars, trucks, roads, and parking lots. On the other hand, the new campuses starting in time with Monash have in their designs bowed completely to the demands of the automobile. They are perhaps better described as "rubber-tire campuses." They have been located in areas which, on the whole, are only easily accessible for those who have cars. The campuses reflect the automobile in their layout and scale: dispersed development, large peripheral parking lots, ring roads. Fortunately, by catering more fully to the automobile and at the same time rationally controlling and directing its use, the planners have been able to give back to the pedestrian some of their lost territory: the central areas of the new campuses are or will be car-free.

Table 10: Parking at Australian Universities, Selected Characteristics, 1966

University	Is all or most of the central campus area designed as a pedestrian precinct?	Are there developed peripheral parking lots?	Are there scattered parking lots serving individual buildings or groups of buildings in the central campus area?	Is there curbside parking within the campus, legal or otherwise?	What is the approximate number of parking spaces or the acreage devoted to parking?
Sydney	no	no	yes	yes	1,200
New South Wales	no	no	yes	yes	900
Macquarie	yes	yes	probably not	no	ca. 60 acres
New England	no	no	yes	yes	na
Newcastle	yes	yes	yes	no	4,000
Melbourne	no	no	yes	yes	750
Monash	yes	yes	no	no	30-40 acres
La Trobe	yes	yes	no	no	85 acres incl. roads
Tasmania	more or less	no	yes, indented curbs	yes	na
Adelaide	no	no	yes	yes	650
Flinders	yes	yes	yes	no	27 acres, 4,400 spaces
Western Australia	yes	yes	yes	yes	1,100
Queensland	no	some	yes	yes	2,200
Mt. Gravatt	yes	yes	yes, at outside	no	14 acres, 4,500 spaces
Townsville (new campus)	yes	yes	yes, at outside	no	na
A. N. U.	no	no	yes	yes	750

Note: The data given for Macquarie, Newcastle, La Trobe, Flinders, Mt. Gravatt, and Townsville is either assumed or according to the universities' development plans.
Source: University reports and plans, personal inspection.

The automobile problem is really two problems in one: First, the older universities are all to some degree faced with the problem of congestion, of where to put the cars, of what to do about delivery and service trucks, of how to keep traffic from detracting from the campus environment and disrupting university efficiency. Secondly, because the automobile has made the placement of the new campuses in non-central locations feasible and often desirable, commuting, as opposed to living at or near the campus, is likely to increase rather than decrease as hoped. It is indeed difficult to imagine La Trobe having 40 per cent of its students in residence--the present goal--when in addition the campus is designed to be a commuter's paradise with 85 acres of roads and parking. If commuting does increase at the new campuses, it will also have the effect of discouraging extra-curricular social, cultural, and recreational activities, a consequence far from desirable.

Several interesting developments have occurred in reaction to some of the more physical problems created by motor vehicles and traffic. At the University of Sydney, an extremely well-executed parking garage for 199 cars has just been completed beneath the playing fields of St. Andrew's College. Except for the sensibly-sited entrance, there are no exterior indications of its existence. Its only drawback so far is the high--in relative terms--fee charged for its use: $50 per year or ¢.40 per day. A similar development is underway at the University of Adelaide; a parking garage with a capacity for 240 cars is being incorporated in the new law building.

Also recently completed at Sydney is a concrete pedestrian bridge crossing over busy City Road. Built to connect the extension area with the main campus, it should become increasingly useful as development of the extension area continues.

Monash University has devised a tunnel system to provide access to the union building for service and delivery vehicles and to prevent infringement upon the pedestrian zone of the central campus. Such an approach merits consideration by other universities; the concept might even be extended to include multi-levelled circulation channels and plazas as elements of the campus center.

Of the pre-1960 universities, Western Australia has had the most success in handling the car. Not only has the central area of the campus been retained solely for the pedestrian, but portions of a ring road are now serviceable. A new parking lot at the University is also worthy of emulation: Recessed about three feet and well-landscaped, it penetrates the campus from off of the ring road without adversely affecting the character of the campus as a whole or the Great Court in particular.

More innovations and developments such as these are needed if the campuses are not to become inundated and overwhelmed by cars and trucks.

Part Four: RECOMMENDATIONS

The following recommendations repeat, for the most part, what has already been presented or suggested in the pages above. Many stem from the personal observations and opinions of the author and should therefore be considered as such. Although a number of these recommendations have been made before, it is hoped that at least some will reflect a new and different approach.

