

HOUSING IN A UNIVERSITY SITUATION

A STUDY OF STUDENT LIVING

HIRSH FISH
M. U. R. P. THESIS

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1.0

PREFACE

"We take pride at this university in being part of the Cape Peninsula. From these very buildings we can see in good weather the cape that held so much hope for the earliest explorers from Europe. The hinterland that was opened by those who followed on now returns young men and women to study here and this is how it should be, giving us, in addition to our local pride, a more national nature and an even wider awareness. Inevitably, most of our students hail from the Cape Province, including, of course, the Eastern Cape areas. But one in every three of our full-time students comes from further afield and their presence enriches our campus. If we could increase our halls of residence, which I hope we will soon do, we would not only with more certainty confirm and quicken a right character by facilitating attendance at our university of students from far afield, but would also achieve a better balance between those from urban and rural backgrounds. We are proud of being the University of Cape Town; and we would hate to be only for Cape Town. This year we had over 2,200 applications from new students for the 410 vacant places in our residences. I am the kind of principal that would like to do something about meeting this need. (1)

(1) Sir Richard Edmonds Luyt, 1968.

FOREWORD

I am inclined to agree with Michael Drawne's recent comment in the Architectural Review,

"It is not invidious to suggest for example that if one had to select a handful of buildings in this country (Britain) completed during the last ten years which have acquired international acclaim, the bulk of these would be in the universities."

Whilst travelling in the United States and Europe during 1969, I visited various university campuses. It was at Bochum, being built at the time in Germany that I became especially aware of how separated the university community seemed to be from the society outside.

Due to its remoteness I decided to examine and evaluate the relationships that exist between a university and its community preferably in some particular field of study. I drew the hypothesis that there existed a casual relationship between vehicular congestion and housing and that by providing more on campus housing a move towards alleviating the congestion problems would be made.

In the gathering of information on residence provision, it became apparent that there exists an intense level of concern amongst our university administrators in regard to the correct provision of student housing and that much research work needed to be done in this field.

Starting at the beginning of this year, and after some considerable time, with much energy spent, the stage has been reached where the emerging problem of student housing can be defined.

mm.

It is hoped that this thesis will make some contribution to a better understanding of the kind of housing our students want and need, and that from this study, a re-assessment of basic attitudes to the housing of our students can be made.

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5.1 INTRODUCTION

Over the last five years the number of students housed in university residences throughout South Africa increased from nine to thirteen thousand. At the University of Cape Town it is probable that much money will have to be spent on buildings to provide the additional student residence places projected in the immediate future.

Students have individual preferences which are apt to change during their university careers. Although the University Administrators have shown flexibility in their approach to student housing and have turned their backs on the 'hostel' concept, they still favour an 'in loco parentis' approach to all student accommodation and have, by being pre-occupied with problems of growth, cost and budgets, seldom questioned the basic assumptions of residence hall design to determine whether they effectively provide the kind of environment our students want and need.

Although there is a major benefit in being sited in an urban situation, it cannot be assumed that there is an unlimited reservoir of suitable accommodation to be had for our student population.

Funding and the usual problems relating to expenditure priorities on building new residences against expenditure for academic buildings is a vital factor. Nevertheless, there exists a built-in formula for financing of residences and the University does not have to rely solely on the public sector for the funds to provide student accommodation. Therefore, the University has the opportunity of making available suitable accommodation, alive to the social needs of the time and would in the process begin to come to terms with congestion problems on the campus in relation to vehicle movement and storage.

This study focuses on the qualitative aspects of student housing design in an attempt to understand and interpret the physical implications of changing patterns of student living and to make recommendations which could be implemented within the framework of the University's intentions and policy.

This thesis does not seek to define the precise boundaries of the student housing market but via the apparent trend in the demand to begin to show cause for a re-assessment of the qualitative aspect of student housing needs.

5.2

TERMS OF REFERENCE

1. To examine the characteristics of the student as a sociological group in all matters that will influence their housing wants and needs.
2. To examine the student housing situation, both on and off campus.
3. Through the processing of data collected to state the problems of housing students.
4. To attempt to evolve new strategies for meeting the university student's housing needs.
5. Accepting as given the strategies prepared for the university's spatial growth patterns to bring out in planning terms physical and administrative implications of any new housing types that may emerge.

5.3 PROCEDURE

5.3.1 U.C.T. Planning Programme

The Planning Unit of the University of Cape Town is at present undertaking a planning programme for the University's administrators. Broadly, the purpose of the programme would be to examine the existing university situation generally, of extrapolating forward trends which will change the initial structure and of proposing planning strategy involving successive steps of design formulations and evaluation.

But a programme of the sort being prepared is complex and extremely expensive. Without the opportunity of prolonged collaboration with the developers of the programme, it can only be hoped that by the careful use of data made available by the Unit, by discussing the problems raised and by studying the needs of the University, its students and its administration, new criteria for housing of students can be developed.

In approaching the study there was an awareness of the difficult nature of exploring and committing to writing the objectives and goals of university residence, so many of which are intangible. Therefore, the recommendations, in many instances, have necessarily been formulated in a subjective way, stemming from judgements formed during observations and conversations during the thesis period.

5.3.2 The Network Diagram

The Planning Unit has used a graphical notation in their report to indicate the structure of factors which enter into university planning and the relationships between these factors. This takes the form of a 'network' diagram in which the factors and relationships are shown in boxes and lines.

The subject of planning consists of many simultaneous and inter-twining strands with many links backwards and forward. Because of the complex patterns of inter-relations an attempt has been made, in this thesis, to cover as many of the related factors as possible. Some of the factors are of a greater level of generality than others and all factors that it has been possible to cover have not been dealt with in equal importance. Indeed it is one of the aims of the whole procedure to highlight those factors which are most significant and others which can, in the context of this thesis, be conversely effectively ignored.

5.3.3 Objectives

The objective is twofold. To re-appraise the University student housing assumptions by examining certain basic factors. Firstly, the types of student category; secondly, their accommodation preferences both by location and type and thirdly, the built form for student housing.

The second objective is through these processes to arrive at criteria and determinants which will shape planning decisions for future residence provision.

5.3.4 Methodology and Sources of Data

The following methods were adopted:

1. From data obtained from the University's Planning Unit and from enrolment statistics the student population was examined and stratified by academic seniority.

In their Work Paper No. 3 the Planning Unit have set out definitions of the University populations, the methods adopted in

choosing a random sample, the construction of student questionnaires and diary sub-samples. Although their terms of reference are confined to the University campus above and below De Waal Drive, excluding the Medical School and Hiddingh campuses, the data that was relevant was consequently used for analytical purposes in this thesis. For this reason, where applicable, a description of their methods used has been extracted from the Work Paper and set out in Appendix One in this report.

2. The changing trends in demand for university-provided accommodation was analysed firstly by examining applications made to the Lodgings Bureau and the numbers by academic status accommodated in the halls of residence recorded.
3. Secondly, the preference trends in housing were collated by undertaking personal interviews after reviewing social studies prepared by others both locally and abroad.
4. Thirdly, further preferences related to housing location and student life-styles generally emerged and were examined by analysing the relationship by time, place and accommodation costs of the students and staff population to the metropolitan area. The data used was taken from the Planning Unit Work Paper No. 3.
5. By closer examination of that preferred sector of the city an assessment was made of the capacity of this area to absorb further student growth. Data used was from the Planning Unit Work Paper No. 6 and correlations developed by F. Todeschini in a student programme, Project 1970/1/1 carried out in the U.C.T. Department of Urban and Regional Planning.

6. By examining drawings of the existing residences, and by discussions with those in University Administration concerned with housing, the patterns of social hierarchy prevalent in the present residences was analysed and presented in diagrammatic form.
7. By evaluating the data collected, the problems of student housing emerged.
8. With the need for re-assessment now stated a procedure is suggested in the formulation of new housing criteria. The methods for assessing priorities is proposed by the preparation of various sets of matrices correlating students by academic status with possible social groupings, social groups by dwelling types, and dwelling types by built form types and finally student types by locational preferences.
The precedent for the methodology used in preparation of the various matrixes described was from a study done by Urban Design Consultants for Rand Mine Properties, Johannesburg. The built form types in Appendix 6 are also an adaptation of studies proposed in the same planning report.
9. The resultant matrixes were referred to in the preparation of case studies indicating some alternative built forms possible under different locational conditions.

5.4 STATEMENT OF THE PROBLEM

5.4.1 GENERALITIES

Many Universities are finding the provision of residential accommodation an increasingly difficult problem. A number of factors have contributed to this situation.

Firstly, although the Government Grants formula has recently been revised - this year the Government confirmed that it will increase its financial aid to Universities from R 32.2 million to R 47.3 and the University of Cape Town will now receive R 4,733,900, an additional R 446,936 per annum (1) - funding still remains a vital factor and the usual problems related to expenditure priorities of building new residences against expenditure for academic building is a matter of concern to all University Administrators.

Marie Clossick in her study for the University of Essex wrote; (2)

"No new university since Keele has had the choice of being wholly residential. The cost of such provision is very high and there is a growing awareness especially in government circles, but also among university administrators, that the cost of providing student residences has to be set against other desired amenities both in the university and the wider society. The new philosophy of greater integration between conventional institutions and the community helps to make a virtue of necessity - students living in the community may form important links between it and their college or university."

Secondly, the number of suitable lodgings is decreasing, fewer students are living at home with their parents and many of the traditional expedients have either broken down or are no longer appropriate.

(1) Cape Argus, 13th August, 1970, Page 13

(2) Marie Clossick, 1967, Page 2

Brian MacArthur, in the London Times, wrote:

"Traditional forms of housing are under fire both for economic and social reasons. A recent conference of the National Union of Students has insisted that students no longer want to live in halls of residence. The answer now, according to the N.U.S. is to build more student-owned housing co-operatives and for universities to build more blocks of study-bedrooms and student flatlets to accommodate the extra thousands who will be going to universities in the 1970's and 1980's." (1)

Similar views were expressed by the Editor of 'Varsity' the U. C. T. student newspaper.

"There is an immediate urgent need for U. C. T. to build cheap flats for students over twenty one - especially post-graduates, researchers, tutors and junior lecturers - at the very least U. C. T. must follow the lead of overseas universities and immediately give the Lodging Bureau instructions and budget to enable it to buy up cheap housing and flats in lower income areas until it can erect bachelor and married quarters of its own." (2)

5.4.1.2

University Response

At the February, 1964 meeting of the U. C. T. University Council The Principal reported on the lack of university residential accommodation facilities, particularly for new women students. The Council referred this matter to the Residences' Committee for consideration.

The Residences' Committee appointed a special Sub-Committee and outlined the terms of reference of the Sub-Committee briefly as: (3)

- (1) Brian MacArthur, 1967, Page 11
- (2) Editorial, 'Varsity', 26th August, 1970
- (3) See the Report of a meeting of the Sub-Committee of the Residences Committee, 2nd March, 1964, Page 2.

"Whether new residences for either men or women or both were required; and if so, to consider the questions of siting, size and cost".

At the same meeting, Professor Thornton White (the then architect consultant to the University) drew attention to

"the necessity of investigating the total needs for residences in the next ten years and to draw up a programme of requirements, taking into account siting, grouping of buildings, type of buildings, etc."

The Committee decided:

"to recommend to Council that in order to avoid any possible delay in the provision of an additional women's residence, the programme not to be held up while the study suggested is undertaken, but that steps be taken in the meantime to secure the necessary funds for one additional residence for women."

(1)

Since this recommendation was made and without any apparent re-appraisal of policy, two further residences to house approximately 1000 new students are projected with a total cost in building work alone that could exceed many millions.

"The facilities to be provided, and the student hierarchical form the buildings will take, vary little from the present residential accommodation types. In the main, the demand for the present accommodation stems from our first year students with a corresponding decrease in re-application for residence from the more senior students. In this light, the adequacy of our housing provision must be questioned as the University's responsibilities lie with all of its students both undergraduates and postgraduates.

(1) Minutes of Meeting of Sub-Committee, 2nd March, 1964, Page 3.

Furthermore, the provision of suitable residential facilities can also be a powerful and beneficial factor in attracting an increasing number of postgraduate students and researchers to our University who, single or married, would clearly prefer to have a choice beyond the housing types at present available or projected.

5.4.2 U.C.T. - PRESENT POSITION ON AND OFF THE CAMPUS

5.4.2.1 Brief Historical Background

There are in 1970, 48,495 students attending Universities in South Africa. Of this number, approximately 8000 are registered at U.C.T.

The University, as such, was created in 1918 but its traditions run back to the founding of the South African College in 1829. The following are extracts from the University's General Prospectus.

(1)

"From the first it announced two ambitions from which it has never departed: it claimed to be South African in the fullest sense of the word and it proposed to become a university as good as the best anywhere

1879 - 1900. These years showed a steady development and the addition of law to the old established arts and sciences courses, the formation of the Old Students Union, the opening of College House - the first university residence south of the Sahara

In April 1918, the University came into being endowed with one of the loveliest sites in the world, on Cecil Rhodes' estate at Groote Schuur."

The South African College, throughout its existence and the Uni-

(1) The University of Cape Town, General Prospectus, 1970, Pages 5, 6 and 7.



5 mile radius.



FIGURE 1 - LOCALITY MAP



versity for its first decade, carried out their work of teaching and research in the heart of the city, mostly on the site at the top of Government Avenue which still houses the Michaelis School of Fine Art, the main activities of the Faculties of Commerce and Law and the School of Speech and Drama with the Little Theatre, which serves as a laboratory for the students of that school and for those of the University's Schools of Opera and Ballet.

The cession of the site on Rhodes' Estate together with the munificent gifts of the brothers, Beit and Sir Julius Wernher made possible the long overdue move to more spacious surroundings. The move to the magnificent site at Groote Schuur on the slopes of Devil's Peak, above Rondebosch, began in 1928 and was completed by 1932 by the construction of the Jameson Hall which provides the central architectural feature of the present University buildings on the main site. During this time, the Medical School at Mowbray, just below Groote Schuur Hospital, was moved into new buildings.

The Groote Schuur Campus which occupies some 154 acres of land along the edge of the mountain slopes of Devil's Peak on the southern side of the city and stretches from the upper slopes down to the main road of Rondebosch and Rosebank connecting directly with the centre of retail activity of these suburbs. The campus area is also bisected by the De Waal Drive highway which is a major connector of the southern suburbs to the Centre of the Business District of Cape Town - refer Figure 1.

The University of 1918 had 600 students. The main buildings on the Groote Schuur site were planned for a student enrolment of between 2000 and 3000, and now has grown to 8000. The stake in university land, buildings and their content is almost R 60, 000, 000. Total operating costs are around R 8, 000, 000 per annum. (1)

(1) 1970, Page 7. Professor Donald P. Inskip, The Sunday Times, 2nd August,



- | | | | | | |
|----|---|----|-------------------------|---|-----------------------------|
| 1 | Maintenance | 17 | Beattie Block | A | Undeveloped university land |
| 2 | | 18 | Arts Block | B | Playing fields |
| 3 | Civil Engineering | 19 | Mathematics | C | Parking |
| 4 | Fisheries Research | 20 | Botany, Zoology | D | Rose garden |
| 5 | Chemical Engineering | 21 | Physics | E | Oval |
| 6 | Education | 22 | Fuller | F | Playing fields |
| 7 | Geology | 23 | Smuts | G | School of Music ground |
| 8 | Electrical and Mechanical Engineering | 24 | Administration | | |
| 9 | Library | 25 | Driekoppen | | |
| 10 | Jameson Hall | 26 | University House | | |
| 11 | Union | 27 | Ballet and Extra-mural | | |
| 12 | Chemistry | 28 | School of Music | | |
| 13 | Psychology | 29 | Squash Courts | | |
| 14 | Bolus Herbarium | 30 | Business Administration | | |
| 15 | N.S.L.T. | 31 | Baxter Hall | | |
| 16 | Architectural, Social Science and Land Survey | 32 | College House | | |

FIGURE 2 - CAMPUS BUILDINGS

5.4.2.2 Faculties on Main Site

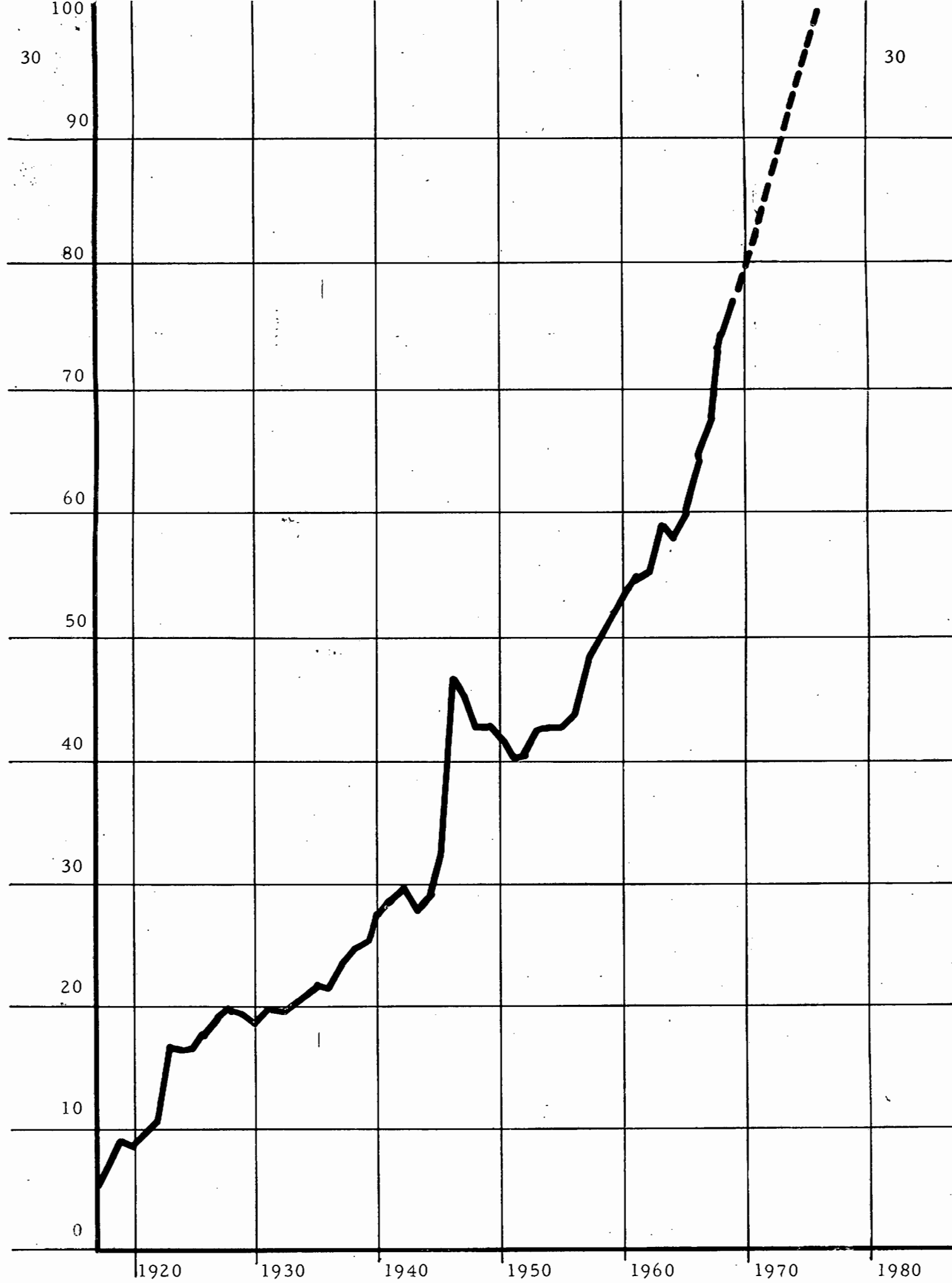
The scope of the University's activities can best be indicated by reference to the ten faculties - Arts, Commerce, Education, Engineering, Fine Art and Architecture, Law, Medicine, Music, Science, Social Science - into which its departments are grouped, and to the wide range of skilled personnel which it is their function to train and inspire. The oldest faculties - those which the world over provide the backbone of university life and work - are those of Arts and Science, both housed on the main site at Groote Schuur.

Also on the main site are the Faculty of Education, training primary, secondary and specialist teachers, the Faculty of Commerce, the Faculty of Engineering which has separate departments for Chemical, Civil, Electrical, Mechanical, Water Resources and Public Health Engineering, and Land Surveying, the School of Architecture with its graduates in Architecture and Quantity Surveying, Urban and Regional Planning, and Building, and the Faculty of Social Science. A map indicating the present on campus buildings is shown in Figure 2 and was taken from a student survey. (1)

Besides the basic faculties already listed, the University has, since 1960, introduced courses in Urban and Regional Planning, Chemical Engineering, Biochemistry and Ophthalmology. The University has also founded a Graduate School of Business in 1965.

5.4.2.3 Extra-mural Activities

"The University has a flourishing Department of Extra-Mural Studies which organizes lectures open to the public, on the widest possible spread of subjects. This Department has organized each February a Summer School open to all without entrance qualifications and providing a wide range of lectures in various disciplines. These Summer Schools attract hundreds of visitors from Southern Africa and beyond.



TOTAL ENROLMENT
Numbers of Students (hundreds) x year

FIGURE 3 - STUDENT GROWTH PATTERNS AND PROJECTIONS

Source: H.C.T. Planning Unit

"These activities complement the University's active participation in the cultural life of the country in which its Schools of Music, Drama and Opera have long played a most fruitful role. A somewhat similar function is performed by the Students' Visiting Lecturers' Organisation which every year brings eminent men and women from abroad to take part in the work and thought of the University's own departments." (1)

5.4.2.4

Student Growth Patterns and Projections

Student enrolment numbers taken from the University of Cape Town Council's Annual Report to Parliament show that the number of full-time and part-time students at the University is 7969.

The total enrolment at the University of Cape Town increased at a constant rate from 1937 to 1940, followed by a lower rate of increase during the war years, 1940 to 1942. The figures for 1943 and 1944 were not available but, in 1945, at the end of the war, the enrolment was 3083 students.

In 1946, the postwar enrolment caused a great increase in faculty numbers and the total student enrolment was 4371 students. This figure declined sharply from 1946 to 1949, then levelled off and increased to 1953. The enrolment increased annually to 1961, with a decrease in 1962, reflecting the general depression felt in South Africa after the 1961 political disturbances.

The economy again stabilized itself and with the expansion of facilities in certain faculties, student numbers - refer Figure 3 - rose steadily to reach the present number of 7969 students in 1970 (this includes part-time students). Student projections given, forecast a campus population of some 10,000 by 1975 and 12,000 by 1980 - an average growth factor of approximately 5%. (2)

- (1) University of Cape Town Redevelopment Survey, 1964
- (2) University of Cape Town Planning Unit.

5.4.2.5

Students - Basic Statistics

The analysis is based on statistics extracted from the full-time student registration figures for the 1970 academic year which are included in the Indices - refer Tables 1, 2, 3 and 4.

Student Numbers		%
Total Student Population given	7,028	100
First Year Students total	1,937	21
Second Year Students total	1,764	25
Third Year Students total	1,378	20
Fourth, Fifth and Sixth Years	903	13
Postgraduates	814	15
 Total Male Student Population	 4,964	 71
Total female Student Population	2,064	29
Total Undergraduate Males	4,218	63
Total Undergraduate Females	1,764	24

Age

Total mean and modal age undergraduates	20	X
Male Students mean age - undergraduates	20	
Female Students mean age - undergraduates	19	
First Years' mean age	19	
Second Years' mean age	20	
Third Years' mean age	21	
Third Year and median age	23	
Graduate modal age	25	X

Origin

Full-time Students from the Cape	66
Full-time Students from Rhodesia and Zambia	16
Full-time Students from the Transvaal	7
Full-time Students from Natal and O.F.S.	5
Full-time Students from other areas	4

Of the total student population 51% come from the metropolitan area of Cape Town.

5.4.2.6

Which Schools do our Students come from

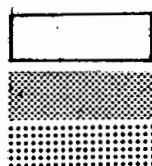
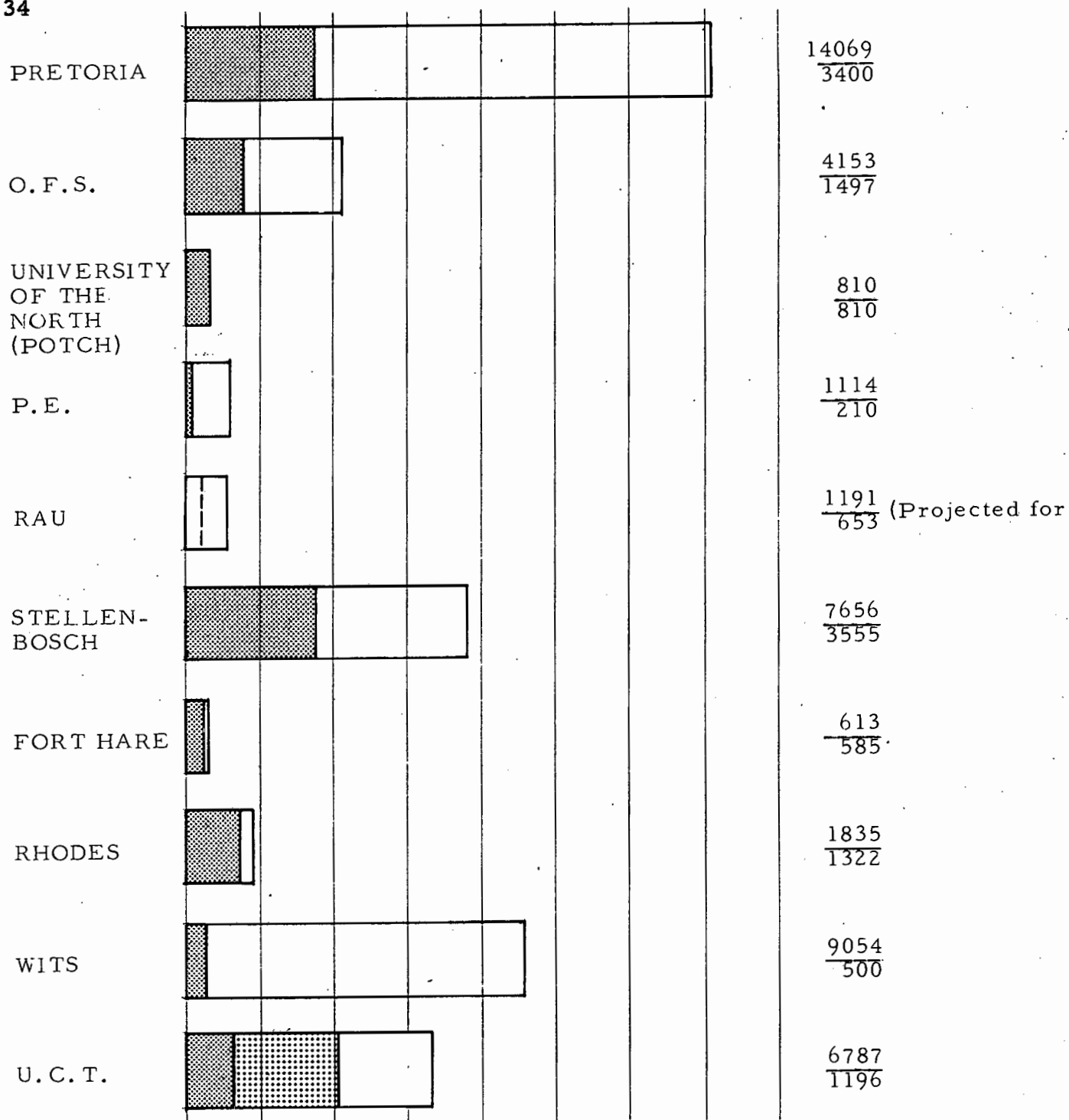
Workpaper No. 3 of the studies undertaken by the University of Cape Town Planning Unit - refer Appendix One for methodology - showed that 51% of the student body in 1970 come from local homes (Ol region). In addition to this, in a memoranda to members of the University Council and members of the Board of Governors of the University of Cape Town Foundation titled "Which Schools do our Students come from" the University Career Advisor (1) stated:

"It immediately becomes apparent that a small number of schools in Cape Town provide an increasing proportion of our students. We see that 16 schools in the Cape Peninsula gave us over 600 students in 1968 or 39% of all new First Year students. The same schools provided only 25% in 1964. The supply of students from the rest of the Western Cape dropped from 27% to 20% whilst the remainder of the Cape Province (i.e. Northern and Eastern Cape and South Western Districts) provided a steady and unchanging 15 to 16% (1964 to 1968). In all, the Cape Province now provides 75% of our students against 67% in 1964.

Our intake from Rhodesia is still high and remains so (137-144-167). The reduction in students (28-16-3) must be seen as an indication of the potential developments in Zambia.

The drop in students from overseas and from the other African States (44-18-8) could be serious for us. We need the broadening influence of outside people. Whilst we may not have much chance of getting undergraduates we could direct certain activities towards getting more research students here from overseas."

(1) Niels Lindhard, 1968, Pages 1, 3, 4 and 5.



Living at Home

Living in Lodgings or accommodation of their own

Living in University Residence

DISTRIBUTION OF STUDENT RESIDENCE BY TYPE AND BY UNIVERSITY - 1970

Source: U.C.T. Planning Unit

FIGURE 4

5.4.2.7

Housing: The Present Position compared

In the academic year 1970, there were 48,495 students receiving full-time university education in South Africa. (1) Of these, it was calculated that on average of 26 per cent were accommodated in university residence. It has not been possible, in all cases, to ascertain what percentage were living at home or in lodgings and the distribution of these three types of residence could vary considerably between the universities in South Africa.

At the University of Pretoria, 24% of the students are housed in residence. At the University College of the Orange Free State, 37% are housed in residence. The University College of the Northhouses all of its students in residence. Stellenbosch University provides residence places for almost 50% of its student population and is now embarking on an extensive expansion programme in this field. At the University of Cape Town, 15% of the students are housed in our halls of residence.

The wide variation in the proportion of students living in different forms of residence is not only attributable to the historical background of the different universities but partly to university policy.

The distribution between living at home and living in residence is shown diagrammatically on Figure 4. More detailed information is given on Table 5 (2).

5.4.2.8

Housing: The Main Categories

In terms of living places, there are basically three main categories:

1. Those housed by the University on campus
2. Those living at home
3. Those living in lodgings

(1) Refer to Government Statistics, Pretoria

(2) Compiled from responses elicited from the various universities by the University of Cape Town Planning Unit.

Of the 6787 full-time students registered at the University in 1970, their various places of living are as follows:

Table 6

Place	Male	Female	Total	% of Total
In Residence	773	443	1216	17.91
With Parents	1978	751	2729	40.20
In private accommodation	889	336	1225	18.04
In their own accommodation	958	357	1315	19.40
Other Hostels	44	34	78	1.15
Sundries	158	66	224	3.30
	4800	1987	6787	100.00

The above figures and all the figures that follow in the sections dealing with student housing were obtained from actual counts taken at the University Lodgings Bureau.

From a sample survey undertaken by the University Planning Unit (based on a population of 4675 students, only the Groote Schuur Campus full-time students being taken) four categories of places of living were considered:

Table 7

Place	Percentage
In Residence	25
With Parents	46
Lodgings/Own accommodation	23
Sundries	1



1. Fuller
2. Smuts
3. Baxter
4. Direkoppen
5. University House

FIGURE 5 LOCATION OF EXISTING ON CAMPUS RESIDENCES

The level of accuracy of the sample survey is indicated if the data is compared with that given by the Lodgings Bureau. The 17.91% in residence of a population of 6787 represents 1169. Similarly, from the sample survey data 25% of a population of 4675 represents 1169 students.

From these statistics comparisons in places of living can be made between those students attending at the Groote Schuur Campus against the total student full-time body. A higher percentage of students attending the Groote Schuur Campus are in residence.

It is significant that although 51% of the total population of 6787 students are of local origin only 40% (2729) live with their parents, while nearly 50% live either in lodgings, with landladies, in other hostels or in accommodation of their own.

5.4.2.9

On-Campus Housing: Number of Places

There are, at present, six residences located on the Groote Schuur Upper and Lower Campuses - this does not include Medical Residence - Refer Figure 5.

The total capacity for student on-campus housing places is 1197. Two further residences for women are projected for 1971. This will increase the number of places by 648 to a total of 1845.

The oldest residence buildings in use are Fuller and Smuts Halls, built in 1925. Only Medical Residence houses both men and women students. Baxter Hall, the newest residence was completed in 1964.

The 1197 students in residence in 1970 are housed as follows:

Table 8

	Male	Female	Total
Medical Residence	70	16	86
University House (Seniors)	107	-	107
Driekoppen	253	-	253
Smuts Hall	217	-	217
College House	115	-	115
Baxter Hall	-	204	204
Fuller Hall	-	215	215
	762	435	1197

Further statistics regarding these residences are given in Table 9, Appendix 9.

5.4.2.10

On-Campus Housing Demands - Undergraduates

From information obtained from the University of Cape Town Lodgings Bureau, the number of applications for residence from new students during the period 1965 to 1970 with the percentage of applications to total registration is tabled below - refer also to Figure 6.

Table 10

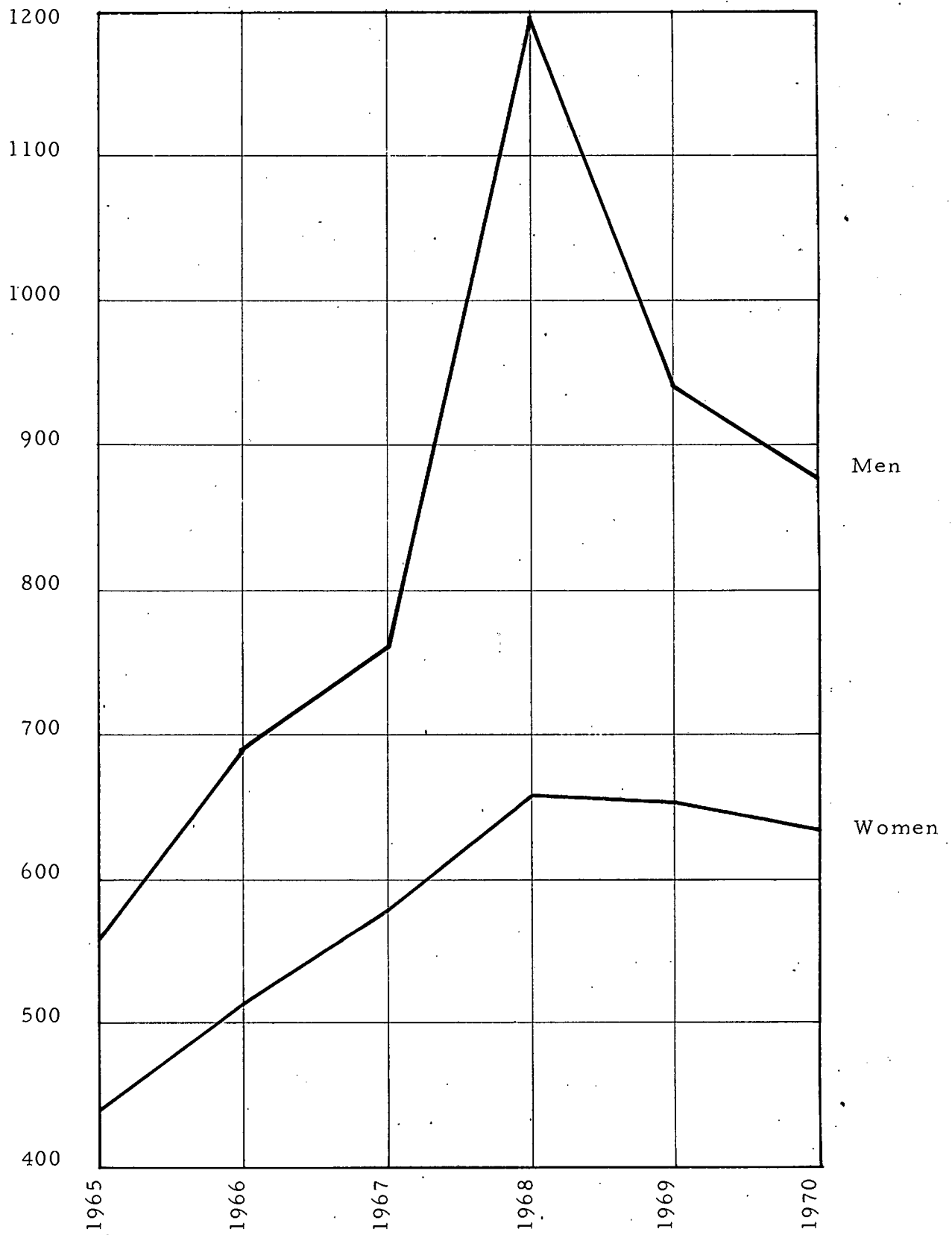
Year	Residences Applied				Residences Accommodated		Lodgings
	Male	Female	Total	%	Male	Female	
1965	561	440	1001	16.5	240	164	373
1966	690	512	1202	18.7	227	161	423
1967	762	579	1341	20.0	218	159	451
1968	1198	657	1855	25.0	201	144	550
1969	940	654	1594	21.0	213	142	626
1970	880	632	1512	19.0	222	144	451

Up to 1968, the increased applications are relatively proportionate to the growth of the total student body - refer Figure 3. Since 1968, a fairly constant figure has been maintained in the applications from female students, whilst the male applications have not increased at the same rate since 1967. The 1968 figure appears to be unusual. There is a fall-off which could be attributed to the fact that students became aware of the sparsity of accommodation. In spite of this, the applications for residence remain at four times the amount of accommodation that can be provided.

The relative increases in applications from First Years are, however, in direct contrast with the decline in applications from senior students (a senior student in this context being any student who is at the University for more than one year). The University Lodgings Bureau classifies all students over the age of 21 as being senior students (the mean age of Third Year students).

The University policy in the past was to stabilise the ratio of new students to seniors to a proportion of approximately one-third 'Freshmen' to two-thirds seniors. In 1965, the University was obliged to refuse admission to students (senior) re-applying for admission to residence, and, in fact, such was the demand from this sector that the Council ruled that to be re-admitted to a residence a student must complete at least two courses of study.

By 1970, the applications from senior students for admission to residence had fallen off to such an extent that all 'suitable' students are now accepted and the remaining places allocated to First Year students. This trend is indicated on the table below.



ON CAMPUS HOUSING:
NEW STUDENT APPLICATIONS FOR RESIDENCE

Source: U.C.T. Lodgings Bureau

FIGURE 6

Comparing changing trends, the following number of students were accepted for residence at the University in 1965 and 1970:

Table 11 (Data from the Lodgings Bureau)

Undergraduates	1965		1970	
	New	Re-applications	New	Re-applications
Men	198	399	240	353
Women	154	263	201	216
Total	352	662	441	569
	1014		1010	

At the undergraduate level the first year students who are classified in this table as being new applications increased both in the case of men and women students by approximately 20% whilst re-applications, representing senior students applying for residence dropped in both cases by a similar percentage.

It has already been stated that the increase in applications for both men and women students in their first years is understandable as it bears a relationship to the general growth of the student body over the past five years. However, the drop in re-applications by senior students would indicate that they would prefer to take lodgings elsewhere.

With men students the numbers of first years as a percentage of the total number of students in residence has risen from 33% in 1965 to 40% in 1970, whilst the number of senior students has dropped by a like percentage. Similarly, according to the Lodgings Bureau, the percentage of first year women students rose from 37% in 1965 to 48% in 1970.

The exception to the fall-off in demand from senior students is at University House (the only official senior residence) where in 1970 the University received 470 applications for residence to fill 107 places. Of the 470 applications, 398 were new applications, these being first time applications for residence from students over the age of twenty one or from students who wanted to be transferred from other residences. The average percentage of applications for transfer is in the region of 50%. (In the case of University House, the buildings are more in the form of cottages and facilities such as a bar - under certain conditions - are available to the students.)

Enrolment statistics show that the undergraduate population represents 90% of the full-time student body. Like their places of living, examination of their preferences and changing trends form a major part of this thesis and consequently are dealt with in greater detail later.

5.4.2.11

On-Campus Housing Demands: Graduate Students

There were 871 post-graduate students at the University in 1969. Of these, 420 were full-time (for growth figures of graduates students see Table 7 (1)) and account for approximately 6% of the student body. In 1960 the total students numbered 5300 and graduates 444; in 1969 total students numbered 8000 and graduates 871. Over the nine year period, the percentage proportionate growth in numbers of graduates to total students changed from 8% to 11%.

In 1965, 28 men and 8 women graduates applied for residence. In 1970, these figures increased to 46 applications from men and 12 from women. Almost all the applications were accepted by the University.

(1) Information obtained from the University of Cape Town Planning Unit.

Because of their greater maturity, the majority prefer to break from the social life of the undergraduate as presently constituted.

It is unfortunate that the number of applications are so low as, in the right circumstances, an increasing percentage of graduates can have a very beneficial effect on the life of the University community at large. Also, suitable independent housing for the graduate student can act as an attraction to first-rate scholars who like to be close to library and research facilities. The plight of graduate students in obtaining suitable and acceptable accommodation is indeed serious. This situation is succinctly illustrated by a letter which appeared in The Argus on Wednesday, 26th August, 1970 - refer adjoining illustration.

The plight of the graduate student was further emphasized in the issue of 'Varsity', the University of Cape Town newsletter (1).

The editor wrote:

"... But for senior students, residence regulations are a humiliating return to a second childhood. Apart from modernising the residence rules, many of the 21 and 30 year age groups of scholars and teaching staff are in desperate accommodation straits.

There is an immediate urgent need for U. C. T. to build cheap flats for students over 21 - especially postgraduate researchers, tutors and junior lecturers. At the very least U. C. T. must follow the lead of overseas universities and immediately give the Lodgings Bureau instructions and budget to enable it to buy up cheap housing and flats in lower income areas until it can erect bachelor and married quarters of its own."

(1) 'Varsity', 26th August, 1970.

5.4.2.12

On-Campus Housing Demands: Married Students

Of the three major categories of student - single undergraduate, single graduate and married student, the latter are the easiest to house and have the greatest difficulty finding suitable housing. The University of Cape Town has only five quarters for married students, all of which were built following the war for returning ex-servicemen, and at present, no programme for housing married students is projected, although they, as a group, represent 14% of the total student population - 694 are men and 298 women, approximately 40 may be duplicated. (1)

They are simple to house in that virtually their sole requirement is a flat; they represent no problems of a disciplinary kind; they are generally better than average students and require very few supporting maintenance or administrative personnel. Housing for married students per capita (including husband and wife) is cheaper to build than undergraduate housing and it can be financed on a strictly self-amortising basis.

5.4.2.13

Off Campus Housing

The Table below indicates the assumed relative grouped frequency of the students' place of residence as taken from Column 15 of the Student Questionnaire. The data was originally grouped from Table 69 - Place of Residence, Student sample.

Table 13

(From Planning Unit Table 70, Student Questionnaire, Column 15)

Place of Residence	Frequency	Relative Frequency as a %
Southern suburbs other than below	70	30
University Residence	59	25
Rondebosch: Upper, middle, lower	33	14
Western Suburbs	22	9
Cape Town Central	19	8
Rosebank: Upper and lower	11	5
Northern Suburbs	10	4
Pinelands	8	3
Woodstock, Salt River, Observatory	3	1
Totals	235	99

The Survey prepared by the Planning Unit showed that:

- 25% of the Student sample live in University Residence
- 49% of the Student sample live in the Southern suburbs including Rondebosch and Rosebank
- 9% of the Student sample live in the Western Suburbs
- 4% of the Student sample live in the Northern Suburbs
- 3% of the Student sample live in the Pinelands area.

In Table 6 the 17.91% given as living in residence was equated in that section of this research with the 25% given above.

The index to the places of residence (Figure 17) and the assumed spatial distribution (Figure 18) are given later under the section dealing with the University and the City.

The methodology adopted by the Planning Unit in the preparation of the student sample is given in Appendix 1.

5.4.2.14

Lodgings

From 1954 to 1970 the number of students living in lodgings, other hostels or in their own accommodation more than quadrupled from 777 to 3321. This is a result of the decreasing proportion of students living at home and a virtually static proportion in university residence - the last two residences built were Baxter Hall in 1958 and Driekoppen which opened in 1964.

In 1970, 555 places were offered to students through the University's Lodgings Bureau (336 females and 1225 males live in lodgings). There may be many more living in University-approved accommodation as some landladies do not re-register, but once established, continue to fill their places offered by personal contact or reference.

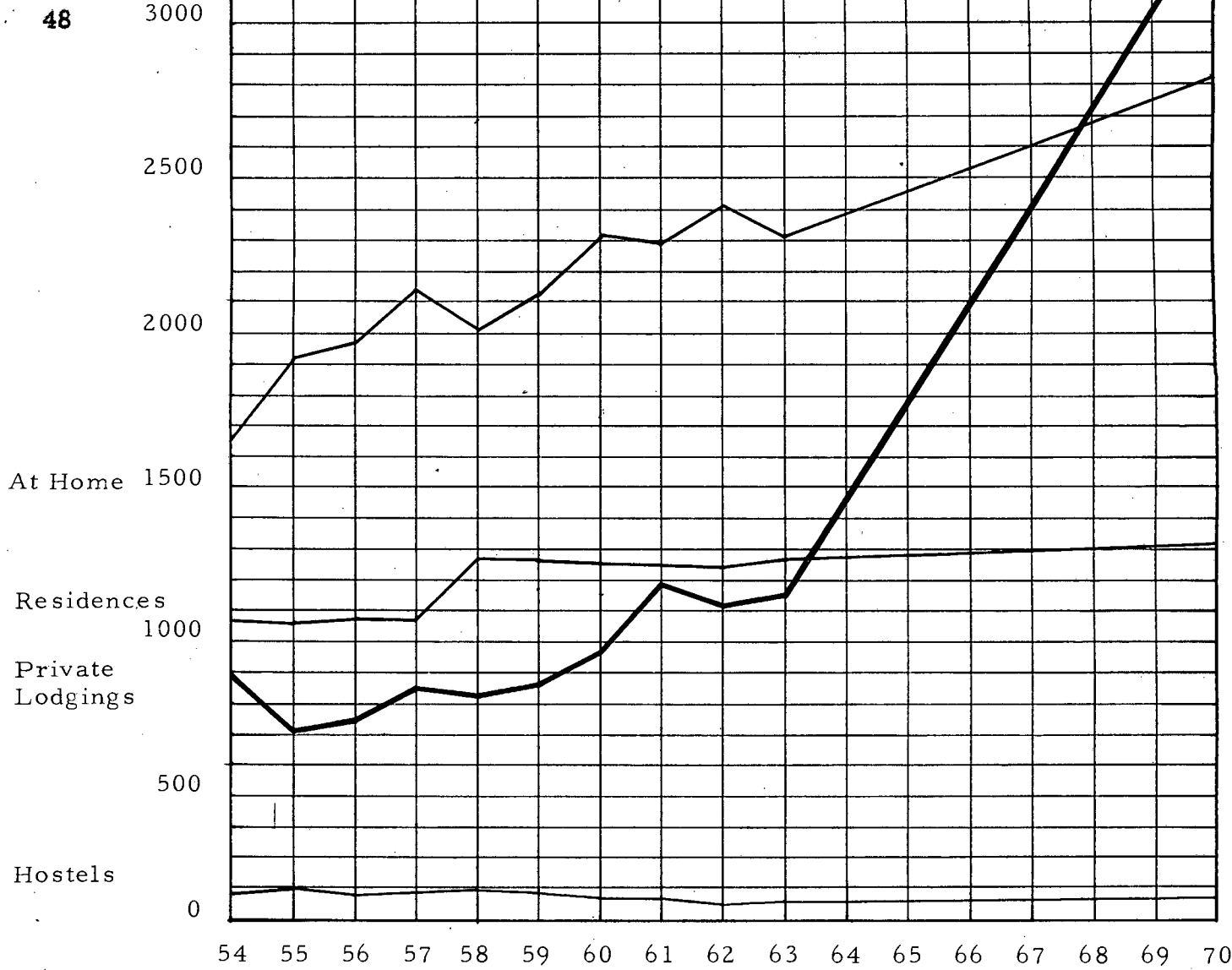
Nevertheless, the number in lodgings exceeds those in official residence (1315 to 1216) of which just over two-thirds of the students find their own lodgings with landladies not registered at the University.

The number of landladies and places offered and numbers accepted are set out below:

Table 14

Area	No. of Landladies	%	Places Offered	%	Places Accepted
Rondebosch/Rosebank/Mowbray/Observatory	136	43	227	48	117
Claremont	56	10	61	12	29
Newlands	42	9	47	10	24
Pinelands	26	6	38	7	18
Wynberg	12	2	12	12	30
Kenilworth	31	10	55	-	-
Constantia/Plumstead/Muizenberg	17	2	11	2	7
Tamboerskloof/Gardens	46	6	36	7	18
Athlone/Woodstock	22	9	47	-	-
Sea Point		4	21	2	5
		101	555	100	248

In 1970, the number of record cards of Landladies kept at the Lodgings Bureau was 555; the number of students who accepted accommodation was 248. The percentage of accommodation offered to and accepted, indicates preference for the Rondebosch, Rosebank, Claremont, Newlands and Wynberg areas.



TOTAL NUMBER OF STUDENTS LIVING IN UNIVERSITY
RESIDENCES, HOSTELS, PRIVATE LODGINGS AND AT HOME

Source: U.C.T. Redevelopment Survey 1964 - Years 1954 to 1963
U.C.T. Planning Unit, 1970 - Year 1970

FIGURE 7

5.4.2.15 Present Accommodation Trends

Present trends reveal a proportionate decline in the number of students living at home. There is also a declining trend in the number of senior students applying for places in the university residences. Only applications from new students are proportionately increasing to the number of students enrolled at the University - refer Table 10.

From the data - refer Figure 7 - as less students are living with their parents, the first impression is that the University is becoming more orientated to a wider student market than is being supplied by Cape Town; but figures from the University Careers' Office have, in fact, shown the opposite, because the intake of students of local origin is becoming proportionately greater - refer Section 5.4.2.6.

The residential characteristics of the students seems to indicate that the general trend of young people to seek freedom is being followed. This assumption will be tested by examining student social attitudes in Section 5.4.3.

5.4.2.16 The Present on-campus Housing Provision

Although proximity encourages contacts it cannot ensure that these contacts will develop into close-knit friendships and social groups. Furthermore, as both Meier (1) and Webber (2) have pointed out society no longer relies entirely on physical proximity to facilitate social contact. In a relatively homogeneous community, such as a group of senior students a number of factors which determine the development of friendships such as similarity of interests and aspirations are already present. In these circumstances, the manipulation of physical form is more likely to become a major determinant in the development of social groups.

- (1) R. Meier, 1970
- (2) M. Webber, 1964.

5.4.2.17**Method of Presentation**

Rather than present the residences as built form studies, the present on-campus housing provision has been analysed and illustrated with emphasis on their social hierarchy. With a background knowledge of the sub-cultural structuring of the present halls of residence, the investigation into and responses elicited from the student population will be seen in a clearer context. Also, by adopting this procedure, relative comparison with current thinking and structuring of halls of residence will also be more easily possible.

BASIC STATISTICS

All Female Residence
Total Students accommodated 216
Total Tutors accommodated 1
Three-storey building around courts
Flats formed around staircases
Gross area per student 440 sq. ft.