Recommendations Pertaining to Planning

1. Of those functions listed in section 2:7, Part Two, more attention must be given by the universities and by the planning officers to
   (1) the intelligence function,
   (2) the secretariat function, and
   (3) the community relations function.

(a) The third function is presently the most vital as well as the most overlooked of the three. The universities, especially Melbourne, Sydney, and New South Wales, could well afford to appoint an officer to be responsible for community relations and affairs, someone who could act as an intermediary between the university and the community.

More use should be made of the campuses, not just by students and staff but also by the public in general. Theatres, lecture halls, sports facilities, and meeting rooms could all be utilized more fully and effectively than they are presently.

The universities should invest in and develop commercial and residential uses associated with or near the campus, or at least encourage their development. Again, not only for student and staff use but also for the general public.

(b) The secretariat function should be made more comprehensive and efficient in scope and operation. At both the university and national level, statistical methods and information handling and presentation should be made uniform in order to aid in comparative analysis over time and between universities. Standardized report forms and data systems, applied nationally, could make more comprehensible and comparable such data as building costs, floor areas, student enrollment breakdowns, student residential location, cost of plant maintenance, and so on.

(c) More time and attention should be given to the intelligence function by the universities, the states, and the A. U. C. :

- -More basic planning studies and surveys are needed. As a minimum, all universities should undertake a residential accomodation survey and a parking and circulation study.
- -States might well set up agencies or assign to existing ones the responsibility of collecting data on the universities within their jurisdiction, and perhaps with additional functions such as those suggested by the Ramsay Committee (see Chapter Four, Part Two).
- -The A. U. C. must play a wider role in research, both in collecting and analysing statistics and in reporting on current planning problems. An annual statistical report on universities and perhaps occasional newsletters or special reports outlining new techniques, methods, etc., would be helpful to the universities in their planning efforts. A clearing-house of information should be established from which all universities and interested people can draw. One important area of investigation should be the entire system of costing procedures and design standards.

2. An added emphasis on long-range development planning is required. It must be made the most rather than the least important of the three types of planning. The states or the A. U. C. might require or strongly suggest, perhaps through their control of the financial purse-strings, that universities consider more seriously and thoroughly their long-range plans. Especially lacking is attention to planning and development policies: goals, objectives, principles, and criteria. And the states and the A. U. C. could both enter more fully into long-range planning of their university-related activities.
3. Development planning should be undertaken, if possible, within the universities and under the guidance of a trained planner, although consultants could still be retained when necessary for specialized investigations.
4. Better planning is likely to result if the duties of the planning officer and the senior administrative officer in charge of plant and development matters are combined and made the responsibility of a single officer, who would be granted executive as well as staff functions, including the coordination of program, project, and development planning and all aspects of physical development.
5. A permanent sub-committee of the Buildings Committee of each university should be set up to consider exclusively long-range development problems and opportunities and to pose development alternatives. Such a "Campus Planning Committee" might include local planners and architect as advisory members.
6. A permanent Architectural Panel should be established at each university to advise the planning officer and the Buildings Committee on the design suitability and quality of proposed projects. Such a body might also include local planners and architects.
7. The universities should encourage a wider range of participation in planning by both university and non-university people and groups. Students, staff members, local citizen groups, neighboring institutions, landowners, and local businessmen should be given the opportunity of being heard when any university action might affect them. This could be accomplished through questionnaires, meetings, symposia, and the efforts of the Community Relations Officer proposed above.
8. The A. U. C. should extend capital grants over a period of five years rather than the present three, permitting the universities to think in broader terms and to be less hurried in their program and project planning. This extension, however, should only take place if more flexibility is introduced into the A. U. C.'s evaluation, review, and costing procedures.

Recommendations Pertaining to the Campus

1. The concept of a physical and functional "campus center" should continue to be stressed. There is a great need, especially at the older universities, for such centers to serve as a gathering place for students, staff members, and visitors, as well as to provide a visual and symbolic heart for the campus.

2. More attention should be given to the colors, materials, and textures used on and in buildings, walkways, plazas, etc. The shape and siting of buildings requires better treatment. In this particular context--campus design--there is too much diversity: Unity is sorely lacking at most campuses, but this could be partially overcome through landscaping, and the standardization of certain campuscape elements such as benches, walkway materials, signs, outdoor lighting, and so on.
3. "Temporary" buildings should be just that, temporary. They should be done away with as quickly as is feasible.
4. The possibility of architectural or planning competitions for individual buildings, precincts, or entire campuses should be more fully explored.
5. The universities should be watchful that the dispersal of campus elements does not proceed too far. Most Australian campuses, if they were planned and designed appropriately, could handle well a much denser development than they now do. Poorly-conceived dispersal will eventually prove unsatisfactory, inefficient, and expensive, not to mention irreconcilable. Now is the time to avoid it.
6. The possibility of locating at least one future campus in the downtown area of a city merits consideration. Such a campus could be developed in association with an urban renewal project.
7. More diversity should be encouraged with respect to the range of housing choices available to students and staff members both on and off the campus.
8. All universities should reevaluate their present policies concerning parking and traffic. A greater degree of pedestrian-vehicular separation is undoubtedly feasible and desirable at all the older campuses. A policy of underground and peripheral parking facilities served by a ring road could be adapted in one form or another to most campuses.

APPENDIX

ACKNOWLEDGEMENTS

FOOTNOTES

University of Western Australia - University Architect Duty Statement

The University Architect shall be responsible to the Vice-Chancellor and shall--

1. Advise the Vice-Chancellor, in consultation with the Consultant Architect, on the development of the campus, the siting of new buildings and their relationship to the overall site plan.
2. Advise the Vice-Chancellor and the Buildings Committee on the design of new buildings.
3. Advise the Planning and Staffing Committee on architectural aspects of building proposals. Prepare space diagrams for A.U.C. building submission.
4. Attend all meetings of the Buildings Committee with the right to speak but not to vote.
5. For each major building:
    (a) Serve as a member of the building sub-committee except where specifically relieved of this obligation.
    (b) In collaboration with the Consultant Architect advise on the selection of commissioned architects.
    (c) Draft detailed building brief in consultation with Buildings Officer for approval by sub-committee.
    (d) Ensure compliance by commissioned architect with building brief, general design considerations and approved University procedures and standards, including A.U.C. building standards.
    (e) Advise building sub-committee on plans and specifications submitted by commissioned architects.
    (f) Maintain liaison with commissioned architects and consultants during building construction.
    (g) Advise the Buildings Officer on proposed variations when requested.
    (h) Assist the Buildings Officer when requested in checking all progress reports.
6. Design minor works as required, in consultation with the Buildings Officer.
7. Supervise construction of minor works for which drawings have been prepared in his office.
8. Advise the Buildings Officer as required on architectural aspects of site works and services program.
9. Advise the Buildings Officer on the design and selection of furniture.
10. Supervise and organise the work of the drawing office including the plan filing section and settle work schedules in consultation with the Buildings Officer as the drawing office provides an essential service for the Buildings Office.

Source: The University of Western Australia

Australian Universities: Comparative Building Costs by Type of Building

Building Type, Name, Location, and Completion Date	Gross Square Footage	Total Cost	Cost per Square Foot	Maximum Number of Floors	Capacity
Residential					
International House, Sydney, under construction	36,577	$627,692	$17.16	8	132 students
Duval College, New England, 1964	51,200	586,400	11.43	3	198
Robb College, New England, 1963	66,700	872,000	13.06	2	208
Goldstein-Baxter Halls, New South Wales, 1965-66	98,090	1,002,635	10.22	5	265
Union College, Queensland, 1965	31,200	492,320	15.70	3	102
Academic (Humanities, Arts, etc.)					
Merewether Building, Sydney, 1965	92,000	900,000	9.78	4	
Carslaw Building, Sydney, 1964	183,330	2,872,000	15.66	8	
Humanities Building, Monash, 1965	275,501	4,620,350	16.77	12	
Commerce Building, New South Wales, 1965	54,000	630,000	11.66	5	
Economics-Commerce Building, Western Australia, 1966	32,000	440,000	13.75	4	
Academic (Science, Engineering, etc.)					
Chemical Engineering, Sydney, 1964	52,000	670,304	12.81	3	
Physics Building, Newcastle, 1966	24,600	366,000	15.00	2	
Florey Laboratories (physiology), Melbourne, date?	34,750	691,400	19.84	9	
Libraries					
Fisher, Sydney, 1963, stack under construction	252,436	3,136,740	12.42	5 (stack 9)	
Reid, Western Australia, 1964	55,330	920,000	16.63	4	
Menzies, New South Wales, 1965	86,000	1,000,000	11.62	4	
Library, Macquarie, under construction	43,000	788,000	18.32	4	
Unions					
A. N. U., completion date unknown, ca. 1963	24,500	280,000	11.43	3	
Monash, 1964	98,397	1,244,288	12.44	2	