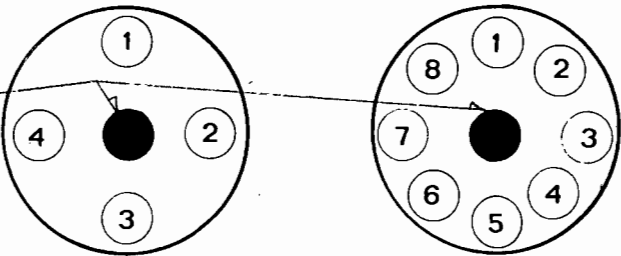


FIRST UNIT

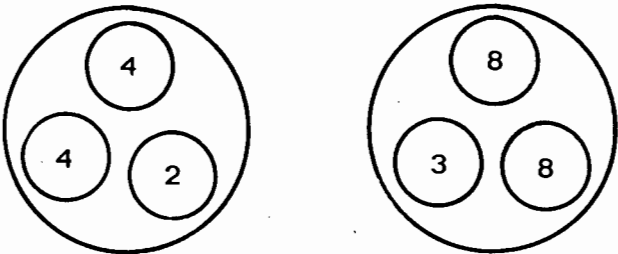
Single Study-bedroom
Area per Student room 150 sq. ft.

SECOND UNIT PRIMARY GROUP

Communal Facilities
Four Studies per Floor or
Eight Students per Floor



THIRD UNIT SUB-CULTURAL GROUPS



10 Students 19 Students

FOURTH UNIT
THE HALL OF RESIDENCE

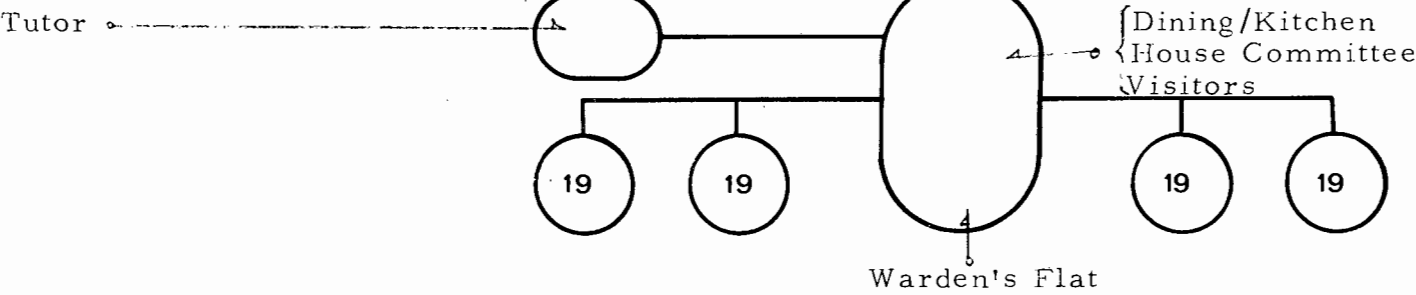
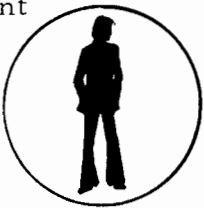


FIGURE 8 FULLER HALL

BASIC STATISTICS

All Male Residence
Total Students accommodated 216
Total Tutors accommodated 1
Three Storey building around courts
Flats formed around staircases
Gross area per student
440 sq. ft.

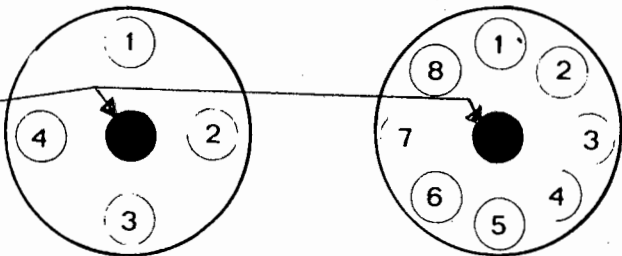


FIRST UNIT

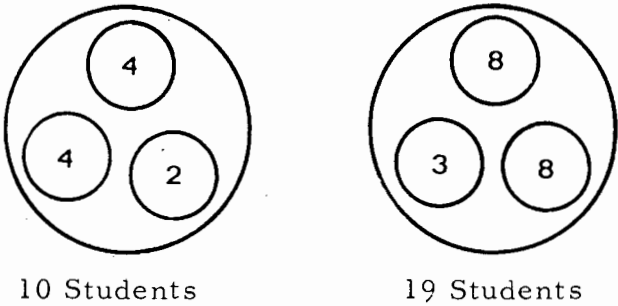
Single Study-bedroom
Area per Student room 150 sq. ft.

SECOND UNIT PRIMARY GROUP

Communal Facilities
Four Studies per Floor or
Eight Students per Floor



THIRD UNIT SUB-CULTURAL GROUPS



FOURTH UNIT
THE HALL OF RESIDENCE

Tutor

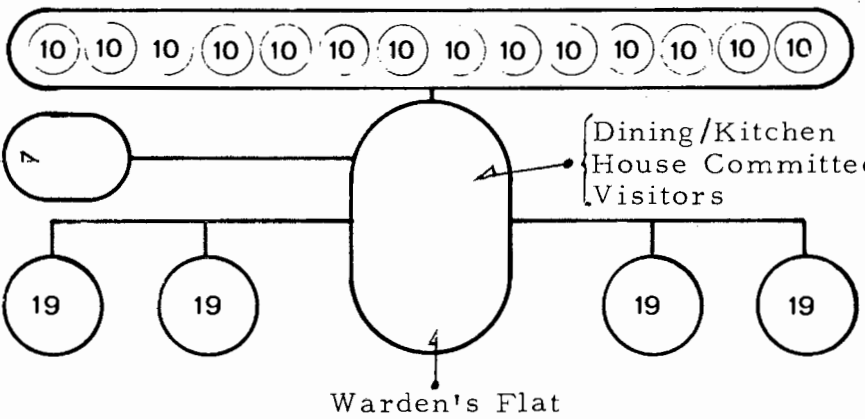


FIGURE 9 SMUTS HALL

53 BASIC STATISTICS

All Female Residence
Total Students accommodated 202
Total Tutors accommodated 2
Three-storey 'Pavilions' around courts
Flats formed around staircases
Gross area per student 590 sq. ft.

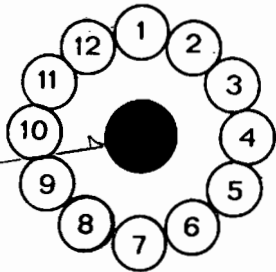
FIRST UNIT

Single study-bedrooms
Area per Student room 90 sq. ft.



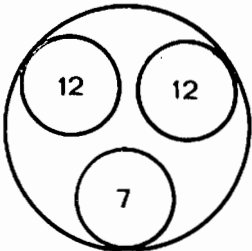
SECOND UNIT

Communal facilities
No. of groupings per floor vary



THIRD UNIT

Typical average total student per pavilion + 31



FOURTH UNIT HALL OF RESIDENCE

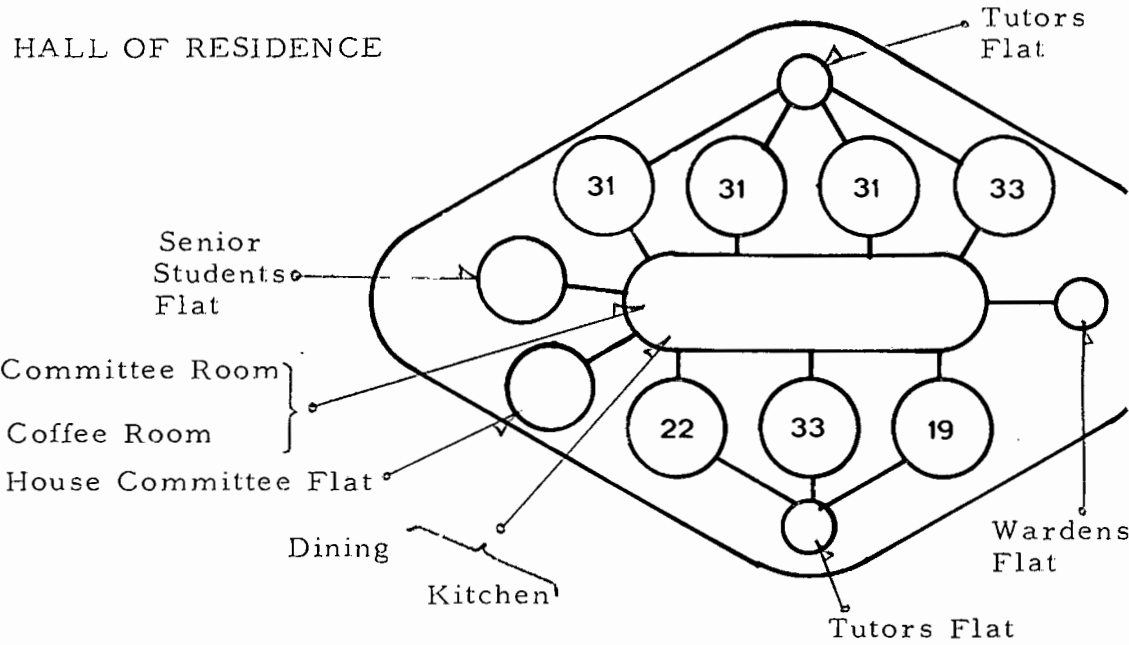


FIGURE 10 BAXTER HALL

BASIC STATISTICS

All Male Residence
Total Students accommodated 253
Four residence Blocks forming Houses
Houses subdivided per floor into sub-cultural groups
Average height of building four-storeys
Gross Area per Student 455 sq. ft.

FIRST UNIT

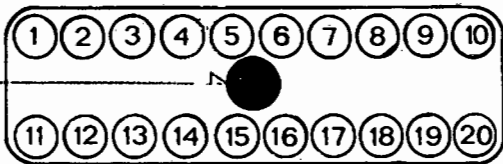
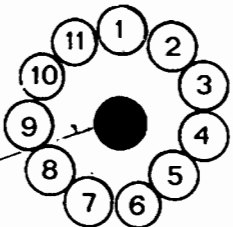
Single Study-bedroom
Area of student room varies



SECOND UNIT PRIMARY GROUP

Average 11 students per floor, or
Average 20 students per floor

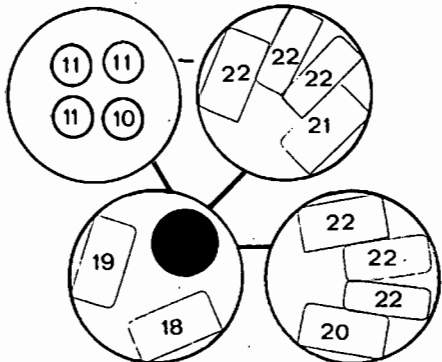
Communal Facilities



THIRD UNIT THE FOUR HOUSE GROUPS

Libraries
House Committee
Rooms
Warden's office

Total Student Numbers 43, 87, 86, 37



FOURTH UNIT HALL OF RESIDENCE

Kitchen
Dining
Common Rooms
Visitors' Rooms

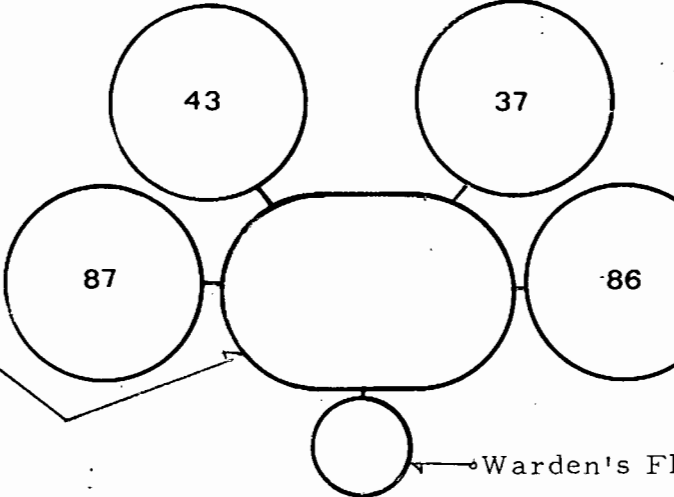


FIGURE 11 DRIEKOPPEN

BASIC STATISTICS

All Male Residence (Seniors)
Total Students accommodated 107
Approximately 50% Graduates
All buildings single-storey
Five Blocks
Open Corridor system
Gross Area per Student 190 sq. ft.

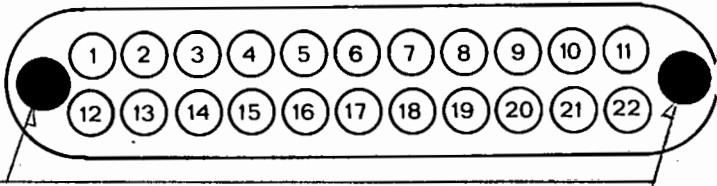


FIRST UNIT

Single Study-bedrooms
Area per Student room 110 sq. ft.

SECOND UNIT

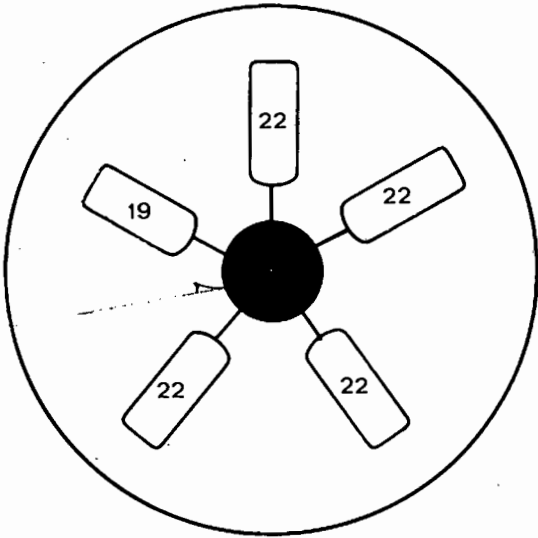
22 Students per block
Communal facilities



THIRD UNIT FIVE BLOCKS

House Committee/
Common Room

Matron's office/
Sewing Room



FOURTH UNIT HALL OF RESIDENCE

Kitchen
Dining

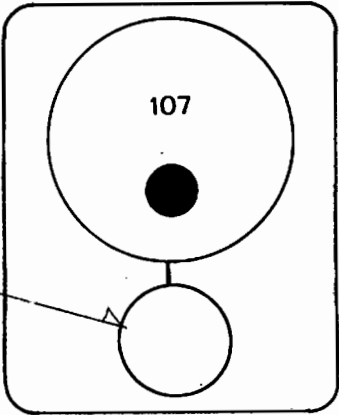


FIGURE 12 UNIVERSITY HOUSE

5.4.3 THE SOCIAL ASPECTS OF STUDENT HOUSING

In the previous section, 5.4.2, it has been shown that although our student numbers are increasing, applications for residence from senior students have fallen off considerably (Section 5.4.2.10) and even the proportionate number of students living at home has decreased (Section 5.4.2.15). Only applications from new students have increased in relation to the growth of the total student body (Section 5.4.2.10).

Phyllis Allen, a former teacher who has had considerable experience in youth and social work, in describing students, wrote: (1)

"Students vary - not only on account of academic subject of social class. They need food and drinks, not only at accepted times but additionally. They need sleep, also in addition to the customary times. They may be restless, and also noisy, when others need sleep. They need to stretch their muscles, to jump about, to dance, sing, shout and fool around. They need to be on their own, and they need company. They need personal space, and they need to share. They are consistently short of money. They require possessions and, to do things. They need to learn how to budget. They need encouragement to study regularly. They need quiet. They need

(1) Architects' Journal, 1965, Page 905

fun, laughter and gaiety. They need to be independent, and also to know where they can find support. Sometimes they are sick or injured; a few have serious disabilities. They share the varying needs of other young people."

This section of the thesis attempts to evaluate student attitude and through this evaluation to re-examine housing policy.

As numbers increase and as their political and social interests develop, students form a more distinct and influential group in society as a whole. The older types of living accommodation have to be questioned both as a background for the student's social and intellectual development, and as a means of contact with university staff and members of the general public.

It has been suggested, for example, by some students (especially in their first years at the University) that the hall of residence forms a good background for the development of friendships. On the other hand, other forms of residence may be equally effective as social and intellectual backgrounds. Such divergencies of view are not altogether surprising.

Within the university, one hall varies from the next in terms of student numbers, sub-units within the hall, the geographical relationship and patterns of activity between hall, university and city, the physical form of the building, the provision for different types of activity, the relationship between the staff and students and the degree of authority exercised by the staff over the students.

The student's social life is composed of many contacts with his teaching environment, his residential environment, the city in which the university is situated, and other locations not immed-

lately related to his university life. A large proportion of the student's social life occurs in his place of residence. The three basic forms of residence available - home, lodgings, and hall of residence - should be correlated with the student's formation of friendships, academic performance, opportunity and involvement in both the social life of the university and extra-mural activities offered on campus.

The studies described in this section have proved informative in indicating the social and academic desirability of different forms of housing. They also indicate the types of housing which the students tend to prefer at different stages of their careers.

5.4.3.2

Survey of Student Living Attitudes - Methodology

A method had to be evolved to correlate home, lodgings and halls of residence with the students' formation of friendships, academic performance, opportunity in campus involvement both socially and extra-murally. To have employed the 'questionnaire technique' based on a random sample size would have meant drawing data from approximately 250 students in order to achieve an overall reliability figure of approximately 5%. A programme of this sort would have proved complex and expensive and was rejected out of necessity rather than choice.

The students were selected at random from halls of residence, lodgings and those living at home with the sample further stratified by academic seniority and sex. The selection of students for interviewing was made by phoning each of the university residences and asking the hall porter to connect any student available at that time who was a first year student, and then similarly senior students were approached. No face to face contact was made, co-

operation was obtained by explaining briefly to the student being interviewed that the purpose was to assess student preferences for living places.

At each student level a minimum of three interviews took place and wherever possible, without introducing subjective choice, the students contacted were from the same faculty, as differential faculty membership would have introduced an additional variable.

The responses elicited are preferences of the individual students interviewed; but cannot be taken as preferences for the total student body. The conclusions drawn must be considered simply as attitudes and, although not statistically valid, are considered a fair reflection of student preferences.

In each interview, attitudes to student living generally first took place. Then, taking 'the opportunity to make friends' as the criterion the student was asked to choose between living at 'home', in 'lodgings' or 'residence'. Similarly, preference for the three living places was probed in relation to the students' opportunity to study and do well academically, to take part in any campus activities outside the scheduled tuition classes and finally the desire or degree of independence was discussed in relation to place and type of living.

In almost all cases, positive response to the 'questionnaire' was experienced although invariably lengthy explanation and discussion followed.

In tabulating the information, the student categories were eventually divided into first year students and seniors. Seniors defining all other undergraduate students who are not first years, as the

responses of the majority of students other than first years was so similar it was eventually decided to classify them all in one group.

In cases where students are of foreign origin (that is, originating from outside the OI region) the choice for various criteria by 'living at home' was still offered to test preference.

The numbering system employed indicates preference in order of precedence so that a number 1 indicates first choice.

The following analysis must be read in conjunction with actual 'places of living' data originally given in Section 5.4.2.8, Table 6, but for easy reference is repeated below.

Table 6 (Information from the U.C. T. Lodgings Bureau)

Place	Male	Female	Total	% of Total
In Residence	773	443	1216	17.91
With Parents	1978	751	2729	40.20
In private accommodation	889	336	1225	18.04
In their own accommodation	958	357	1315	19.40
Other hostels	44	34	78	1.15
Sundries	158	66	224	3.30
	4800	1987	6787	100.00

By adding the 1225 students living in lodgings to the 1315 in their own accommodation a percentage of 37.44% of our students have elected to live on their own.

5.4.3.3

Student Attitude Survey Responses

Table 15

Responses Undergraduate First Year Female

Place of living Offered	Formation of Friends	Academic Performance	Campus activity	Independence	
At Home	2	1	2	1	These students questioned were all living at home.
In Lodgings	3	2	3	2	
In Residence	1	3	1	3	
At Home	2	2	2	3	These students questioned were all living in lodgings.
In Lodgings	3	3	3	2	
In Residence	1	1	1	1	
At Home	2	2	3	3	These students questioned were all living in residence.
In Lodgings	3	3	2	2	
In Residence	1	1	1	1	

From this group a preference by all foreign students was shown for living in residence.

The students living in lodgings were 'anxious' to get into residence.

The students living at home felt residence offered more opportunity for formation of friendships and involvement in campus activities.

Table 16
Responses Undergraduate First Year Male

At Home	2	1	2	1	These students questioned were all living at home.
In Lodgings	3	2	3	2	
In Residence	1	3	1	3	

At Home	2	2	2	2	These students questioned were all living in lodgings.
In Lodgings	3	3	3	3	
In Residence	1	1	1	1	

At Home	2	3	2	1	These students questioned were all living in residence.
In Lodgings	3	2	3	3	
In Residence	1	1	1	2	

As in the previous group, preference was shown for living in residence for all groups except in regard to 'independence' where the group living in residence would prefer to live at home.

Preference for living 'at home' correlated with the desire for independence by first year students living in residence was the response given in the later part of the year when the interviews were being completed. This desire for independence was apparently not felt during the first half of the academic year.

Although not statistically significant, the responses given by first year male students living at 'home' was identical in response to female students living 'at home.'

Table 17

Responses Undergraduate Senior Females

Places of living Offered	Formation of Friends	Academic Performance	Campus activity	Independence	
At Home	3	1	3	3	These students questioned were all living at home.
In Lodgings	1	2	3	1	
In Residence	2	3	1	2	
At Home	2	3	2	2	These students questioned were all living in lodgings.
In Lodgings	1	1	3	1	
In Residence	3	2	1	3	
At Home	3	2	2	3	These students questioned were all living in residence.
In Lodgings	1	3	2	1	
In Residence	2	1	1	2	

1. All the students interviewed preferred lodgings in fostering the formation of friendships.
2. All the students were happy academically in their present abodes.
3. All show a preference for residence in regard to extra-mural activity.
4. Two-thirds of the students preferred being in lodgings for the independence.

It would appear that living in lodgings facilitates independence as opposed to the restrictive environment of residence and home.

Table 18

Responses Undergraduate Senior Male

Places of living Offered	Formation of Friends	Academic Performance	Campus activity	Independence	
At Home	3	1	3	2	These students questioned were all living at home.
In Lodgings	2	1	2	1	
In Residence	1	3	1	3	
At Home	2	1	3	1	These students questioned were all living in lodgings.
In Lodgings	1	2	1	1	
In Residence	3	3	2	2	
At Home	2	1	2	3	These students questioned were all living in residence.
In Lodgings	3	3	3	1	
In Residence	1	2	1	2	

1. Two-thirds of the students would prefer to be in residence to foster the formation of friendships.
2. Academically, all of the students preferred to study at home.
3. Two-thirds had preferences for living in residence as far as extra-mural activities are concerned.
4. Although there is no clear agreement from any sector, all of the senior male students preferred lodgings for reasons of independence.

5.4.3.4

Student Attitudes at the University of Cape Town: Evaluation

It has already been stated that no conclusions can be drawn on preferences that are statistically not proven. As a result of the background studies carried out prior to the interviews, there was an awareness that differing levels of value might be attributed to the four criteria chosen. With first year students the desire for independence would not be considered as important as academic performance, the ability to make friends and opportunity for involvement in campus activities. With senior students the desire for independence and the right to develop one's own values was equated on an equal level to academic fulfilment with the opportunity to participate in extra-mural campus activities sacrificed to optimising the other benefits.

Attitudes indicate that the senior male and female students prefer to live in lodgings for reasons of independence. In discussion, the desire for 'independence' was three-fold. Firstly, independence from housemasterly attitudes and petty restrictions; secondly, independence from inflexibility of the 'sub-group' arrangements in the formation of friendships, where the sub-groups were enforced initially by distribution in the initial years and re-enforced in the latter years by the built form which cloistered students together who, in some, cases, were not compatible.

The third reason given for the desire to attain a greater level of independence was that the Hall of Residence has, where compatibility was not a problem, fostered the formation of friends but the restrictions already referred to became the major consideration for not continuing in residence.

In the light of the attitudes revealed, it is understandable that 'disenchantment' with the 'residence way of life' manifests itself with certain students towards the end of their first academic year at the university.

During the course of the interviews, it was found that demands for alternative types of accommodation develop for various reasons. Firstly, as already stated, attitudes change as the student progresses through the different stages of his, or her, academic career.

Secondly, students from different backgrounds entering the university have varying attitudes to accommodation.

Thirdly, the students' course of study can radically affect their needs for social contact both within and without the university. This applies particularly to students taking Fine Art or Architectural courses where contact with technicians from a wide field of related industries is desirable.

First year students, both male and female, gave their existing place of residence as suitable for academic work, reflecting either an undeveloped social life or an acceptance of a new educational situation in which the possibilities of other places of study have not been seriously considered.

The senior women students, in every case, similarly gave their existing place of residence as being most suitable for academic opportunity.

By contrast, senior male students considered that working at home would give them the best opportunity for academic success. It is possible that the conditions of social life make it more difficult for the male student to demand for himself the privacy and detachment required for academic study.

Although the study was not based on a statistically reliable sample, the fact that the first year male and female living at home category results are identical, appears sufficiently encouraging in the field of probability to suggest that a further sample of student attitudes probed in this field of investigation would reveal meaningful results.

Various studies by others have been carried out with particular emphasis on the changing demands, as the student progresses through his academic career. In order to see the responses from students at the University of Cape Town in the broader context of student preference trends, an examination has been made of the most recent sociological studies available.

5.4.3.5

Residence Sociological Structure - The Inbuilt Hierarchy

The complexity of a typical case examined is suggested in a recent study by Sim van der Ryn and Murray Silverstein (1). In this case a dormitory complex for 860 students at Berkeley, University of California, was under study. Although the dormitory had won awards for its aesthetic qualities, as at the University of Cape Town, the number of students vacating their rooms and taking up residence elsewhere suggested it was deficient in other respects. This study also raises the issue of the extent to which a building can or should influence the lives of its occupants. In this case, the Berkeley complex was intended to create and foster a hierarchy of social groups - from the double bed-sitting room through a variety of intermediate lounges, 'dating-rooms' and so forth to a central dining room and recreational area.

This type of inbuilt hierarchy is very common in the United States and Canada and, as shown in a previous section - Figure 13 - is

(1) S. van der Ryn and M. Silverstein, 1967.

being planned for further residences at the University of Cape Town. Its aims have been recently outlined in a study of university housing in Canada (1).

"The first unit in such a hierarchy is the study-bedroom itself. Single rooms offer the maximum amount of privacy and the greatest opportunity for the student to assert himself as an individual; however, double rooms provide a certain companionship with a minimum of social adjustment. The second unit in the hierarchy is ideally formed by six to ten students constituting an intimate primary group within which students can perform as members of an efficient working and social community. The third unit usually consists of thirty to sixty persons, and is small enough for students to know one another as more than casual acquaintances. It is important for this group to have clearly defined limits, as well as a true focus and a convenient place where all members of the 'house' can gather. The next group in the hierarchy is the 'hall' which is a larger planning unit with 220 to 250 students, or the equivalent of four to five house groups. This unit is still small enough to foster 'hall' identity, and is said to be significant in establishing the notion of citizenship and social development. Once again, the boundaries of this unit must be clearly defined; its focus is found in common amenities such as recreational facilities and large common rooms where scheduled parties and leisure activities take place. In addition, to these common facilities, the 'hall' group can be the ideal centre for dining facilities.

The next stage in the hierarchy is the hall itself of perhaps 200 - 500 students. Beyond that is the next stage, the central university facilities, which are usually in the form of a 'Union' with large-scale dining and recreational accommodation."

(1) J. Bland and N. Schoenauer, 1966.

Proposals for the six new universities in Britain are tabled below. In most of these cases a student hierarchy within the residences was clearly envisaged.

Table 19

Hostel Proposals for Six British Universities

Students - expansion target	Students - residence target (per cent)	'Hostel' size - students	Smaller social units size - 'students
Warwick			
Initial target 66 5,000 expanding to 15,000 - 20,000 'build- ings of differ- ent forms'; 'accommodation of different kinds'; 'each hall should be designed to enable an individual to develop a more personal allegiance to a smaller group'		1,000 (with non-residents) dining rooms, common rooms, library, social and recreation- al facilities	10 or 12' around a staircase or on a single floor. Flat- lets for grad- uate students
Leeds			
7,000 'Blocks usually four storeys high', recognisably different from one another in their form	100	180 maximum made up of 25 - 40 per block (with non- residents) 'formal dining and canteen service', 'common rooms' and library, possible use of these in an en- larged Union building	6 - 10
York			
A steady growth to 3,000 eventually 7,000 'two distinct building forms within each college', a 'proportion of the unmarried staff and post- graduate students also to be accommodated in the college building'	66	300 (150 and later 200) resident. 'There is, however, a strong case for giving young people a centre of loyalty smaller than the large unit of the whole uni- versity, and for bringing about some measure of integration of their living, learning and social activities'	-

Table 19 cont.

Students - expansion target	Students - residence target (per cent)	'Hostel' size - students	Smaller social units size - students
Kent			
6000	100	300 resident	
'a merging of learning and living'		300 non- resident	
Essex			
6000	-	No colleges or halls	-
'tower blocks 14 storeys high, rather like blocks of flats' - 'akin to the life the student normally lives at home' - 'normal facilities a teen- ager would expect in a town of the 10 to 20 thousand population range'		Flats or apartments complete with com- mon living room and kitchenette	
		12 eg - 7 study bedrooms 5 studies for 20 non- residents	
Surrey			
5000	66	Houses of up to 50 'indivi- dual study bed- rooms, also flats'	12
three bands of activity - residential, social and academic - 'residential clusters from 3 to 12 storeys'		'units of 12 combined vertically or horizontally to form houses'	

5.4.3.6

Hierarchy of Groups at Stellenbosch

Another scheme also based on the hierarchical system is for the University of Stellenbosch. A new girls' hostel for 272 students is at present being designed by Cape Town Architect, Gabriel Fagan, and will have 12 single rooms and 2 double rooms, as the first units which together form the second unit of 16 students. A total of 17 such groups forms the 'hall' of 272 students.

Without having undertaken a study in any depth of any other residences at Stellenbosch university, the new proposals described above are a radical change from the 'hostel' approach adopted by the University up to now.

The communal areas are located half-way up the building and served by lifts. The study-bedrooms on the floors above the communal area are also served by lifts and will most probably be made available to senior students. The floors below the communal areas will accommodate first year students and be served on a 'walk-up' basis. A rigid dichotomy of junior/senior students is suggested with the senior students, through the built form, being afforded certain definite privileges.

5.4.3.7

An Assessment at Pretoria University

In a master of Architecture degree thesis at Pretoria University (1) an assessment of the hierarchical system both from a sociological and built form point of view was made.

Three mens' hostels at the University of Pretoria were examined and analysed.

1. Sonop (1916 - 1959)

Basically a single storey complex comprising 142 single rooms and 18 double rooms.

The first year students are all accommodated in double rooms in separate double storey buildings. The senior students are accommodated in clusters of single rooms with 4 rooms per cluster similar to University House at the University of Cape Town. All communal facilities are centralised and shared by

all of the students. An illustration of the layout is shown in Addendum 2.

The character generally of the residence is an informal one, comprising a series of four-roomed cottages with some of the 'cottages' linked by covered ways.

2. Bockenhout (1963)

A residence housing 260 students with three wings, A Block four storeys high and the other blocks three storeys high. The first block has 13 double rooms per floor plus a tutor's room and accommodates first year students.

The other blocks have 27 single rooms and 1 reading room per floor over their three storey height.

The character generally is institutional and a typical 'hostel' building type. Rooms are placed along long corridors with toilets and lounges provided off the general passageways. An extensive warden's flat is attached to the scheme. A diagrammatic illustration of the complex is shown - refer Appendix 3.

3. Kollege TEhuis (1960)

Like Bockenhout, this residence is also medium-rise and has place for 219 students.

Sociologically, no specific sub-cultural grouping was evident from descriptions in the report and the complex was basically institutional and hostel-like in its concept.

By comparing the three residences, the study probed various aspects of student living in relation to built form. A questionnaire survey was employed and involved the total student population of

PROPOSED NEW RESIDENCES

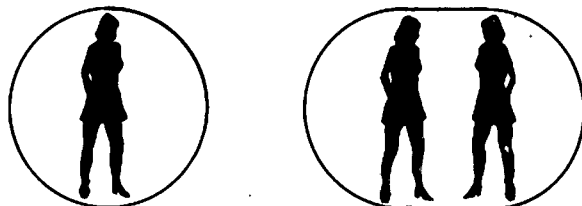
73.

BASIC STATISTICS

Female first year students
Total accommodated 648 in two buildings
Total per building 324
Two buildings
11 Storeys high each
Ground floor and First Floor - service functions
3 Houses of 3 floors
each per building

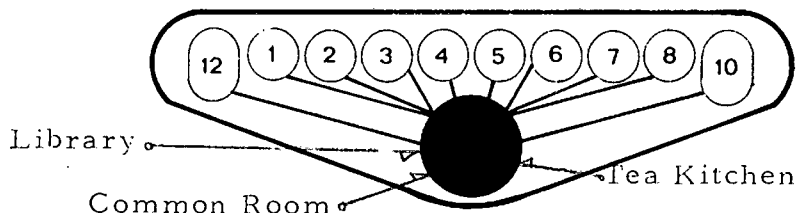
FIRST UNIT

60% single rooms - 105.5 sq. ft. each
33% double rooms - 171 sq. ft. each



SECOND UNIT

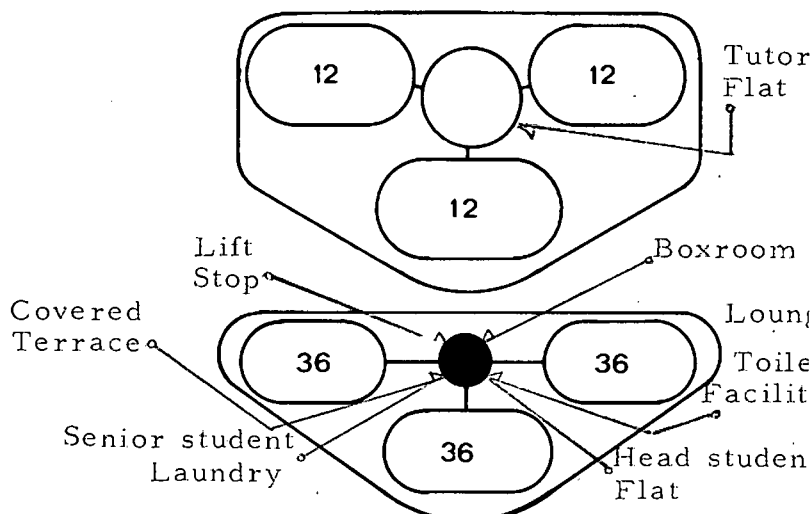
Typical Wing - 12 students



THIRD UNIT

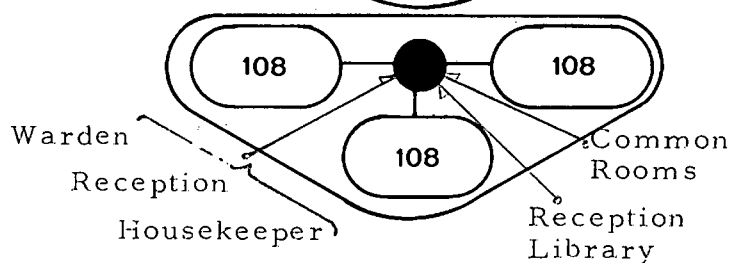
Typical Floor

3 Wings for 36 Students



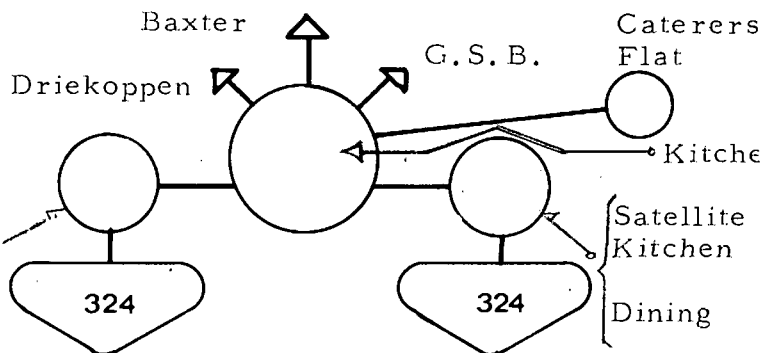
FOURTH UNIT HOUSE

Typical House - 108 students
3 Floors



FIFTH UNIT HALL OF RESIDENCE

324 students



SIXTH UNIT

Two x Halls of Residence - 648 students
sharing common kitchen



FIGURE 13 PROPOSED NEW RESIDENCES

each hostel. From the tables given in the report, the student responses showed positive preference for living in the 'cottage type' of residence at Sonop. The Author, after considering all the factors, strongly recommended the advantages inherent in this type of residence.

5.4.3.8

The Hierarchy of Groups to be repeated at the University of Cape Town

At the University of Cape Town the scheme presented to the sub-committee of the Residences' Committee dealing with the programming of requirements for the new womens' residences envisaged a hierarchy almost identical with the Canadian examples described by Bland and Schoenauer with the single room as the first unit leading up to the hall of residence of 324 students - refer Figure 13.

Extracts from Residence Committee meetings (1) give a broad picture of the scheme as prepared by the Architect, Professor C. Strauss Brink, architect to the University:

"A new women's residence is required for the University, to accommodate three hundred (300) predominantly junior students. The residents are to be housed in single bedroom units, contained in a high-rise (multi-storied) building which will also provide communal facilities. Experience has shown that where such a large number of intelligent people have to be housed together the individual's needs should not be sacrificed to the overall plan for the mass. The design-approach should therefore concentrate in the first instance on the individual resident and her requirements, then on her relationship to the community. A special effort should also be made to avoid the institutional effect given by long narrow corridors.

(1) Minutes of the Sub-committee of the Residences Committee, 1965.

The best means of obtaining the environmental process of linking the one to the many is through a series of smaller to larger units, culminating in the whole. This design process must take place unobtrusively and organically. The following system is therefore suggested:- the individual resident is placed in a bedroom in which her immediate needs such as sleeping, studying, washing, privacy, storage of clothing, books and cleaning utensils are provided for. When she leaves her room she becomes part of a small group consisting of about ten other residents, supervised by one of them who may be senior. Communal facilities such as baths, toilet, hair-washing, showers, laundry and ironing are shared by two such small groups, which now therefore comprise twenty residents. Five to six of these small groups form a house, comprising about sixty students under a senior student, and sharing a common recreational space and committee room. Five of the above houses are laid horizontally on top of one another to complete the dormitory block.

By means of adequate lifts and stairs the dormitory block is suitably linked with common facilities for all the residents, i.e. dining room, public reception rooms, recreation room, telephone exchange."

5.4.3.9 Student Types

A number of sociologists have suggested that the university community can be separated into a number of types. Clark and Trow (1) referred to in the Berkeley study, suggest that there are four types of 'sub-culture on the American college campus'.

These groups are termed 'academic', 'collegiate', 'nonconformist'

(1) B. Clark and M. Trow

and 'vocational'. The Berkeley survey suggests that although these groups are overlapping and have different activity patterns and spatial requirements, the housing programme usually favoured the 'collegiate' group at the expense of the others.

This type of segregation is also familiar in this country. Frequently, students are chosen for halls of residence only if they are considered to be good 'hall types', that is, the type of person who could make a social contribution to the hall of residence community. As a result those who are not favoured in this way are housed in lodgings, even though it is probably they who need contact with a wider student community most of all.

In our residences, the rigidly organised complex is further reinforced by an elaborate mechanism of regulations which dissuade more senior students from staying in residence for very long. It is not surprising that many students, once in their senior years, prefer living in independent flats even though the accommodation may be less generous.

5.4.3.10

House Rules

It is not the intention in this thesis to evaluate the House Rules in any detail but in so far as it does seem to define the operational nature of the residences as being specifically directed to younger students, it therefore tends to circumscribe the residences making them meet the needs of younger students whilst not eliciting the response for accommodation from the senior students that the university administrators hope for.

In the previous section - 5.4.2 - the continuing demand for residence places from new students was recorded. By contrast, the

University is faced with the decreasing demand from senior students. Attitude studies have shown that the senior students felt prejudiced when living in residence as far as 'formation of friendships was concerned'. Also the desire for independence and the right to formulate their own value judgements was strongly expressed by senior students in discussions and interviews.

In the Essex study (1) particular attention was given to evaluating the effects of House Rules or the lack thereof on student living patterns. The attitude of the Essex university administrators on the question of 'in loco parentis' responsibility was clearly stated.

"It is especially important to recognise that Essex intended to break the tradition which places universities in loco parentis. It was felt that if the University was to be a community of learning, students should be treated as partners and adults in the enterprise. This was not only an appropriate situation for students coming to university with more experience of independence than those of previous generations but also a necessary pre-requisite if students were to become responsible and self-disciplined. 'The best way to make them responsible in any case is to give them responsibility. If it is the function of the university to help students in the process of growing up, conditions should be such as to promote and encourage this.' Basic to the treatment of students as adults is the permission granted at Essex to students in any year, or of any age, to live in accommodation of their own choice. They may apply for one of the study bedrooms in the tower, obtain through The University Housing Office approved lodgings, or a place in a hotel under contract to the University in term-time, find their own lodgings, or settle in flats, bed-sitters or houses in the surrounding area."

(1) Marie Glossick

Women at Smuts Hall

From "EX-SMUTS HALL RESIDENT":

AS an ex-resident of UCT's Smuts Hall, I feel I am in a position to comment on recent Press reports about women visitors to the residence.

I am now no longer bound by that residence's rules, which restrict the residents from making statements to the Press.

For 12 years the residents of that hall have been trying to get Council to accept certain recommendations concerning women visitors to their living rooms. In spite of all their attempts, their efforts proved fruitless.

This year, following upon student requests, the University Council instructed the residence committee, one of its sub-committees, to investigate and make recommendations. The findings of the sub-committee were then submitted to Council, recommending that men be allowed to entertain women visitors in their rooms on Saturdays and Sundays from 2-6 p.m.

In spite of this recommendation Council rejected out of hand the suggestion and offered as an alternative the idea of converting several rooms in each male residence into sitting rooms. What with the acute accommodation scarcity at present and the loss of some R8 000 in revenue this suggestion seems completely impracticable.

Artificial barrier

Having lived out of residence this year and so experienced a life devoid of these regulations, I feel even more strongly now than when living in residence that the regulations create an unnecessary and artificial barrier against a natural relationship with women.

A complete lack of privacy is the order of the day. Men have to entertain their women friends in cars, outside the front door, in crowded common rooms. Those wishing to do academic work with their woman contemporaries find it virtually impossible in these conditions.

The proportion of male residents to the entire university population is about one in 10. Thus the idea that these regulations afford protection to either group of residents is farcical. This "protection" is merely a facade.

Both Natal and Wits have removed these artificial regulations, while universities in other parts of the world and even Rhodesia did so many years ago.

WOMEN TO VISIT MEN'S HOSTELS?

The Argus Correspondent

MARITZBURG, Saturday.

PARENTS of University of Natal students in Maritzburg have been asked for their views on permitting men in residence to have women visitors in their bedrooms.

Most men in residence are in favour of this move, according to a circular and questionnaire sent out by the chairman of the local residences subcommittee, Mr. A. W. Bayer.

The university's Durban students have already been allowed this privilege — a decision which seems to have taken most people on the Maritzburg campus by surprise, said a note from the committee to the university magazine, 'Nux.'

'Before we arrive at a decision on whether women students should be admitted to the men's bedrooms, we must consider the possible effects which this may have on individual students, on the tone of our campus life, and on people outside the university. It must be obvious that it may result in serious psychological or psycho-social disturbance. . . .

WORKING TOGETHER

'What may be good for other universities, or even for the Durban campus, is not ipso facto good for the Maritzburg campus.'

The circular to parents said that many of the Maritzburg students said they liked to work with their girl friends, and that couples often worked together in the library.

They also felt that if women were allowed into the men's residences, there would be a general improvement in tone, in tidiness, in language and general manners.

CAPE ARGUS, 1970

'VARSITY'
NEWSLETTER, 1970

RES. REFORM STILL A NECESSITY

IN GEORGE ORWELL'S 1984 there was a League Against Sex. But not even Orwell could have thought up the latest retrogressive regulations of the UCT Council for the residences.

Like at Pretoria Central Prison, inmates will proceed to demarcated guest rooms, at demarcated hours, under demarcated conditions, and no doubt under inspection to receive guests.

This is simply an extended "porch" such as already applies at Baxter and Fuller, as well as Driekoppen. SRC candidates must press for regulations more in line with the situation at overseas universities in say, 1965: the right to receive visitors IN PRIVATE, out of hearing, until at least (say) 10 p.m. That hour only Queen Victoria would find unreasonable. Or Fort Hare, where the Nationalist rector sets curfew hour for the women's residences at 7.30 p.m.

The towers at the University of Essex are fourteen stories high. Except for the top two floors which contain separate flatlets and flats for graduates, married students and staff, each floor of the tower is a flat with its own front door. Right of access is restricted to its occupants and the cleaners.

"Both men and women are accommodated in the same tower though each flat is allocated to a single sex. With some slight variations due to special circumstances, e.g. the presence of a disabled student or imbalance in the numbers of men and women, flats for men alternate with flats for women."

The rationale behind this break with tradition was explained as follows:

"The segregating of men and women in separate buildings, we believe, is no longer feasible. It has never assured good assured good morals. And it is against the whole spirit of the day. We rather hope the proximity of men and women in our towers will have a civilizing effect."

At the University of Cape Town constant and frequent objection to the administrative restrictions in the residences has been registered. Articles have appeared in the student newspaper, 'Varsity' and in the local press.

It has already been stated that there is no intention to re-evaluate here the apparently traditional 'in loco parentis' procedure adopted by our administrators but re-appraisal of these attitudes would be concomitant with a re-thinking of residence provision generally.

A copy of the House Rules for Baxter Hall is attached - refer Appendix 4. House Rules for the other women's residences are similar.

5.4.4 LOCATION AND THE PATTERN OF ACTIVITY

The physical facilities required at the University will ultimately depend on maximum levels of demand. For this reason, it is important to study the patterns of movement and activities of students to, from and within the University in aiming at the correct provision of residence facilities and their location.

Although studies of this kind are crucial there is in fact very little information available on typical movement and activity patterns. By obliging students to eat at certain places and at certain times for instance, it would, of course, be possible to predict how many should be provided for. However, if it is this type of compulsion which is resented by many students, such a form of 'control' may be self-defeating if students simply move to more preferable types of accommodation. On the basis of a survey within residential and communal facilities a classification of entertaining, study, dining activities, etc. could be more accurately defined.

5.4.4.2 Research Method

Ideally, a survey of this kind would be made over a longish period of time, and changing activities and the sizes of groups would be recorded from year to year. These activities are related to the broader patterns of movement between residence, teaching and city facilities, and before more detailed surveys are made it is nevertheless possible to make broad theoretical propositions about these more general patterns. Here activities are clearly related to the academic timetable. This forms a basis for the day's activities, but it still leaves a greater part of the day not taken up by formal teaching.

The collection and analysis of data on 'non-scheduled' activities remains one of the principal areas for future research. Taking teaching, residence and campus facilities as the poles around which the student's life will revolve. Some of the broad activity

Source: U.C.T. Planning Unit - Student Daily Diaries

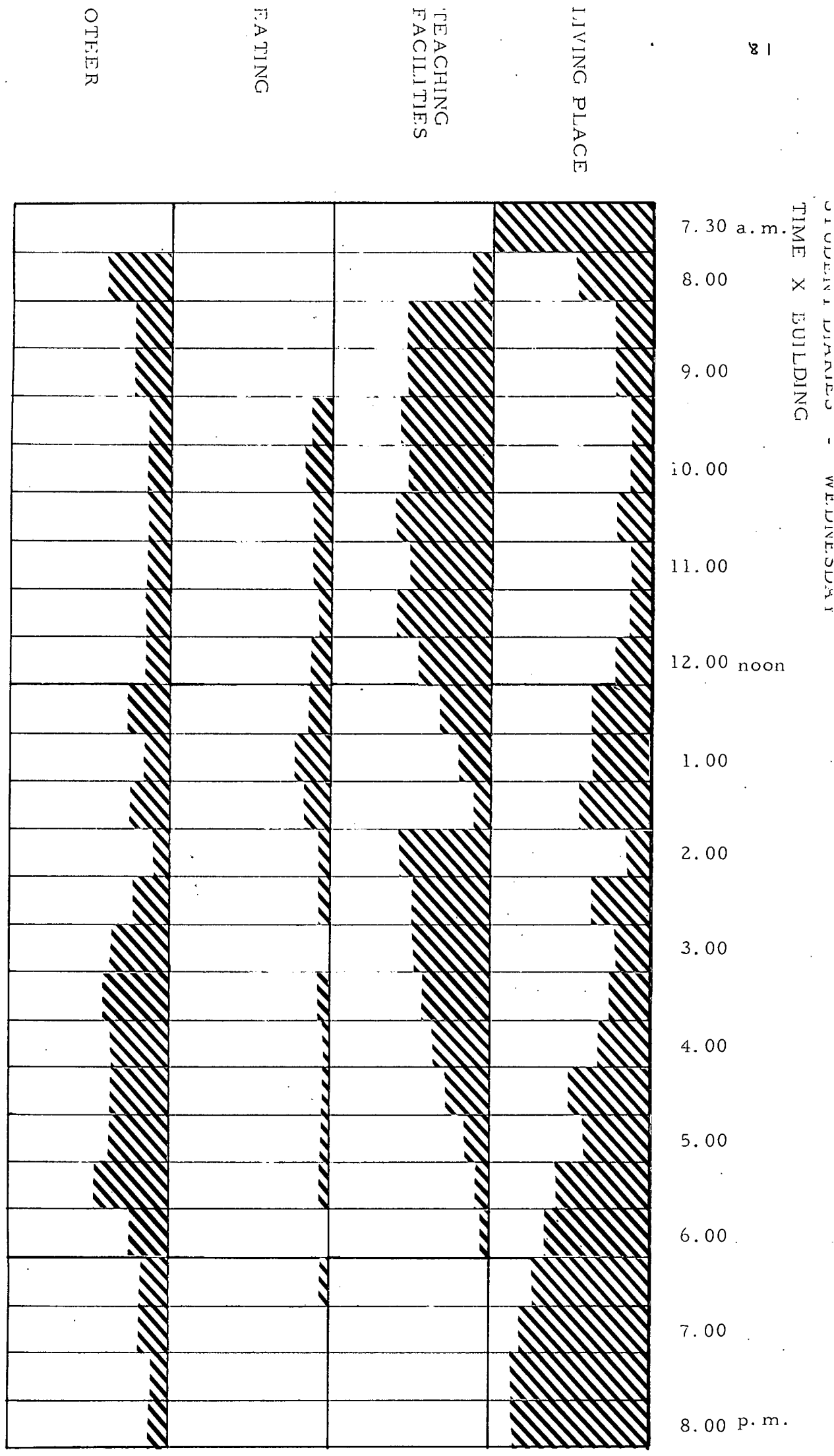


FIGURE 14 PATTERNS OF ACTIVITY - Use of buildings x Time

patterns through which our students pass a typical day have been recorded - refer Figure 14. The method for recording the data was to ask the students in the sample to keep diaries for the period of one week. This particular set of facts was extracted from the Planning Unit data correlating the use of particular buildings by time. For methods used in the diary sub-sample collection of information see Appendix 1. In order to relate the patterns of activity to the Cape Town University campus, the activity patterns from Figure 14 were simulated and reproduced in diagrammatic form in Figure 15A.