Building Type, Name, Location, and Completion Date	Gross Square Footage	Total Cost	Cost per Square Foot	Maximum Number of Floors	Capacity
Queensland, 1961, 1966	58,000	$780,000	$13.45	4	
Newcastle, under construction	22,625	344,448	15.60	?	
Miscellaneous					
Stephen Roberts Lecture Theatre, Sydney, date?	7,756	165,316	21.34	1	
Lecture Theatre, Newcastle, 1965	6,000	108,000	18.00	1	
Underground Parking Garage, Sydney, 1966	57,528	212,000	3.68	1	199 cars
Chancellery, New South Wales, 1966	74,500	790,000	10.60	5	
Administration Building, Monash, 1964	38,114	614,262	16.12	2	

Notes: The costs given generally include fees but exclude movable furnishings, landscaping, etc. The data given for Fisher Library, Sydney, applies to both the completed section and the stack section now under construction.

Source: The universities, "Architecture in Australia," and project architects.

ACKNOWLEDGEMENTS:

I am in debt to the following individuals, universities, and organizations for plans and reports supplied and for time and hospitality generously given, all without which this report could not have been prepared.

The University of Sydney
Mr. Max W. Jackson, Architect-Planner
The University of New South Wales
Mr. Joseph W. Van der Steen, Executive Architect
Mr. Allen L. Craig, Building, Planning and Development Section
Macquarie University
Mr. Walter V. Abraham, Architect-Planner
The University of New England
Mr. Thomas Lamble, Registrar
Mr. Charles Amos, Buildings Officer
Miss Stella Swinney, Principal of Duval College
Mr. Benjamin Meredith, Master of Robb College
Mr. Leslie Reedman, Design Architect for the University, Government Architect Branch, Public Works Department of New South Wales
Mr. Peter Andrews, Government Architect Branch, Public Works Department of New South Wales
The University of Newcastle
Mr. Gordon G. Fuller, Project Associate, Laurie and Heath, Architects, Master Planners for the University
The University of Melbourne
Mr. Rae Featherstone, Staff Architect and Consultant Architect to the Australian Universities Commission
Monash University
Mr. George Boycott,
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La Trobe University
Mr. Stewart F. Morton, Coordinator of Buildings and Services
Mr. Roy Simpson, Partner, Yuncken, Freeman and Simpson, Master Planners for the University

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Mr. Harold Johnson, Architect, State Public Works Department
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Mr. V. A. Edgeloe, Registrar
Mr. R. W. Mutton, Staff Architect
Flinders University
Mr. G. J. Harrison, Staff Architect
Mr. James McG. Belford, Planner, Staff Architect's Office
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Professor Gordon Stephenson, Consultant Architect
Mr. Roger K. H. Johnson, Reader in Architecture and associated with the Consultant Architect
Mr. C. D. Waters, Buildings and Property Officer
The University of Queensland
Emeritus Professor L. J. H. Teakle, Deputy Vice-Chancellor
Mr. James Birrell, former Staff Architect
Mr. Thomas R. Drake, Public Relations and Alumni Officer
Professor R. P. Cummings, Professor of Architecture
The University College of Townsville
Dr. K. J. C. Back, Warden
Mr. Roderick Ferguson)
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Mr. F. Milford, Administrative Officer
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The Australian Universities Commission
Mr. A. R. Winstone, Administrative Officer
Mr. Kevin R. Fielder, Research Officer

Dr. L. N. Short, Director, The Educational Research Unit of the University of New South Wales
Mr. G. W. Smith, Executive Secretary, Federation of Australian University Staff Associations
Mr. K. N. Jones, First Assistant Secretary and Head, Education Division of the Prime Ministers Department
Mr. James MacCormack, Principal Architect (Planning), Commonwealth Department of Works-Barton
Mr. Peter Harrison, Chief Town Planner, National Capital Development Commission
Mr. Colin Brewer, Editor, "Architecture in Australia"
Mr. Thomas Heath)
Mr. David Willis) McConnell, Smith and Johnson - Architects
Mr. William Ashton, Ancher, Mortlock, Murray and Woolley - Architects

Special thanks should go to both the staff members of the Department of Town and Country Planning of the University of Sydney, in particular to Professor Denis Winston, who acted as my advisor on this undertaking and who himself is involved in campus planning, and to the Australian-American Educational Foundation, which sponsored my year's stay in Australia.

FOOTNOTES:

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