5.4.4.3

The University of Cape Town: The Present Activity Patterns
The small number of students in the sample may not be fully representative of the total pattern but strong indications are that our situation is typical of urban universities in which the student, after eating breakfast at his place of residence, travels to the university for lectures and laboratory classes which may take place in the morning and afternoon.

Consequently, he may eat his lunch on the campus, or perhaps in a local restaurant situated close by. When the afternoon classes are over, he returns to his place of residence where he has dinner. Generally speaking, the place of residence is the social centre after work.

Assuming this activity pattern is a reasonable reflection, the university, in providing eating and communal space related both to teaching and residence is thus duplicating facilities which, if the students were to stay on the campus in the evening, need only be provided once. This not only brings about under-use of space, but in the case of kitchen and waiter staff leaves them unemployed for long sections of the day. The difficulties of finding staff of the right calibre are considerable and the costs of retaining and paying them are high.

NORMAL ACTIVITY PATTERN (U.C.T.)

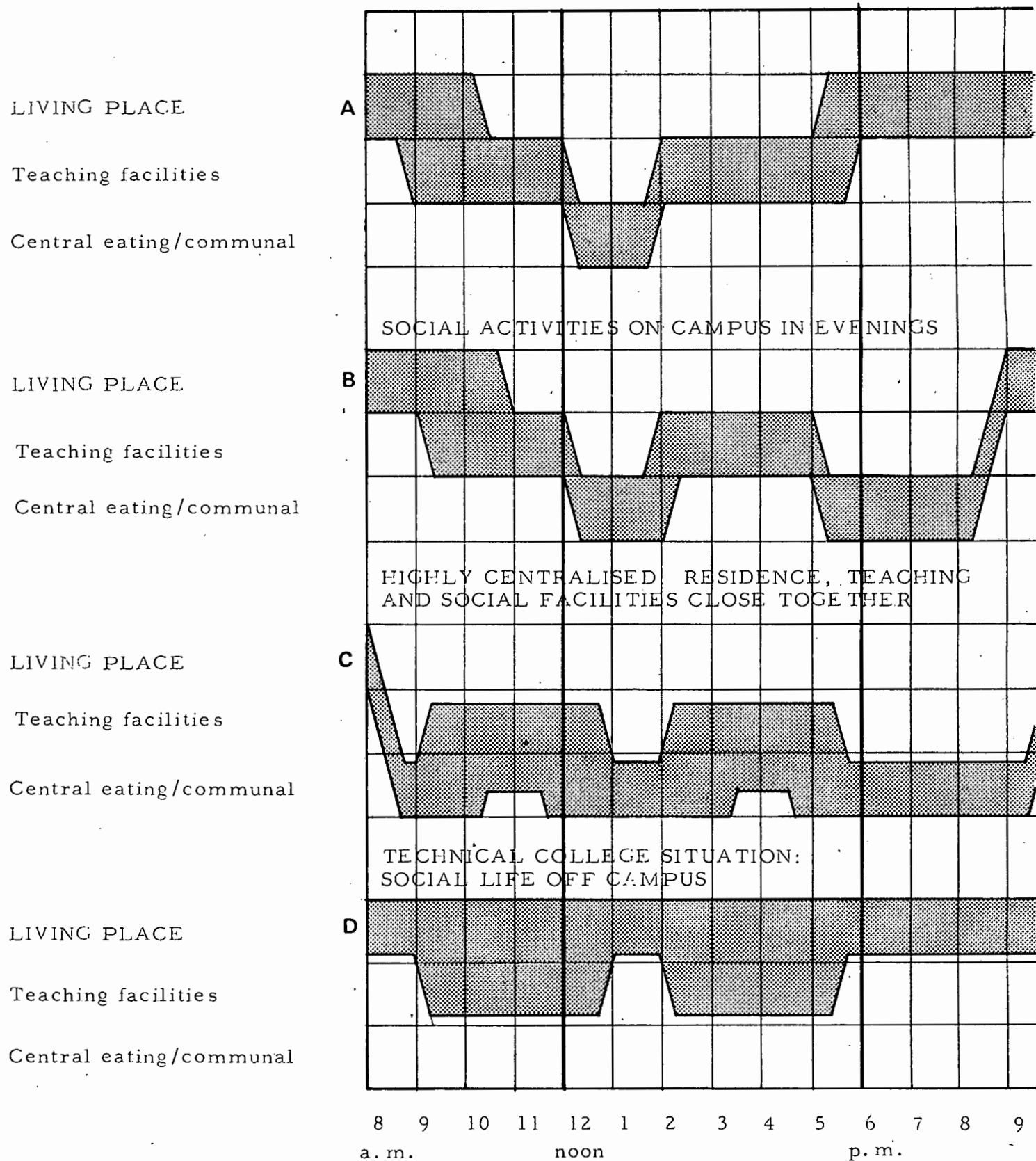


FIGURE 15 SIMULATED PATTERNS OF ACTIVITY

Source: Adaptation of model by Cambridge University
Land Use Studies

This aspect coupled with increasing costs of the meals themselves has become critical at the University of Cape Town. From July this year the University has leased out all of its catering to a private organization who will prepare meals for all of the residences and deliver them to the campus.

Secondly, another disadvantage of this pattern of movement is that the journey to and from the university co-incides with the rush-hour of the rest of the city.

Thirdly, accepting that, at present, the residence is the social centre after work, in such a case, those students (who at present represent 40% of our total) living in their own accommodation or lodgings can be rather socially and academically isolated.

5.4.4.4

Extended On-Campus Activity Patterns

If the students were to stay on the campus in the evening for eating, participating in societies, social activities and so forth, this would overcome some of the problems of the previous pattern. Large-scale dining facilities would not be needed at the places of residence, assuming that students could provide their own breakfast. Since the students' social life is lived close to the teaching buildings (either related to the Department or in a central 'Union'), or to the city facilities, the provision of facilities as related to residence could be minimal. The evening rush-hour is likewise avoided. This pattern, therefore, overcomes some of the problems of duplication of facilities and traffic congestion. The 'nine to five' atmosphere on the university campus would also be avoided and would surely welcome the continuation of social activities after working hours - see Figure 15B.

However, while such a pattern (Figure 15B) may have certain economic advantages, it may have a number of problems of its own. Although the centralisation of communal activities may at first sight suggest the improvement of the social life of the university, this may not necessarily occur, unless students are in some way obliged to participate.

The social studies mentioned previously suggest that students form a variety of social groups in the university, in residence, in the local region and the city. It seems, therefore, that if, in the pattern of activities we are discussing, the high percentage of residence continues to be located at some distance from the campus, the present groupings would naturally be more strongly related to place of residence, or sections of the city. The centralization of social facilities might, in this way, begin to break down. By creating additional residence places closer to the campus the problem could be obviated.

5.4.4.5

The Highly Centralised University

To take this process further, a highly centralised university which brought residence, teaching and social facilities close together would lead to a further intensification of space-use with its consequent economies (Figure 15C). Thus the student could, if he wanted, eat every meal and theoretically spend almost all his time in the university. Parking space, which in the case of the previous activities would be provided both for residence and teaching, would in this case be provided only once. Possibly, with teaching and residential facilities so closely related, students could be forbidden the use of cars, since walking or bicycling to work would be quite possible. This proposition however falls outside the terms of reference of this thesis.

As a matter of interest, a further permutation is one in which the university does not attempt to provide for the students' social lives at all, and the students are left entirely to themselves in their activities and formation of social groups. In such a situation the student would rely either on city facilities, or he might live in a self-contained flat in which he could cook, eat, study and entertain (Figure 15D). An analogy would be the Technical College, Cape Town.

A university adopting such a policy could well be accused of a lack of concern for the social lives of its students.

The four simplified patterns described here were only some of those discussed by Bullock, Dickens and Steadman (1) out of a total of patterns of movement which could be virtually infinite.

The physical facilities required will depend ultimately on maximum levels of demand. For this reason, it is important to study activities not just over a short period. If accommodation is to be genuinely flexible to meet changing needs, some general predictions as to future patterns of activity must be made. Whatever time period is considered, a wide-ranging study of activities, throughout the university and the city, is needed before space can be provided on a well-planned basis. In Section 5.5 an attempt is made to narrow down that sector of the city which may, due to its relationship to the university, reveal a different form of structure to that of the remainder of the metropolitan area.

(1) Bullock, Dickens and Steadman, 1968, page 210.

5.4.5 U.C.T. LONG-RANGE PLANNING STRATEGIES

A master plan was developed from the 1964 survey (1) as a generalized zoning proposal which has, in the main, been adhered to. It is not the intention of the University's Planning Unit (formed in 1969) to develop a master plan for the development of the Groote Schuur Campus area but nevertheless certain clearly defined long-range planning strategies are being developed which will be adjusted to respond to the changing planning needs as these become apparent.

To be of any value, proposals made in this thesis for extending the university's present housing facility must, of necessity, fall within the strategies that are being developed.

Certain abstract patterns of university development are clearly definable. Before reviewing the strategies developed by the Planning Unit, an appraisal of these abstract patterns is made.

5.4.5.1 Abstract Patterns of Development

Julian Elliott (2) described the important university developments in the Sixties as falling characteristically into two types; on the one hand, the project-orientated European contributions in comprehensive planning for the new educational programmes, and on the other, the method-oriented North American research and developments into teaching technology and planning processes.

Although the North American developments in a spatial and self-paced learning, and the new systems approach to the planning process, are perhaps potentially two of the most significant developments of the Sixties, it is the European university projects especially in Britain and Germany which have been the most dramatic.

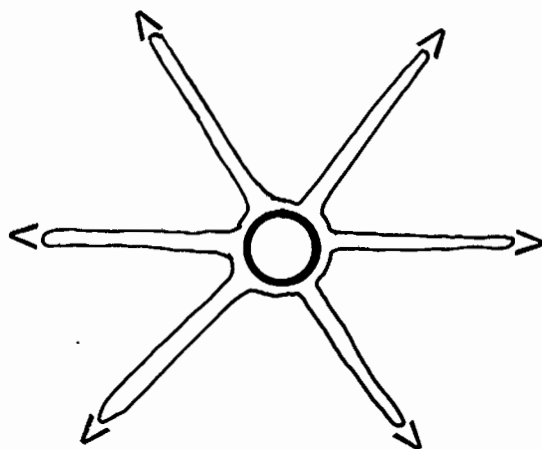
(1) The U.C.T. Redevelopment Survey, 1964

(2) Julian Elliott, 1970

Most of these proposals are informed by similar planning attitudes. They are compact and encourage formal and informal inter-disciplinary contact; they are sensitive to the needs for change and expansion and they propose the articulation of wheeled and foot traffic routes. The planning solutions range from the interconnected nodal systems to the various linear structures and the later surface and spatial networks. Like Alexander's city, the University is not a tree, but a semi-lattice of overlapping sets of curricula and opportunities for random associations across the disciplinary boundaries. For this reason, recent university planning proposals can perhaps best be understood in terms of their structural connectivity.

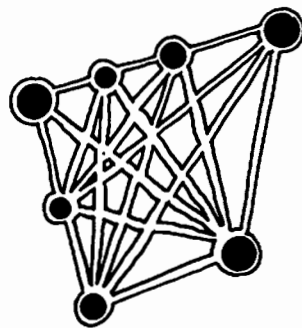
The Centroidal System

The centroidal system, the classic campus plan, is structured around a point and radiates out from there.



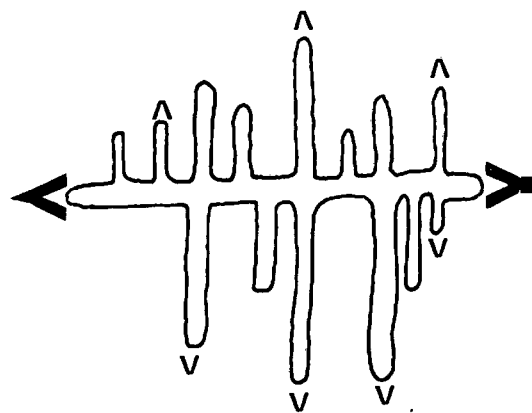
The Nodal System

In the nodal systems, largely self-contained units are built in one operation except for minor future changes and expansion. These finite nodes locate on a communications linkage system. Growth is by proliferation of the nodes. York University is an example of the nodal system (1963).



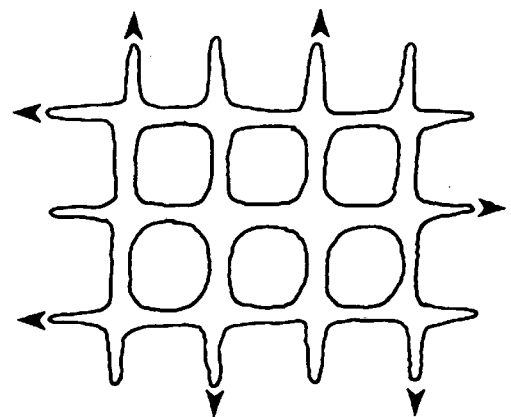
The Linear System

Linearity characterizes most of the new universities of the sixties. Here the node expands continuously on a line in one or two directions. This line structures the primary development with secondary developments taking place at right angles to it. Zambia university is patterned on this system (1965). The linear system can have single or double polarity or be single or double banked.



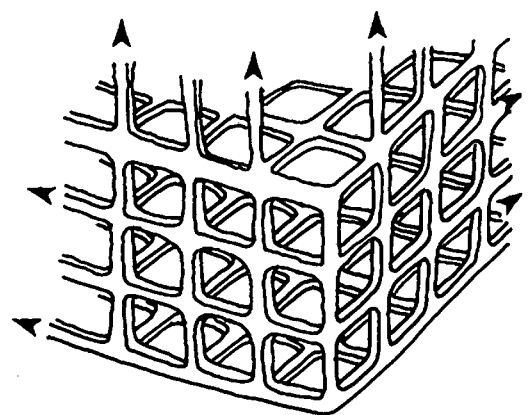
Low-rise Network

The network (web, grid, co-ordinate) systems evolve directly from the linear schemes as they grow in size and complexity. The initial node expands continuously in more than two directions, usually four, so providing a higher degree of connectivity. An example of this is the Free University of Berlin (1963).



High-rise Network

Space networks develop high-rise nodes and multi-storey connectors between these nodal points of intensity. Ulm University is structured on this system (1966).



5.4.5.2

The University of Cape Town: Historical Background to Spatial Development**The Upper Campus**

Historically, the University of Cape Town has developed on the classic linear pattern starting off with the central node being the Jameson Hall/Union/Arts Block complex and developing north and south along a line (University Avenue) as far as the site permitted.

When development no longer became possible on this line, an upper linear terrace was developed, that is, the Engineering/Chemistry section with development taking place on top of this line with the boundary set by the upper ring road system.

However, there are weak lateral links which exist at the present moment but which have the potentiality to develop a low rise co-ordinate structure.

The Lower Campus

At present, this campus is a very low density development without any patent system structurally.

In terms of location, the upper campus is remotely situated on the hillside with its lower edge tangential with the De Waal Drive freeway system and has connecting edges to the lower region and transport routes.

The lower campus is contiguous with the bottom edge of the upper campus and reaches down the slope to the Main Road edge with efficient road and rail public transport linkages and with the two side edges in direct relationship to the adjoining residential neighbourhoods.

5.4.5.3**Description of the Strategies**

It is re-iterated that it is not the intention of the Planning Unit to develop a master plan for the Groote Schuur Campus area. Within the context of the Strategies that have been prepared, the scope of the Unit's programme is, at this stage, limited to the Groote Schuur Campus, and the Hiddingh Campus is for this reason alone, omitted from the Strategies outlined. It should also be noted that all of the strategies accept the present functions on the Medical Campus.



FIGURE 16 STRATEGY ONE
Source: U.C.T. Planning Unit

STRATEGY ONE: A**Figure 16****To maximise the use of Upper Campus****Source: U.C.T. Planning Unit**

- 1.0 To accept the investment in building stock on Component A and to recognise its potential for additional development and linking of buildings, to form a co-ordinated network and develop the site intensively in terms of the inter-related academic programme.**
- 1.1 This means inspecting all the present functions to see what is not part of the inter-related functions and what can be decanted off the site, such as maintenance, institutional services, etc.**
- 1.2 It would mean analysing other University of Cape Town functions located elsewhere which could be part of this inter-related academic programme and relocating them on Component A.**
- 1.3 Its constraints are the entrances and exits off the regional road system and its potential for storing the projected numbers of vehicles.**
- 1.4 A second consideration would be that one was investing in additional stock which is remote from the connections with the local region and perpetuating this remoteness of the hill-side single-banked location, without adequate connection to the regional activities and amenities.**



FIGURE 17 STRATEGY TWO
Source: U.C.T. Planning Unit

STRATEGY TWO: A + B**Figure 17****To Maximise the Use of Upper and Lower Campus****Source: U.C.T. Planning Unit**

- 2.0 This is the development of A as before but to a less intensive degree and, at the same time, recognising the relationship with the local region and the Main Road strip and increasing the development on the lower campus with particular emphasis on links between the two campuses. (These links could either be purely an efficient mechanical movement system or the development of functional activities in the linking zone as shown on the diagrammatic section).
- 2.1 This would mean relocating academic activities compatible with the Music, Ballet and Baxter theatre type functions and possibly retaining or relocating the Graduate School of Business.
- 2.2 The lower campus, if developed, would create the opportunity for interface connection with the community at its edges. These interface functions could be thought of in terms of housing extra-mural activities, welfare activities, child guidance, public relation and exhibition activities. The lodgings bureau and, in fact, everything that has dealings with the public. This would create a U.C.T. shop window onto the pavement with a captive audience.

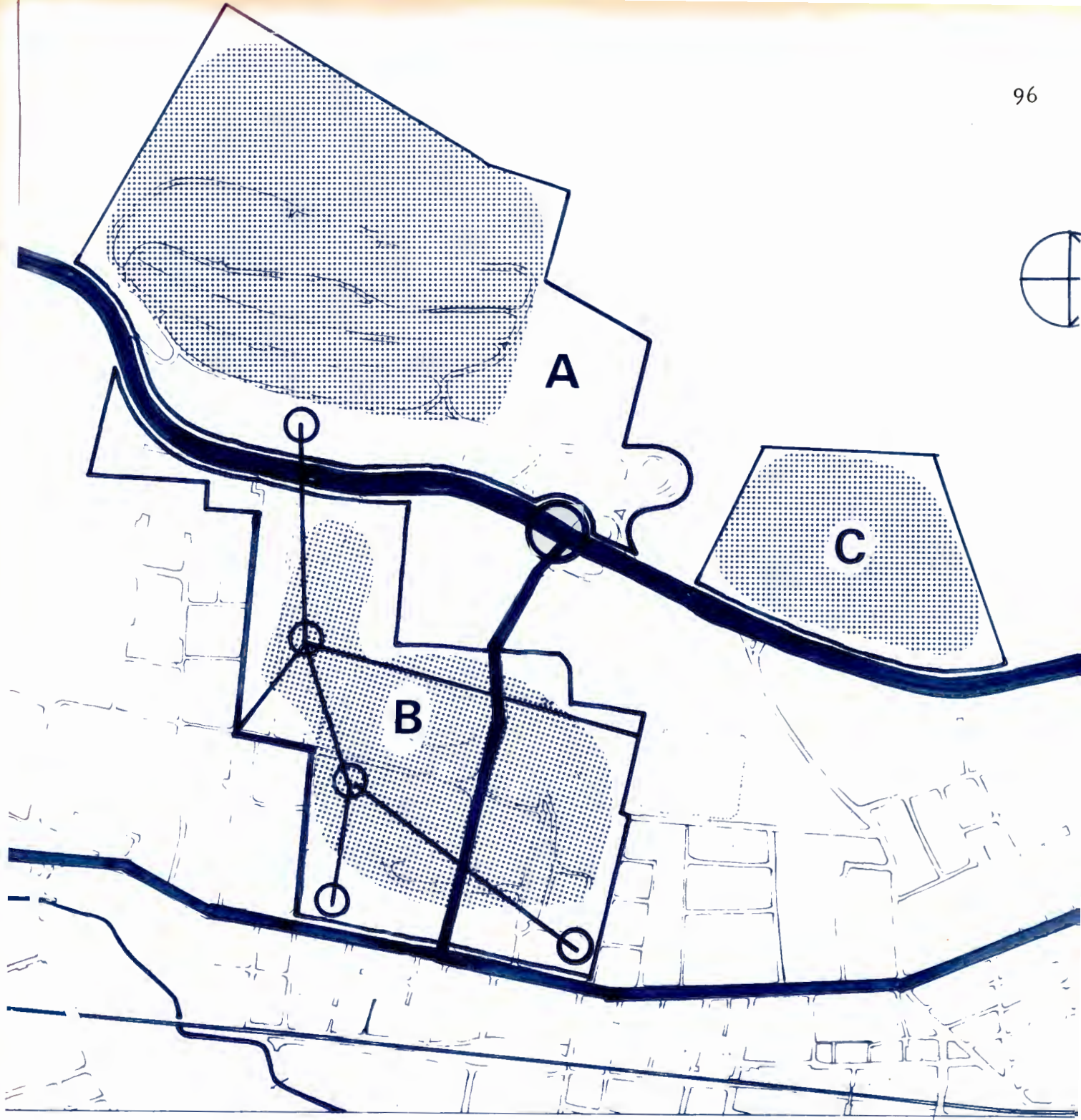


FIGURE 18 STRATEGY THREE

Source: U.C.T. Planning Unit

STRATEGY THREE: A + B + C**Figure 18****To Optimise Use of Upper and Lower Campuses plus Picnic Site C****Source: U.C.T. Planning Unit**

3.0 This development pattern would incorporate the elements of Strategy Two at a lower density and would consider the possibility of locating independent academic (Graduate School of Business) research activities, residential and recreational functions on Component C.



FIGURE 19 STRATEGY FOUR
Source: U.C. P. Planning Unit

STRATEGY FOUR: A + B + C + D + E + F**Figure 19**

To optimise use of Upper and Lower Campus including Picnic Site C with particular emphasis on additional development in the neighbouring edge areas

Source: U.C.T. Planning Unit

- 4.0 As before but taking into account the adjacent sectors with the possibility of locating student housing and additional community relation functions adjacent to the campus edges, either university-sponsored, student-sponsored or by private enterprise, all stimulated by the University.

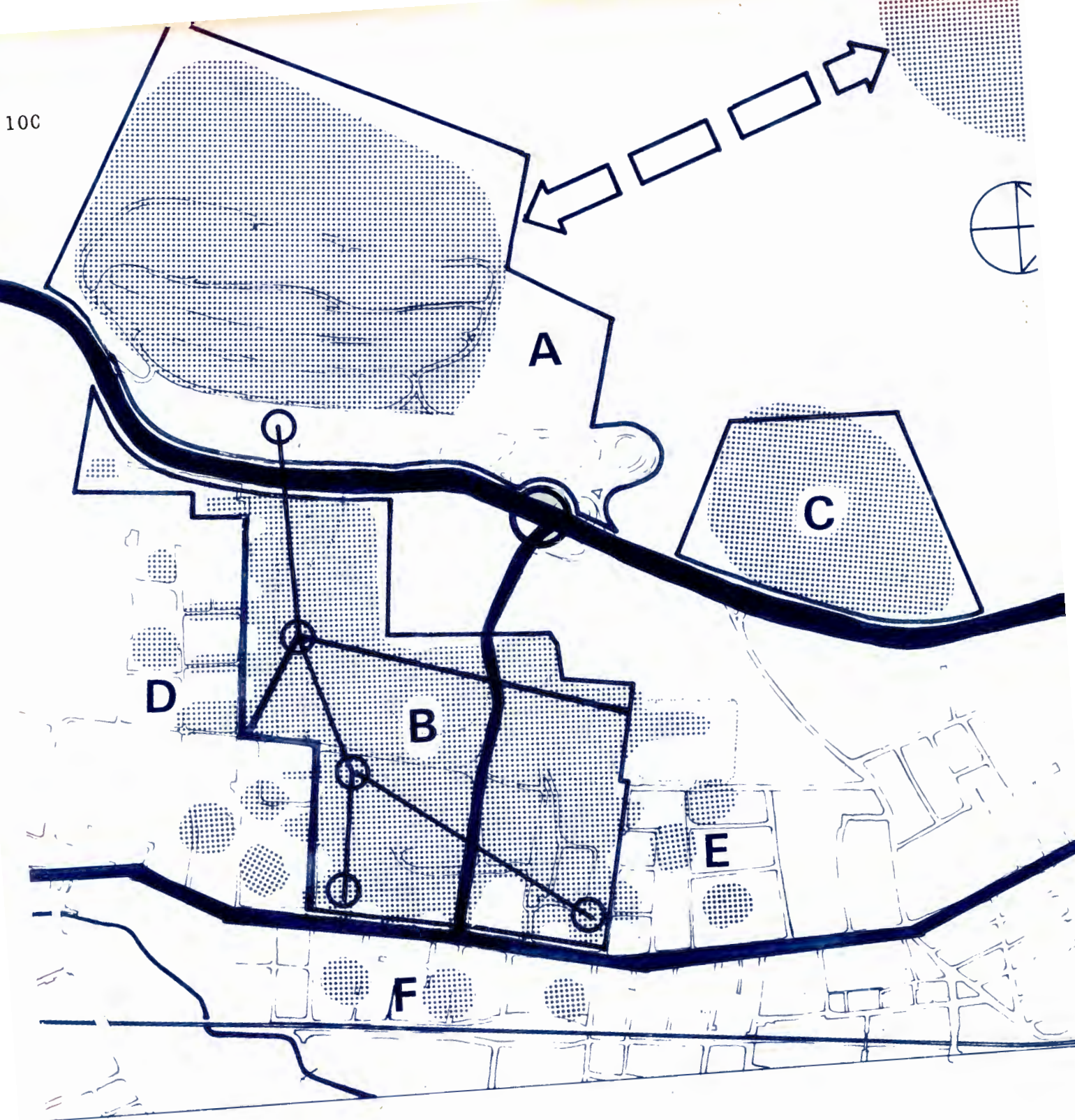


FIGURE 20 STRATEGY FIVE
Source: U.C.T. Planning Unit

STRATEGY FIVE: A + B + C + HIDDINGH HALL + MEDICAL SCHOOL

Figure 20

To optimise use of Groote Schuur Campuses together with additional Development at Hiddingh Campus

Source: U.C.T. Planning Unit

- 5.0 To accept the investment in stock on the Hiddingh campus giving consideration to the possible changes in the functions which may be located there.**
- 5.1 The emphasis in this Strategy would be to retain all the advantages of Strategy 4.0**
- 5.2 This would necessitate the developing of improved transportation networks and close communicating links but would possibly be at the expense of face to face contact.**

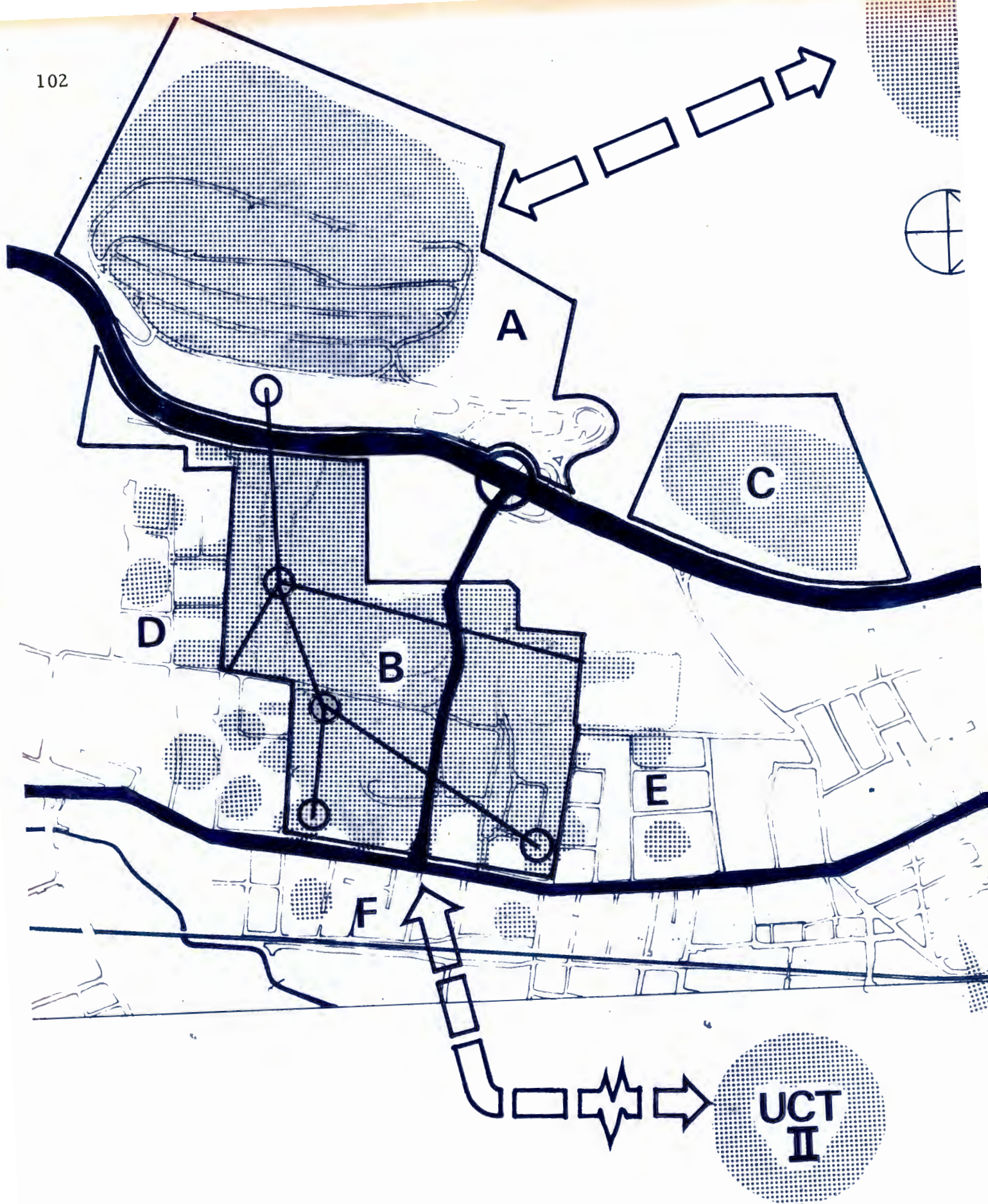


FIGURE 21 STRATEGY SIX
Source: U.C.T. Planning Unit

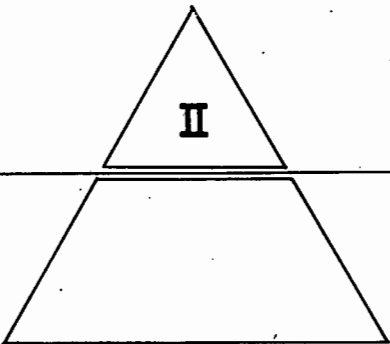
STRATEGY SIX: A + B + U.C.T. 2 (F)**Figure 21****To develop new U.C.T. Satellite Campus****Source: U.C.T. Planning Unit**

6.0 The renewal and upgrading of the existing Rondebosch/Rosebank properties (A + B + C) and the development of a second satellite U.C.T. campus.

This could be structured in a number of ways with varying relationships between graduate and undergraduate sectors.

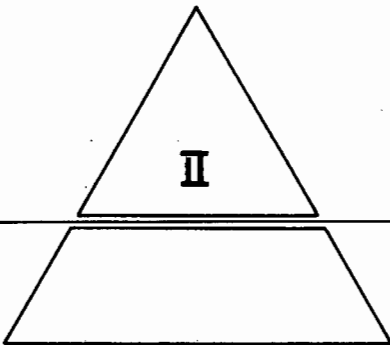
Graduate Campus

Undergraduate Campus



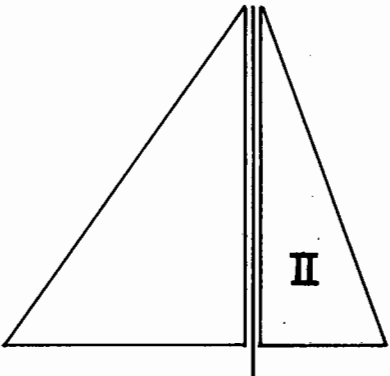
STRATEGY 6.2

U.C. T. 2 would be a first year
Campus (Wits.)



STRATEGY 6.3

U.C. T. would contain certain
special subject fields



STRATEGY 6.4

The second campus becomes a
fully fledged campus in its own
right, i.e. an affiliated campus
to U.C. T.

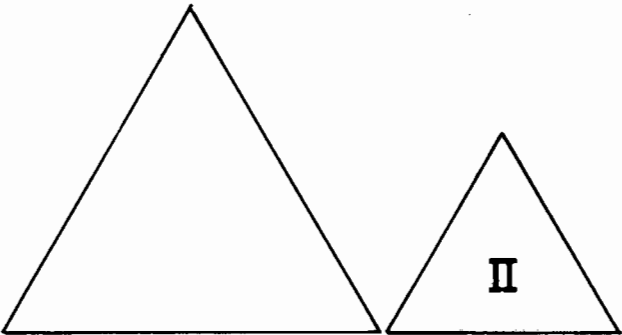


FIGURE 22 Source: U.C. T. Planning Unit

5.4.6 NEED FOR A PHILOSOPHY OF HOUSING

It is not without significance that the great universities of Britain and America have developed definite student housing patterns. Though these patterns vary from institution to institution, they exhibit one characteristic in common. They have grown out of a definite 'philosophy' or understanding of the role of student housing within the university. The implications are clear. Any university about to embark on a student housing programme must firstly clearly understand the factors involved; must have definite objectives for housing in the overall goals of education; must develop a clear statement of these objectives as a basis for subsequent planning.

It must be re-stated that this study focuses on the qualitative aspects of student housing design in an attempt to understand and interpret the physical implications of changing patterns of student living. The following comments are not in any way intended as an exhaustive statement of the role of housing within the modern university but are offered as a series of factors that could be considered as broad objectives in student housing.

"Three of the most important activities in a civilized community today are the higher education of intellectually able young men and women; the promotion of learning; and research or the advancement of knowledge. In this country, as in many others it is the practice to combine these three activities within one institution, the university. In this regard, and in the light of recent developments, academics and university administrators have been led to ask themselves whether there are not some aspects of education that the universities have neglected and are still neglecting. While able men may give admirable instruction in a particular discipline, the general education of a student as a man and as a citizen may leave much to be desired." (1)

(1) U.G.C. Report of Sub-Committee on Halls of Residence, 1957.

5.4.6.1 Objectives

"Briefly the objectives of most universities in terms of student housing may be described in a consciousness of three basic needs. (1)

1. A need to overcome the shortage of accommodation for students
2. A need to offer an alternative to the inadequate environment of many students living in lodgings or at home
3. A need seen by many authorities, to subject students to the civilizing and educative atmosphere of an academic community."

5.4.6.2 Goals

The formulation of goals in the housing field may then take the following form:

1. To seek to determine the most effective methods of providing the best possible housing
2. To provide suitable housing for all students desiring or requiring it.
3. To establish and maintain a quality of administration and student participation that will make the best use of the opportunities offered.

5.4.6.3 Further Studies

The Guelph study set out the relevant factors to be assessed before a university approaching the problem of formulating a balanced programme can be outlined.

1. "Assessing the capacity of the city or community in which the university is located to absorb students in lodgings and other living arrangements off campus.
2. Deciding what proportion of on campus housing for the student population would be desirable.
3. Investigating the administrative and maintenance implications of each possibility and the resources of the university available in each case.

4. Assessing the financial implications of different programmes from both the universities and the students' point of view.
5. Analysing the statistical predictions for different categories of student and the needs relative to each.
6. Forecasting the type and rate of growth of the institution.
7. With all factors in mind, striking the most desirable balance and formulating a programme to suit."

The factors outlined above fall largely outside the parameters of this study. Assessing the capacity of the City and in particular the surrounding community in regard to student housing is difficult and yet it is perhaps the only realistic way to determine what on campus commitments should be.

5.5.0 THE UNIVERSITY AND THE COMMUNITY

As this thesis does not seek to define the precise boundaries of the student housing market, analysis of the Cape Town metropolitan area at a coarse grain level has been undertaken to establish whether the students have shown preference for certain areas of the city and to assess to what extent, if any, this sector has the capacity to absorb students in lodgings and other living arrangements off campus.

5.5.1 THE UNIVERSITY AND THE CITY

How can the University increase its capacity to respond to the demands and concerns of the City where, merely by its presence, it creates difficulties for many of the city's residents.

What policies should guide the Administration as it makes decisions about employment, purchasing of property and public use of university facilities. These concerns fall outside the terms of

reference of this study, but in order to examine student attitudes and preferences, to gain at least an understanding of student opportunity to secure accommodation within the community, an assessment on some basis must be made. An investigation by time, place and student accommodation costs was made to serve as an indicator of the strength of any relationships that exist between the University students and the metropolitan area.

- 5.5.2 The data used for this analysis was taken from a survey undertaken by the Planning Unit in 1969 and is fully described in their Work Paper No. 3. The methods used are described in Appendix One.

From the student questionnaires, the location of place of residence for students and staff and the distribution of student living places generally was examined. Then correlations between the following were considered:

1. Location of students living with their parents and in rented accommodation.
2. Car ownership by place of residence.
3. Mode of travel by place of residence.
4. Travel time by all modes.
5. Place of residence by type of residence. (Boarding houses and Hotels.)
6. Expenditure and place of residence by lodgings.
7. Expenditure of place of residence by board and lodgings.
8. Place of residence by total expenditure excluding board and lodgings.

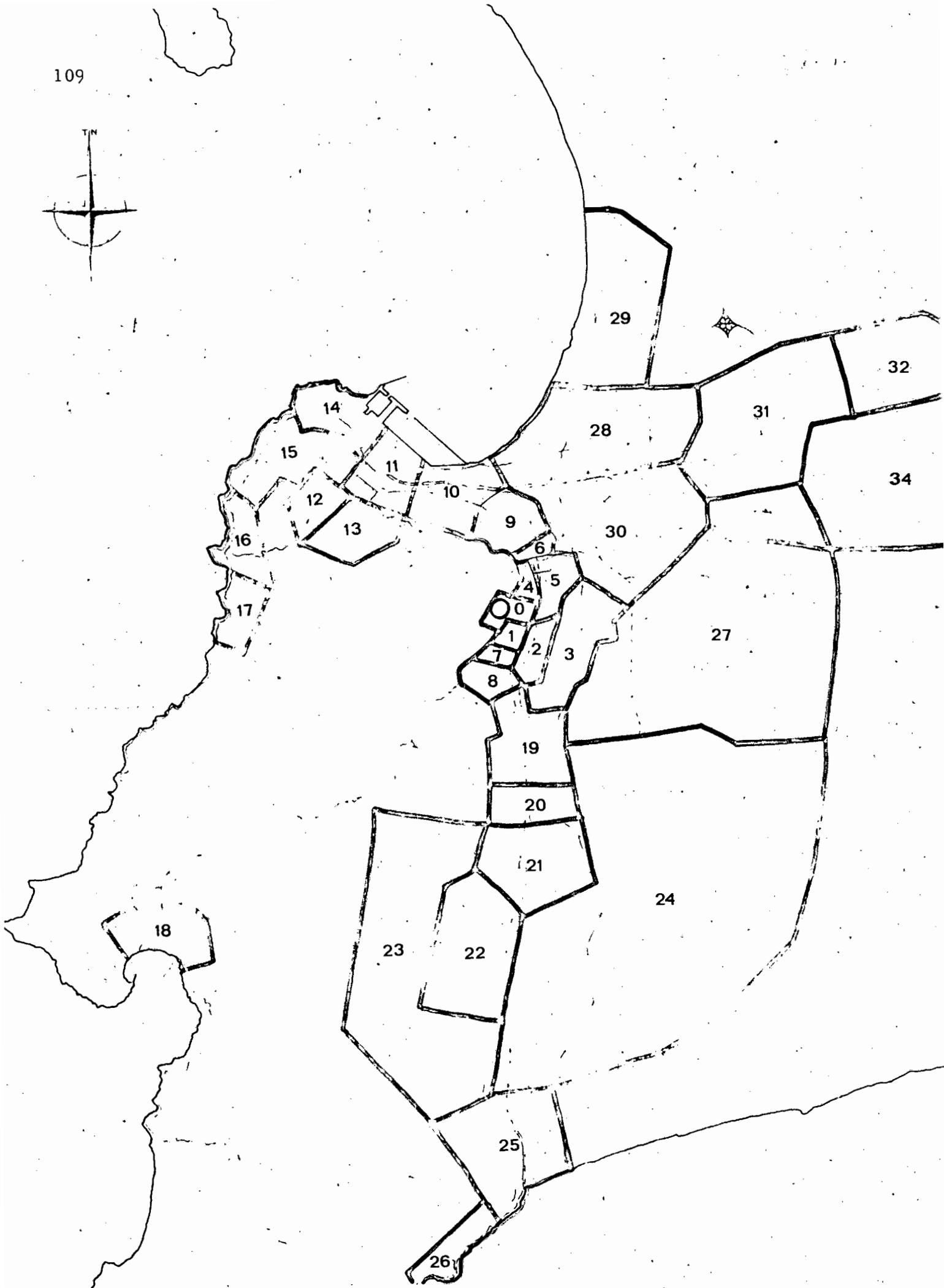


FIGURE 23 LOCATION OF PLACE OF RESIDENCE

Source: U.C.T. Planning Unit, Work Paper No. 3

5.5.2.1 Index to Location of Place of Residence for Students and Staff
Figure 23

Source: U.C.T. Planning Unit Survey, 1969, Work Paper No. 3

The index demarcates the assumed spatial extent of the places of residence on Column 15 of the student questionnaire.

Each residential area is coded as set out below.

In evaluating distributions plotted from these residential areas it should be noted that this is a first coarse-grain distribution in which frequencies which occur in the larger outlying areas may because of their relatively larger size and lower frequency result in distorted values. Distributions in the smaller areas closer to the university and centre of Cape Town are correspondingly more accurate.

Table 20

0 University Residence	18. Hout Bay
1. Rondebosch - Upper	19. Wynberg/Kenilworth
2. Rondebosch - Middle	20. Plumstead
3. Rondebosch - Lower	21. Diep River
4. Rosebank - Upper	22. Bergvliet
5. Rosebank - Lower	23. Constantia
6. Mowbray	24. Retreat
7. Newlands	25. Lakeside
8. Claremont	26. St. James
9. Observatory	27. Athlone
10. Woodstock	28. Brooklyn
11. Cape Town Centre	29. Milnerton
12. Tamboerskloof	30. Pinelands
13. Devils Peak	31. Goodwood
14. Green Point	32. Parow, Bellville
15. Sea Point	33. Durbanville
16. Bantry Bay	34. Elsies River
17. Llandudno	

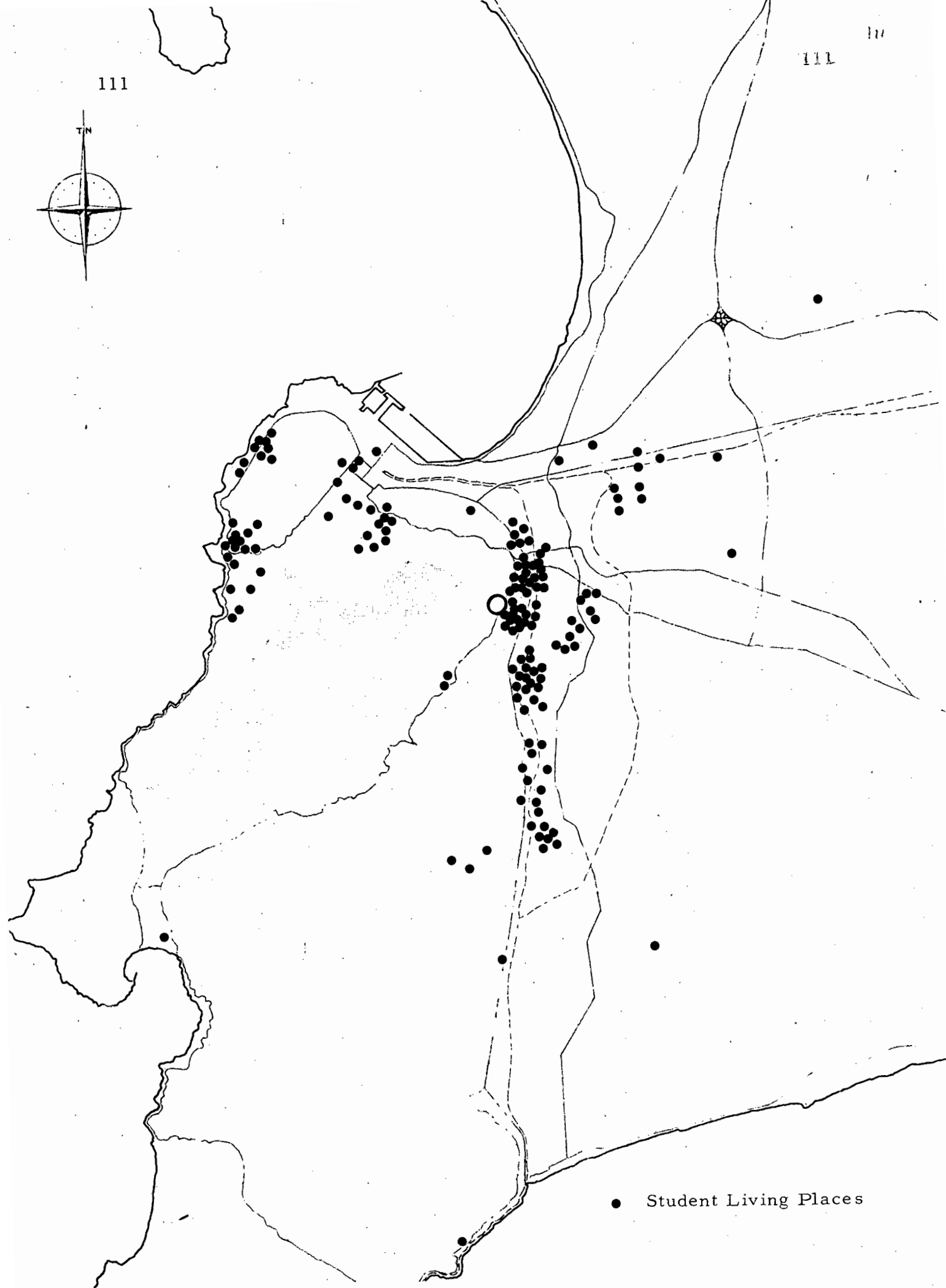


FIGURE 24 DISTRIBUTION OF STUDENT LIVING PLACES

Source: U.C.T. Planning Unit, Work Paper No. 3

5.5.2.2

Distribution of Student Living Places

Figure 24

Source: U.C.T. Planning Unit Survey, Work Paper No. 3

The tributary area of the University, if one includes every single student in the sample, extends in a linear pattern along the main transportation routes round the mountain from Bantry Bay to the False Bay coast with some at Hout Bay and others at Monte Vista in the northern suburbs.

Clustering occurs in three sections, the Sea Point/Bantry Bay areas, the Oranjezicht/Tamboerskloof areas and thirdly, a long linear cluster occurring from Observatory to Plumstead.

Excluding the Residences, approximately 25% of the student population live in an area from Rondebosch to Mowbray.

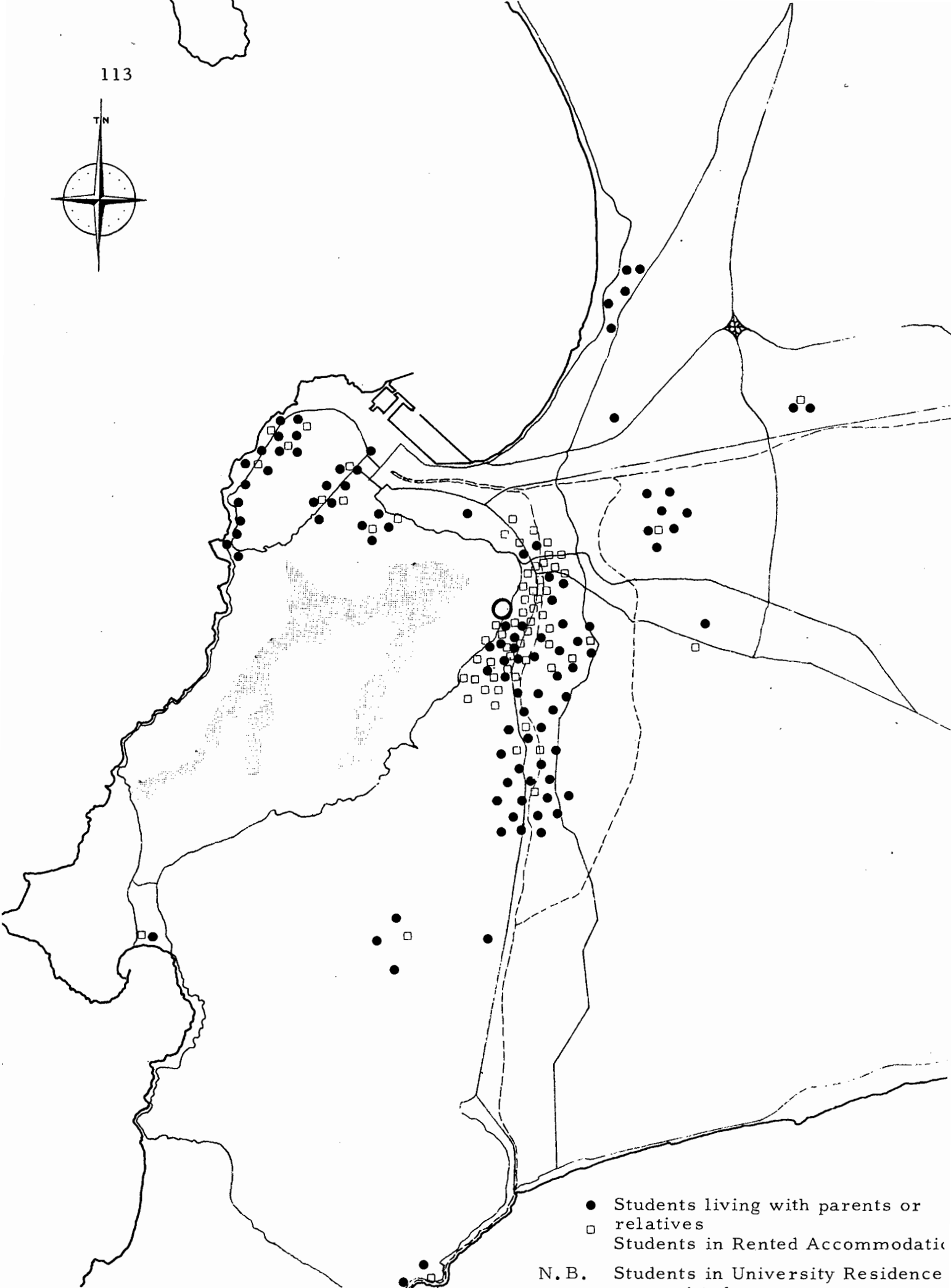
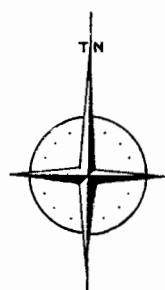


FIGURE 25 LOCATION OF STUDENTS LIVING WITH PARENTS AND IN RENTED ACCOMMODATION

Source: U.C.T. Planning Unit, Work Paper No. 3, Table 2.3M

5.5.2.3

Location of Students Living with Parents, and in Rented Accommodation
Figure 25

Source: U.C.T. Planning Unit Survey, Work Paper No. 3

The diagram shows students who live with their parents in any kind of accommodation and students who live in rented accommodation, including flats, houses, boarding houses and hotels.

The areas in which rented accommodation is greater than parents' accommodation include Rondebosch, Upper and Middle, Rosebank Upper and Lower, Mowbray and Observatory.

Areas in which students are concentrated living with parents are Rondebosch Lower, Newlands, Tamboerskloof, Sea Point, Wynberg, Kenilworth, Plumstead, Milnerton and Pinelands.

46% of the sample (which was 235) lived with parents and 28% lived in rented accommodation.

Students in University residence are omitted from the map.

Clustering of rented accommodation is evident along the southern suburbs railway line between Claremont and Observatory. The majority of the students living outside this area are living with their parents.

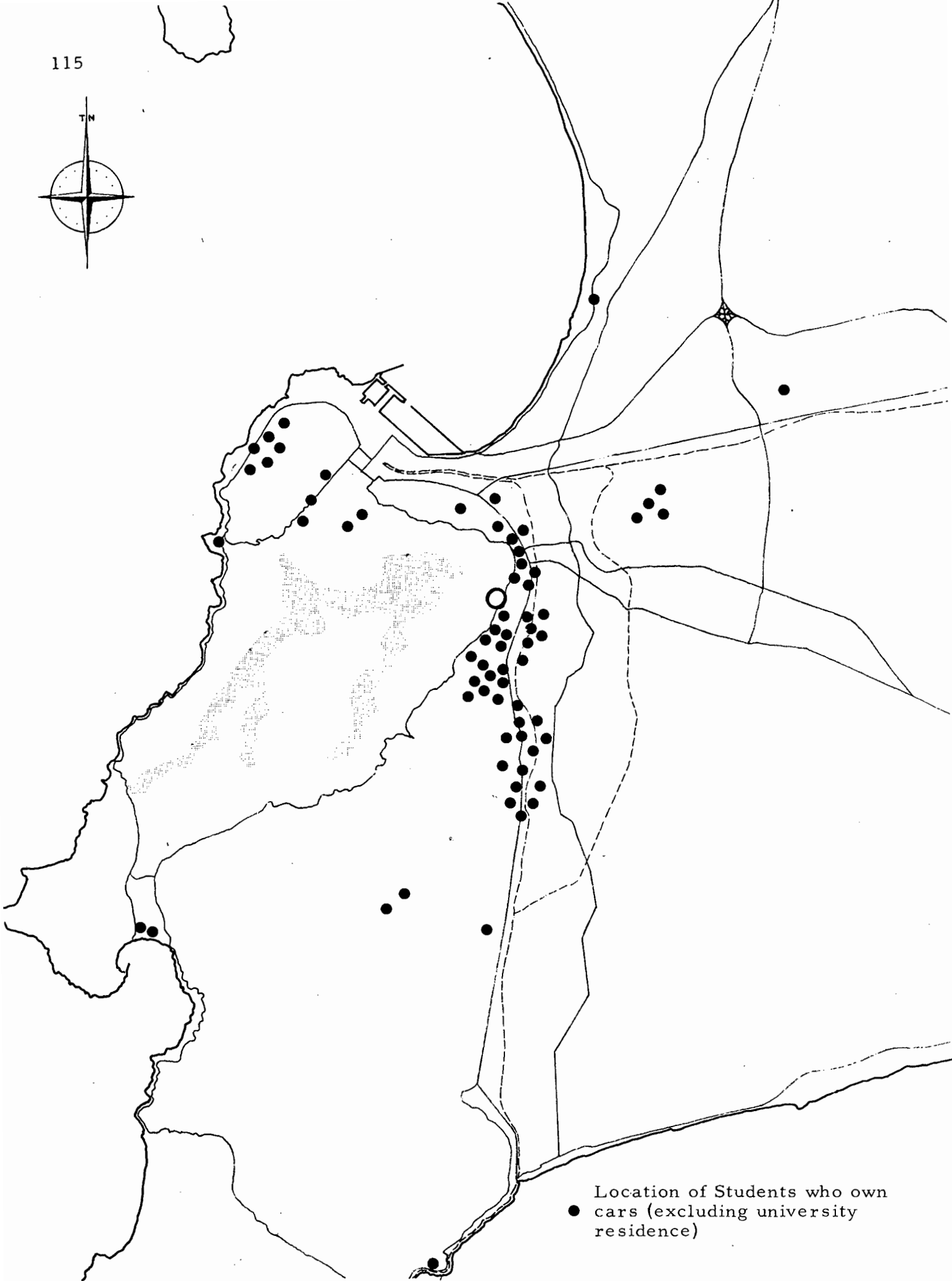
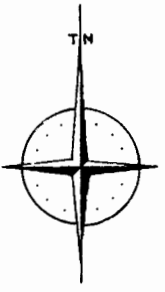


FIGURE 26 CAR OWNERSHIP X PLACE OF RESIDENCE
Source: U.C.T. Planning Unit, Work Paper No. 3, Table 4.1

S.5.2.4 Car Ownership by Place of Residence

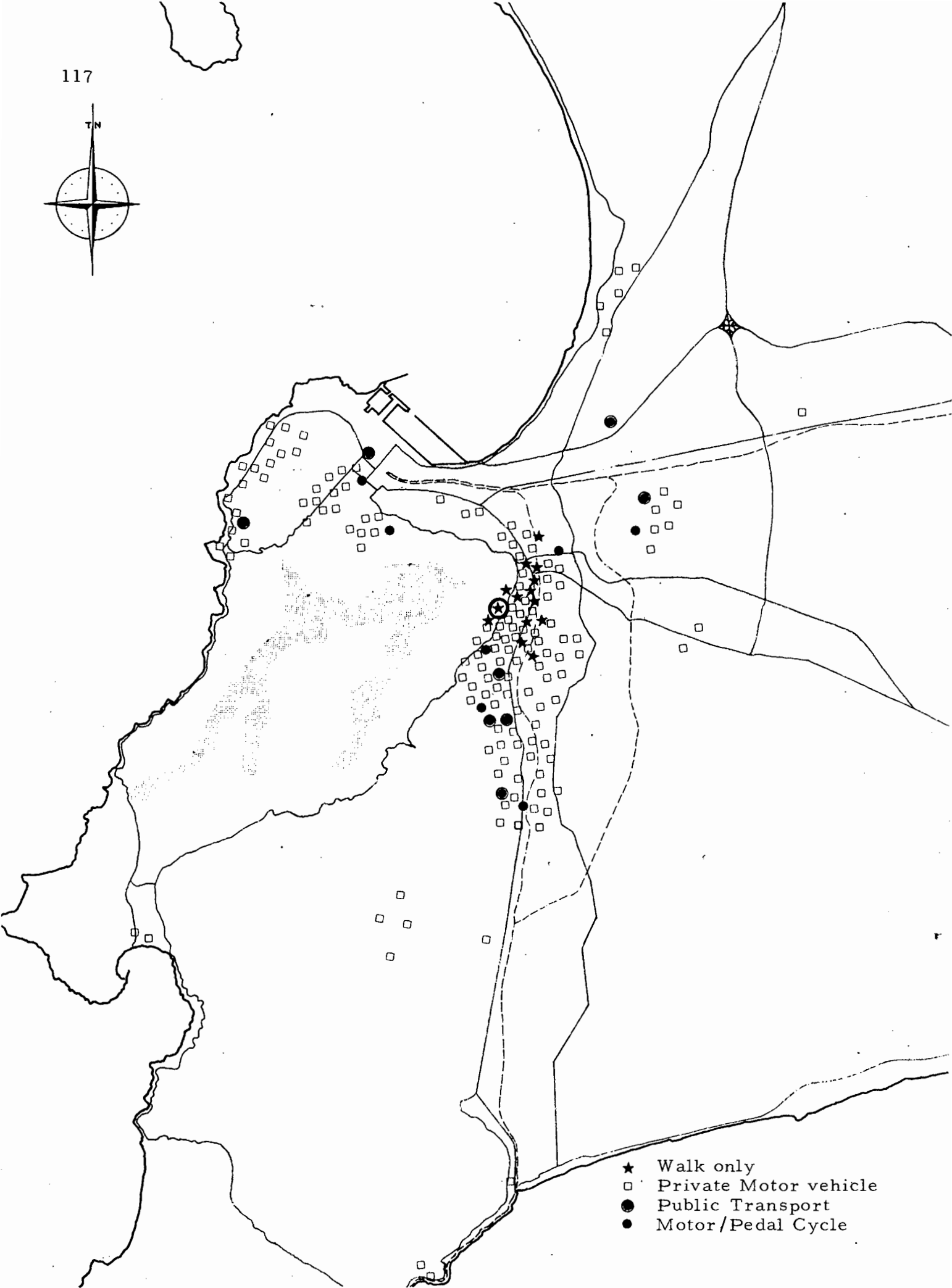
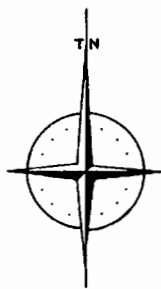
Figure 26

Source: U.C.T. Planning Unit Survey, Work Paper No. 3

The distribution indicates a clustering of car ownership between Plumstead and Observatory and a further cluster in Sea Point.

By relating this diagram with the diagram to type of residence (in rented accommodation and living at home) there is a significant proportion of students in rented accommodation between Rosebank and Claremont who do not own cars.

Students in University residence are omitted from this map.



- ★ Walk only
- Private Motor vehicle
- Public Transport
- Motor/Pedal Cycle

FIGURE 27 MODE OF TRAVEL X PLACE OF RESIDENCE

Source: U.C.T. Planning Unit, Work Paper No. 3, 4.3

5.5.2.5

Mode of Travel by Place of Residence

Figure 27

Source: U.C.T. Planning Survey, Work Paper No. 3

The mode of travel is divided with those who walk only, those who use private motor vehicles, either as drivers, passengers or hitchhikers, those who use public transport of any kind and motor or pedal cyclists.

The distribution shows that students who walk may extend from Mowbray to middle Rondebosch.

Private motor vehicle users come from all residential areas.

Public transport usage is scattered and there is no significant pattern indicated.

From student car-owners with private vehicle transport, the lift patterns come from Bantry Bay, Tamboerskloof, Lower Rondebosch and Plumstead.

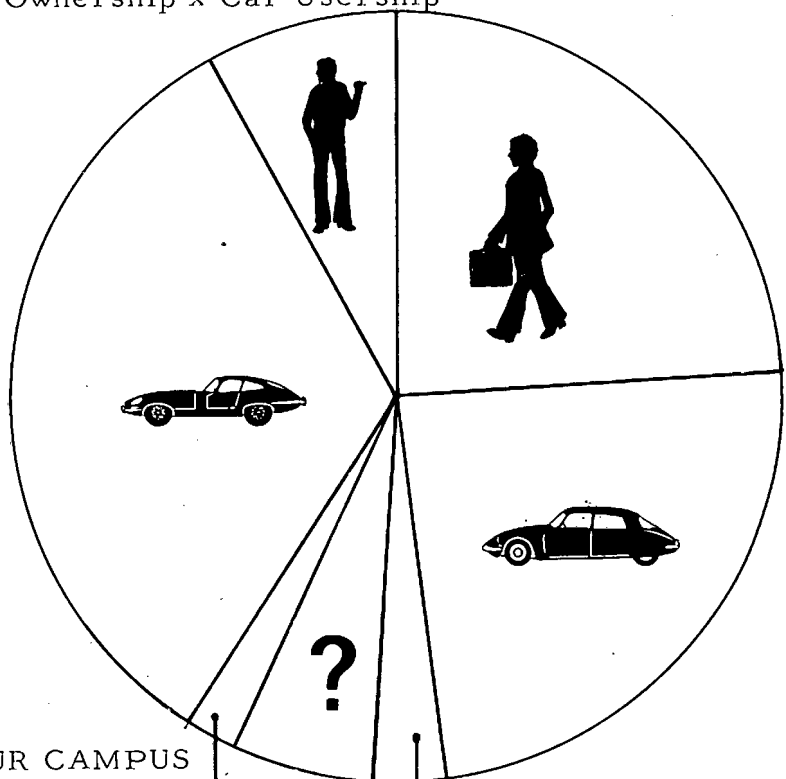
The following diagram - Figure 27 - gives the travel modes as a relative daily average frequency taken Monday to Friday. 57% are dependent on car transport either by driving or as passengers in getting to the campus. 46% are dependent on car transport for leaving the campus.

Vehicular congestion on the campus is highlighted by the high percentage of students dependent on car transport and the fact that 84% of the car drivers arrive before 9.15 a.m. For this reason, the congestion at the point of entry is particularly acute. 62% enter at the north end and 32% at the south (Zoo end).

All cars depart on the northern end of the campus highlighting a much needed point of egress for students returning home, - a problem that can be partly alleviated by providing more residences within walking distance of the campus.

5.5.2.6 Travel Modes - Car Ownership x Car Usership

	%
Walking	24
Motor Scooter or cycle	3
Public Transport	2
Car Drivers	33
Car Passengers	24
Hitchhike	8
Not Applicable	6



TRAVEL TO THE GROOTE SCHUUR CAMPUS



	%
Walking	28
Motor cycle and scooter	3
Public Transport	6
Car Drivers	33
Car Passengers	15
Hitchhike	9
Not Applicable	6

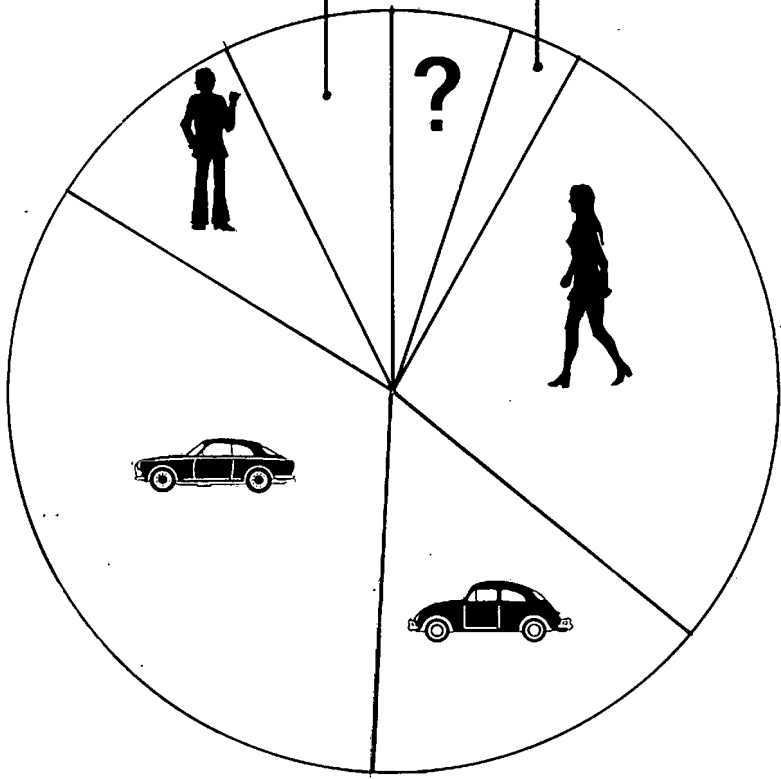


FIGURE 28 CAR OWNERSHIP X CAR USERSHIP
Source: U.C.T. Planning Unit Survey, Work Paper No. 3

5.5.2.7 Travel Time by All modes

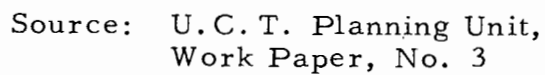
Figure 29

Source: U.C.T. Planning Unit Survey, Work Paper No. 3

The following table gives the percentages of travel time by all modes - Student Sample - and is adapted from Table 4.15

Table 21

Travel Time (in Minutes)	Average Daily Frequency	Relative Average Daily Frequency as a %	Percentage Cumulative Frequency in each Class
1 - 5	34	14	14
6 - 10	52	22	36
11 - 15	58	25	61
16 - 20	44	19	80
21 - 25	15	6	86
26 - 30	10	4	90
31 - 35	5	2	92
36 - 40	2	1	93
41 - 45	0	0	
46 - 50	0	0	
51 - 55	0	0	
56 - 60	3	1	94
61 - 65	1	0	
66 - 70	0	0	
71 - 75	0	0	
More than 75	0	0	
N/A	11	5	99
Total		99	



The mean travel time was calculated for each place of residence and first plotted. Isochrones, at five minute intervals, were then interpolated from the data.

The first contours show the ten minute time interval which stretches in a narrow zone from upper Claremont to the edge of Devil's Peak.

The fifteen minute contour includes Bishopscourt, round the mountain to Tamboerskloof and running eastwards up to and including Pinelands, then swinging across lower Rondebosch to join Bishopscourt. This shows the influence of the freeway network to the University of Cape Town, particularly the N2 route.

The twenty minute contour includes Hout Bay, Sea Point and Milnerton.

The remaining contours build up in rapid succession across the northern suburbs illustrating the friction of distance between these areas and U.C.T.

The width of the contours below the University stretching to the Cape Flats suggests that a micro-analysis of time/distance to the University of Cape Town, particularly, with regard to walking distance, would be significant, relative to the location of students without cars.

The distribution of mode of travel by motor vehicle compared with the time/distance contour shows that students in areas such as Plumstead, Wynberg and beyond and Sea Point have chosen factors other than time/distance to University as their priority in place of residence.

Nevertheless, the fifteen minute band includes the greater population of those who travel by private motor vehicle, suggesting that a micro-study of time/distance to University by student car-users would be revealing of the extent to which students allot value in the use of their cars to travel to the University in preference to public transport and contribute to congestion on the campus.

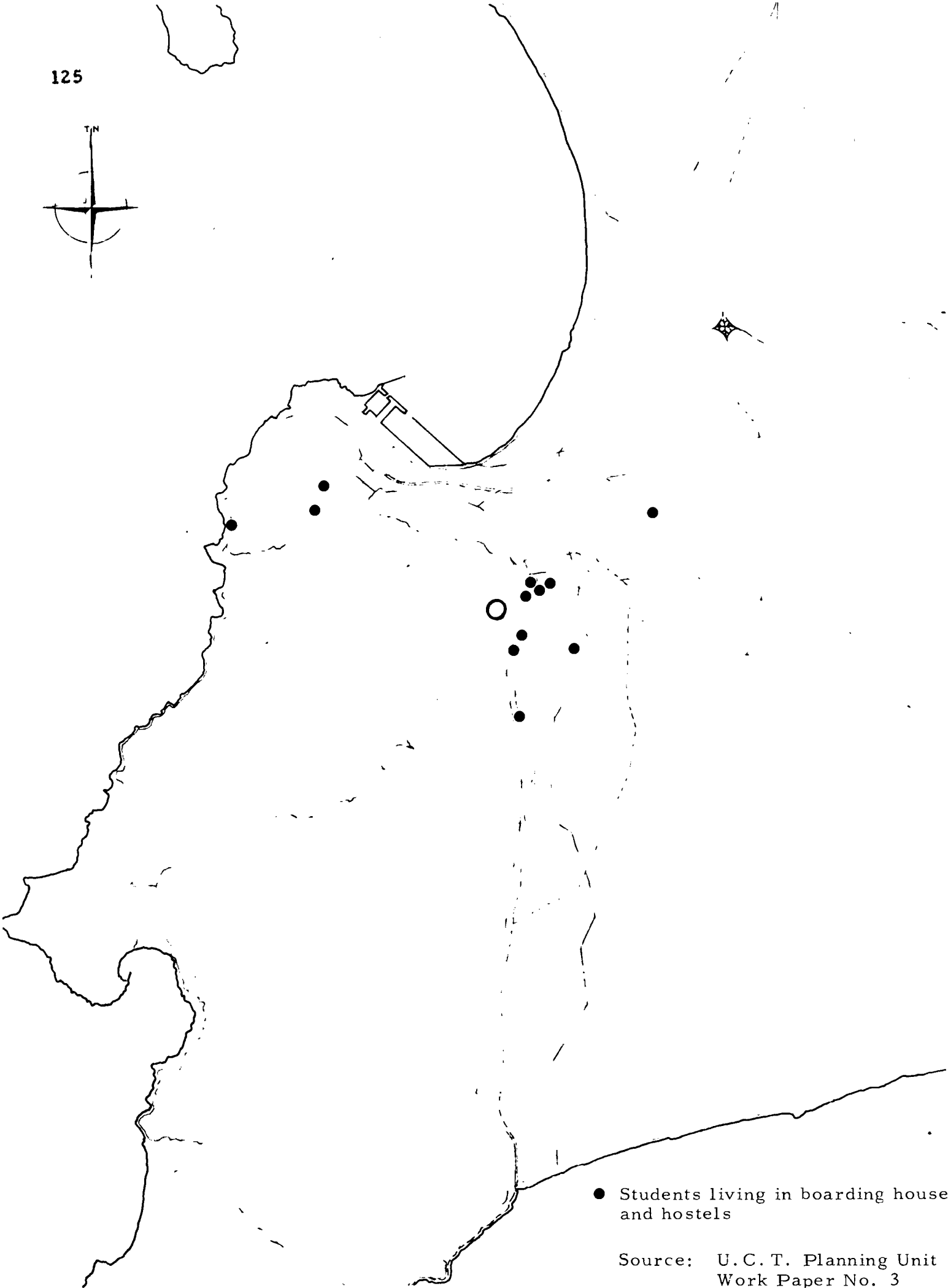


FIGURE 30 PLACE OF RESIDENCE X TYPE OF RESIDENCE
(Boarding Houses and Hostels)

5.5.2.8

Place of Residence by Type of Residence
(Boarding Houses and Hotels)

Figure 30

Source: U.C.T. Planning Unit Survey, Work Paper No. 3

The total frequency is only 5% of the sample. The percentage of rented rooms is 10% of the sample and it is not clear whether these rooms have landladies or not. It is assumed that they have not as, if they are rooms in the plural, they might be called a flat or flatlet in which case the boarding and lodging type of accommodation appears to be found predominantly in the private housing sector rather than the official boarding house.

The distribution, although scattered, shows a clustering in upper Rondebosch and upper and lower Rosebank.

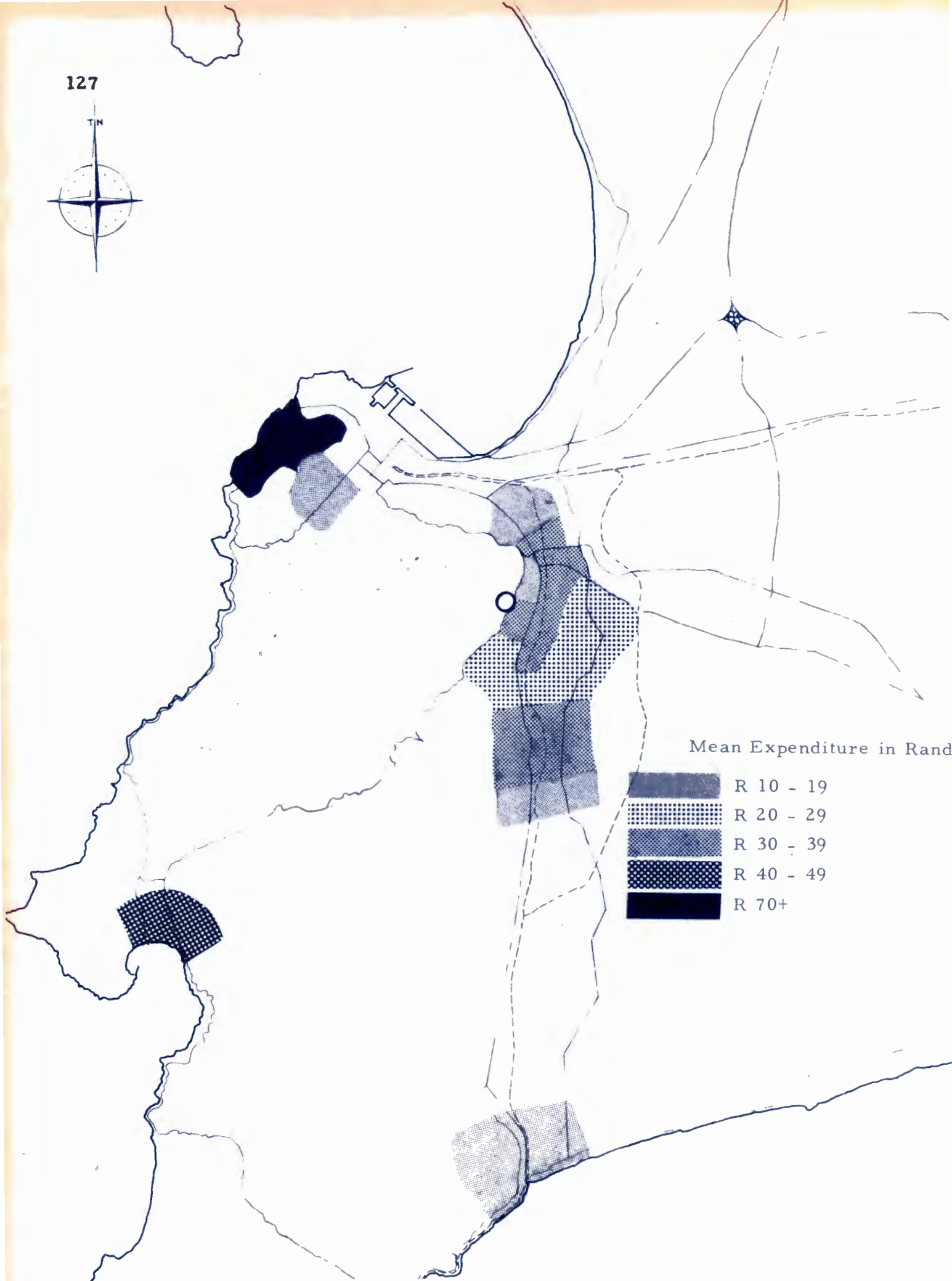


FIGURE 31 MEAN EXPENDITURE AND PLACE OF RESIDENCE BY LODGINGS

Source: U.C.T. Planning Unit, Work Paper No. 3, Table 3.7M

5.5.2.9**Expenditure and Place of Residence by Lodging****Figure 31****Source: U.C.T. Planning Unit Survey, Work Paper No. 3**

The highest expenditure for student accommodation is in Sea Point followed by Newlands. Cheaper accommodation is in upper Rosebank, Observatory, Plumstead and Tamboerskloof. Because of low frequencies outlying areas are not discussed. The cheapest accommodation which lies within the ten minute isochrone is in Rosebank/Observatory.

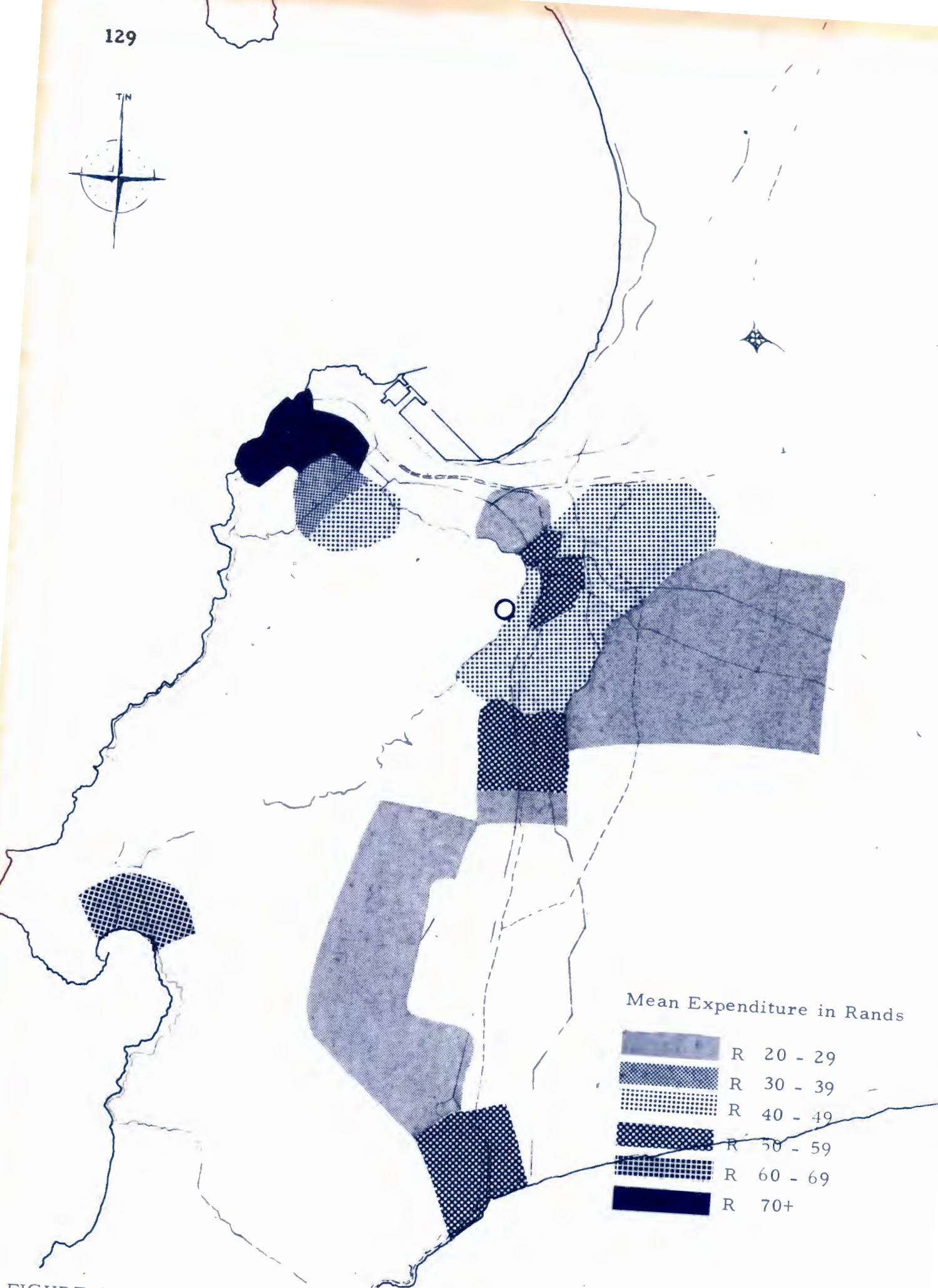


FIGURE 32 MEAN EXPENDITURE X PLACE OF RESIDENCE: BOARD AND LODGING
 Source: U.C.T. Planning Unit, Work Paper No. 3, Table 3.9M

5.5.2.10 Expenditure of Place of Residence by Board and Lodging

Figure 32

Source: U.C.T. Planning Unit Survey, Work Paper No. 3

This information, derived from the student questionnaire which asks for expenditure on board and lodging, has a much higher frequency than that reflected in the number of students living in boarding houses and hotels. It is assumed therefore to concern students living in rooms and those students who live at home and pay for board and lodging.

Ignoring outlying areas, the highest expenditure is in Sea Point. The lowest expenditure is in Observatory. Rosebank/Rondebosch lies in the middle range of values (R 40 - R 59).

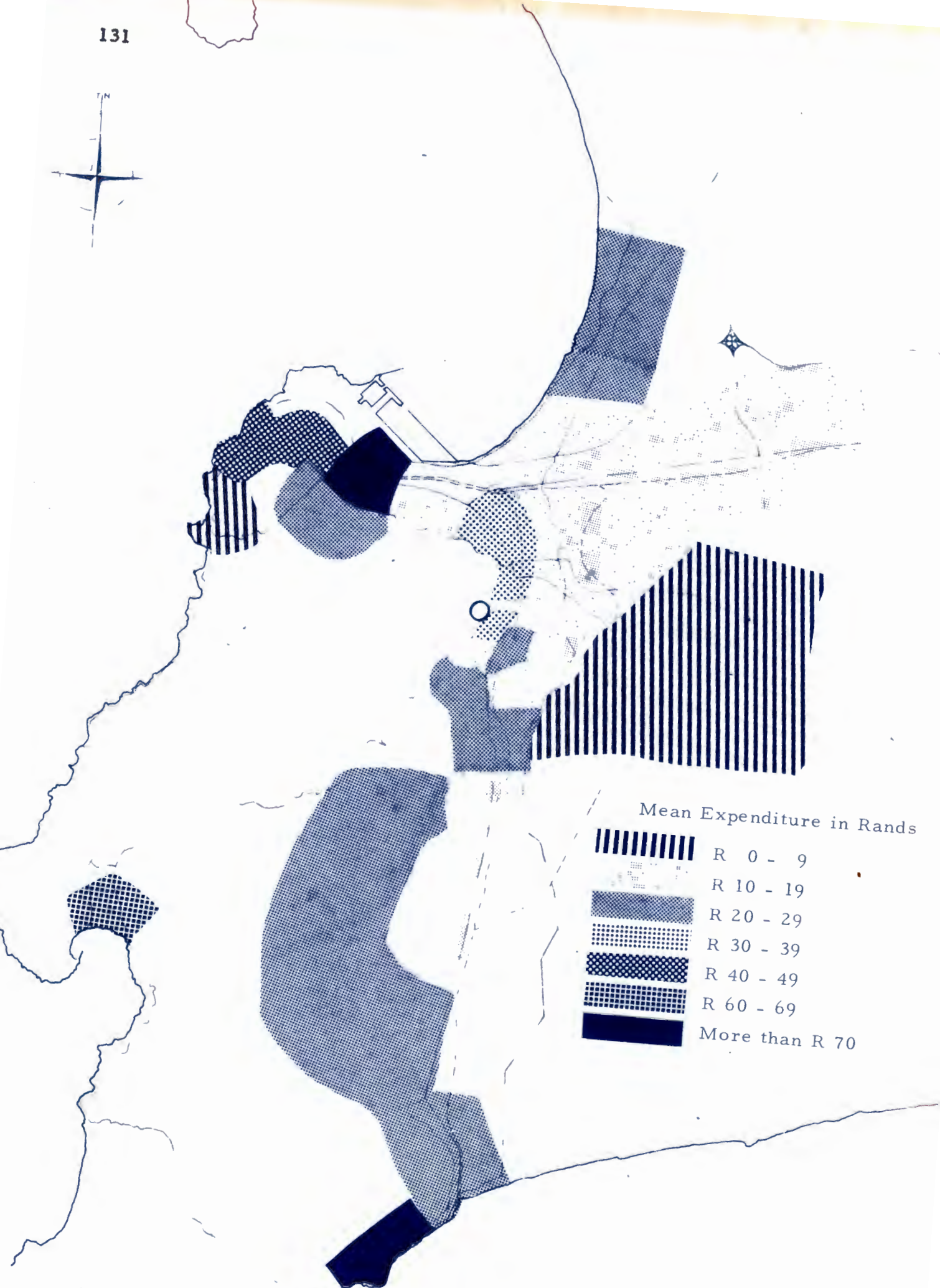


FIGURE 33 MEAN TOTAL EXPENDITURE X PLACE OF RESIDENCE
(excluding Board and Lodging)
Source: U.C.T. Planning Unit, Work Paper No. 3, Table 3.42

5.5.2.11 Place of Residence by Total Expenditure excluding Board and Lodging Figure 33

Source: U.C.T. Planning Unit Survey, Work Paper No. 3

Allowing for distortions in response to this question due to the fact that students living at home may need to spend less on certain services than those who live away from home, the middle range of expenditure is in Rondebosch/Rosebank and Mowbray. Cheaper areas are Observatory, Lower Rondebosch, Pinelands and Newlands which include large numbers of students living at home. Highest expenditure is in central Cape Town and Sea Point.

5.5.2.12

The University and the City - Broad conclusion

The various analyses are a coarse-grain approach to the relationship by time, place and accommodation costs of the University's students and staff population to the metropolitan area.

Even on this coarse-grain level, preference for certain areas in a limited time/distance from the University has been shown. These facilities reflected in rent structure, indicate a clustering of university staff and student personnel within a comparatively limited sector of the metropolitan area.

This suggests that a closer look at that sector would reveal significant information about its housing characteristics, its total population including non-university persons and whether it reflects a different form and structure to the remainder of the metropolitan area.

5.5.3

THE LOCAL REGION TO THE UNIVERSITY**Definition**

For the purposes of this study the term 'Local Region' has been given to that sector of Cape Town which revealed certain preferences for the University's students and staff.

Geographically, the Local Region can be described as encompassing the residential suburbs of Rondebosch, Rosebank, Newlands, Claremont and Observatory.

Its boundaries on the west are the open spaces on the slopes of Devil's Peak, on the south the Zoo area and the Prime Minister's Residence, on the east by the Rondebosch Common up to the Liesbeek Parkway.

Except for the Observatory area all the other suburbs are within 20 minutes walking distance of the Groote Schuur campus.



FIGURE 34 DIAGRAMMATIC REPRESENTATION - THE LOCAL REGION

5.5.3.2

Source

The data used for the analysis in this section was taken from a survey undertaken by the First Year students in the Department of Urban and Regional Planning, U. C. T. and included in the University's Planning Unit Work Paper No. 6.

Area of Study

In a student project examining the Local Region the opinion was expressed that the Region, where comparison to the metropolitan population has been possible, displays individually unique characteristics substantially divergent from the metropolitan norm. (1)

The study of the local region and its ability to absorb part of the growing student population bears a direct and important relationship to the residences problems of the University. Whilst it is not intended to review the studies in detail, pertinent factors relevant to the provision of student housing revealed by the Todeschini study, have been extracted in summary form and dealt with in three sections. They are:

1. Population
2. The Residential Component, and
3. Potential for Growth and Change.

5.5.3.3.

Population

The REgion has lagged behind the development growth enjoyed by the Metropolitan area as a whole. The comparatively low population growth is attributed to Group Areas' legislation as it is in those parts of the Metropolitan region allocated to non-white residents that the greatest percentage of growth has taken place. (2)

(1) F. Todeschini, 1970, Page 22

(2) F. Todeschini, 1970

Comparative Index of Change

Metropolitan to Study Region - Whites

Table 22

Source: Todeschini Study, Page 23.

Period	Index of Change	
	Metropolitan	Study Region
1951 - 1960	1.1441	1.1206
1960 - 1970	1.3716	1.3065
1951 - 1970	1.5693	1.4641

Comparative Index of Change

Metropolitan to Study Area - All Races

Table 23

Source: Todeschini Study, Page 23

Period	Index of Change	
	Metropolitan	Study Area
1951 - 1960	1.2772	1.0593
1960 - 1970	1.5747	1.1334
1951 - 1970	2.0112	1.2008

5.5.3.4

Fertility Rate

The study region, inclusive of all races, has not kept pace with the growth of the white population of the Metropolitan Region.

It was felt possible that unique factors exist which would account for the slow growth rate. In order to assess whether any unique

factors are indeed present, an examination of the fertility rates for the Region as compared to the Metropolitan region was made. These revealed that the region is rated below a third of the Metropolitan norm.

Table 24

Fertility Ratios - White (1)

Study Region Residential Sample Profile	Metropolitan Adjusted Profile	Study Region Combined Profile
103.46	346.34	83.89

It was assumed that the presence of the University and the Groote Schuur Hospital in part influenced the immigration of a relatively large number of young unmarried women, (No data was however available on the number of women attending at Groote Schuur Hospital) which had the effect of placing a heavy demand by a low fertility group on dwellings in the Region causing competition for places and the resulting out-migration of high fertility population types. Population profiles for the Region bear out this contention.

5.5.3.5

Growth Rate

It was concluded in the study that the slow population growth rate (by comparison with Metropolitan norms) is attributable to:

1. Spatial racial separation brought about by the Group Areas' Act
2. Peak utilization of existing housing stock
3. Slow moving residential renewal
4. High incidence of elderly residents and
5. the pressure of the University and Groote Schuur Hospital as evidenced by out-migration and low incidence of high fertility age groups.

(1) F. Todeschini, Page 24, 1970

5.5.3.6**Other Factors**

The Region experiences unusual form of migration due firstly, to the seasonal out-migration of a large proportion of students and staff (2000) in response to vacation periods from November to February and in July.

Secondly, more than 5000 students and staff non-residents of the Region daily commute and spend much of their daylight hours on the campus and adjoining commercial areas. The daily influx of scholars to the overly school-endowed provision in terms of its own school-going age population.

Finally, exclusive of persons in University residence and Old Age Homes, there is a high proportion of single and two person households (60%).

The presence of institutions in and just out of the Study Region attract a large number of lodgers accommodated by the private housing sector creating further unique characteristics. These are: Firstly, the lodger residents (attributable to University students) represent 6.26% of this total population with 3% of the students married.

Secondly, the residential requirement of the students is predominantly provided in the single residential type of structure. A high incidence of small households in the groups are not directly involved in the 'landlady' industry.

Table 25 (1)

Total Number of Family Persons and Lodgers

Type of Dwelling	No. of House-holds	Min. size of Family	No. of Family Persons	Min. No. of lodgers per household	No. of Lodgers
Single Residence	2,153	2.3866	6,210	0.4227	910
Flat, etc.	4,925	2.1882	10,777	0.0591	291
Total	7,079		16,995		1,201

The over-provision of schools bearing no relationship to the family composition characteristics was also noted with 36% of the resident population looking to the Local Region (including the University) for work and study.

5.5.3.7

The Residential Component

Residential Land Use

1. 574 acres nett of an area of 1442 acres are given over to residential purposes (Ministerial, University, School and their residential hostels not included).
2. One-third of the land zoned residential is and may be developed for single residential purposes only.
3. 46% of the residential land is zoned R4 with a bulk of .9. 22% is zoned K5 with a bulk of .4. Refer Town Planning analysis, Table 8.
4. Comparing possible development to present zoning restrictions it is considered possible that the Region is developed to 68% of its currently possible potential. This is accepted as given.

Dwelling Types - The Present Situation

The Student Survey data revealed that:

1. 20% of the dwelling types are single residential
2. 11% of the dwelling types are semi-detached
3. 4% of the dwelling types are row houses
4. 63% of the dwelling types are low and medium rise flats (41% being walk-up and 21% have lifts).
5. There were no patio types, presumably due to side-space requirements of the Town Planning scheme.
6. It is recorded that a great many residential types outlined in the CMP Study (1) have never been attempted or are not permitted under the present regulations. They are:- patio houses, townhouses, stepped housing, maisonettes, low-rise courts, low-rise clusters, medium-rise patio, medium-rise links, high-rise slab, high-rise articulated, high-rise links, high-rise tower, high-rise clusters.

5.5.3.8

Ownership

77% of all dwellings are rented; catering mainly for the large elderly population on the one hand, and the large number of young adult small households on the other.

5.5.3.9

Schools

There is over-provision of schools in respect of the local region's own population demands. In terms of over-subscribed land for schools, 60 acres are involved. Many of the schools are of high status providing a regional function within the metropolitan area.

Taking schools and the University, facilities are provided to such a measure that they in fact constitute a major industry. (40% being privately-owned and receiving no Government subsidy.) 300 of the 1445 acres are given over to educational establishments.

5.9.3.10

Potential to absorb Future Student Growth

In the summing up Todeschini (1) concluded that:

1. "The group particularly in need of better residential provision is the small household category.
2. The choice of provision for the 15 - 29 age groups can hardly be significantly expected from private entrepreneurship, zoning, building costs and Municipal Building regulations what they are.
3. The residence provision to absorb future student growth must therefore rely heavily on University Residence provisions despite the clear indications afforded by the Attitude Survey: namely, that 86% of staff and students do not wish to reside in University residences."

(1) F. Todeschini, 1970, Page 74

6.0 EVALUATION AND SYNTHESIS

6.1 SYNTHESIS OF THE U.C. T. POSITION

6.1.1 Aims

The original intention of the thesis was to evaluate the basic assumptions of residence hall provision, whether the kind of environment students want and need was being effectively provided.

Facts, statistics, opinions and, as far as possible, administrative policies were assembled. From the emerging realities of changing patterns of student living, the necessity for a new approach to student housing has become apparent.

The information gathered must now be classified and the relative significance and inter-relationships with their priorities of importance assessed.

New criteria must be established so that operative judgements for the provision of further student housing can be made within the limitations imposed by present conditions.

6.1.2 Growth Rate

At present, 40% of the student population live either in accommodation of their own or in lodgings. With the growth of the university averaging 5% per annum, the problem of student housing is at an acute stage.

At the University of Cape Town only 15% of the students are housed in our halls of residence and to quote the University Careers' Officer, Niels Lindhard,

"The drop in students from overseas and from other African States can be serious for us. We need the broadening influence

of outside people and the provision of suitable housing could increase our chances of attracting more research students here from abroad."

6.1.3

Senior Students

54% of the students are either in their Third year of study or more advanced as undergraduates or postgraduates. Their average age is 21 and, as such, they are classified as 'senior students' on applying for residence accommodation. Only 21% are in their first year of study of which 687, that is 10%, are women students. There are at present, 435 residence places for women students. The demand for accommodation by senior students has declined by 20% over the past five years.

Similarly, the demand for residence accommodation by the senior male students has dropped from 399 applications in 1965 to 353 in 1970. With the University showing an overall population growth of 5% per annum, these declining trends become even more significant.

In 1965 the University Lodgings Bureau was obliged, by selection, to contain the number of senior students in residence to a maximum of 75% of the total housed and so ensure that opportunity was given for at least 300 new students entering the University to take up residence. Today, there are insufficient applications from suitable senior students to maintain the original balance, with the result that the numbers of new students in residence has already risen to over 40%.

Many senior students are in desperate accommodation straits. The University population has nearly doubled since 1954. The

number living in lodgings, in other institutional hostels or in accommodation of their own has more than quadrupled over the same period. The demand for senior student accommodation from students of both local and foreign origin is becoming more critical. Although half of the students are of local origin, only 40% live with their parents. Significantly, another 40% of our students live in accommodation of their own, or in lodgings, seeking independence from parental control and University authority.

In the senior student demand category the exception to the 'fall-off' in trend is at University House where the number of applications for places in this (senior) residence was four times greater than could be accommodated.

6.1.4

New Students

In 1970 there were 1250 first year male students at the University, with a total of 692 residence places available. Similarly, there were 689 new women students with 435 places available. By contrast with the fall-off in applications from senior men and women students, applications for residence from new students is, in 1970, still four times the amount that can be accommodated.

Indications from applications are that the present type of residence provision is considered to satisfactorily provide the kind of accommodation that the first year students want and need.

6.1.5

Graduate Students

Postgraduate student numbers have nearly doubled over the past eight years. The percentage proportional growth in numbers of graduates to total students increased from 8% to 11%. An almost

negligible number of postgraduates apply for residence facilities. In the right circumstances an increasing percentage of graduates can have a very beneficial effect on the academic and social life of the University community at large. Suitable independent housing for the graduate student can act as an attraction to first-rate scholars who like to be close to Library and research facilities. At present, there is no appreciable accommodation on campus for graduate students and more of these facilities should be provided.

6.1.6

Married Students

Although, as a group, married students represent 14% of the total student population, the University has only five quarters for married students. They are simple to house in that virtually their sole requirement is a flat. With a new approach to student housing this need could be automatically met.

6.1.7

Student Attitudes

The surveys showed that students' attitudes on accommodation revealed a marked change in preference once the student enters his second year of study.

In their first year the students were mainly concerned with the 'formation of friendships', 'opportunity for involvement in campus activities' and 'to do well academically'. The study confirmed that the present hall of residence forms a good background in meeting these needs.

For the senior student, however, disenchantment with the 'residence way of life' was felt once they entered their second year.

Attitudes indicate that preference for living in accommodation of their own was motivated strongly by their desire for independence - independence not only from the 'housemasterly' attitudes prevalent in the residences but also to break from the inflexibility of the enforced sub-groups inherent in the 'pavilion' built form that is prevalent in most of the existing buildings.

The 'inbuilt hierarchy' concept or, in other terms, the 'social groupings of the Sixties' type has been accepted by many universities as the correct approach to new residence provision. As the two new U.C.T. residences projected for the immediate future are largely based on this concept, it is considered necessary to give a brief historical resume of educational patterns that have lead up to this approach in student accommodation provision and to discuss the ramifications in broad terms. Accommodation standards related to this form of residence is set out in Appendix 5.

6.1.8

Residence patterns

From the time of Architect Salomons' first conception of what is now known as Smuts and Fuller Halls, the approach to residence design at U.C.T. has been modelled on British practice. It would be well to review this to see the situation in the broader context.

The educational patterns which exist in Britain are compounded of historical components.

Oxbridge

Firstly, the Oxbridge component dating back to the thirteenth century, which combined educational and social groupings at the college scale. These colleges were autonomous and offered unique opportunities and privileges, one of which was the after lunch clockwise port. They also embody the archetype of much new

student housing with their study bedrooms grouped around a common staircase and gas ring.

Scottish

The Scottish universities in the fifteenth century were spartan and concerned themselves essentially with the learning process. Consequently they spurned a landlady industry, which is also part of the present student housing situation.

Redbrick

Thirdly, the great civic or redbrick universities of the nineteenth century. These were science-based and built mainly for the benefit of the local community. The redbrick universities developed the familiar students' halls of residence, and housemasterly attitudes, petty restrictions and even the Oxbridge high table, but without the clockwise port.

Social Groupings of the Sixties

These are arrangements in which the university builds and rents accommodation but does not try to impose a community structure through supervision and deliberate restriction on staff and students.

Personal relationships can be established rather in the laboratories, the seminar and the tutorial because there is a functional basis there for their occurrence. In its most usual form, it consists of a dozen rooms clustered about a common kitchen/living room. The sub-cultural groups so formed are then repeated on several floors. This kitchen/living room becomes the functional focus of a small student unit.

6.1.9

The Inbuilt Hierarchy

At present every residential project at U.C.T. has an explicit hierarchy built into it. In some cases, the hierarchy is more

extensive than others, but in principle, the suggestion is that students come together in sub-groups which continue to form larger groups, eventually forming the hall of residence and finally the whole university. Smuts and Fuller Halls are classic examples of the 'Redbrick' approach.

Like the recent study at Berkeley (1) it would appear that

"while a hierarchical system may have some advantages, it does not always co-incide with students' activities and the social groups which they create. These are, it seems, far more complex and far-reaching than an individual building, and less related to the groups within the building than the design of the building would suggest. While proximity may assist in the formation of social groups, most senior students find a large proportion of their friends in other locations throughout the University. Furthermore, such groupings are likely to change from year to year and certainly a rigidly organized hierarchy of associations would militate against this."

6.1.10

U.C.T.: The Future Provision - Comment

The two new residences proposed for women students are in built form clearly modelled on the 'social groupings' type of the Sixties, and with the formation of sub-cultural groups centered around the common kitchen/living room, this pattern has definite advantages for our new students; but these students are a minority group in the total student body.

The field of concern lies not only with our new students but with all of our students. The majority, by refusing to accept the inflexibility of the 'farmhouse kitchen' approach and the house-masterly attitudes and petty restrictions have opted for accommodation usually of a lower comfort standard, located further from their place of study and at higher cost to themselves.

(1) S. van der Ryn and M. Silverstein

Outcasts because we are students?

SIR.—We are a group of three respectable post-graduate students and a junior lecturer. Our landlord has sold the house we lease to a new owner who will himself move in.

For three months we have been searching for alternative accommodation through advertisements, agents and friends. Every lease-hunter of limited means knows the repeated experiences of rushing round only to be told: 'It's already taken.'

But time and again estate agents and advertisers tell us: 'No students' and even 'No lecturers.' 'No single people,' 'Don't bother to apply.'

Had we left school early to become artisans; even if we had all married and had children, we would have been able to obtain accommodation months ago.

But because we chose to study further at university we seem to be regarded as outcasts from society by landlords and some estate agents.

We are anxious to lease any inexpensive flat or house, no matter how old, anywhere in the Woodstock-Kenilworth area within 15 minutes' walking of public transport.

DESPERATE

Claremont

'VARSITY' NEWSLETTER, 1970

ACCOMMODATION SHORTAGE WORSENS

By Vikky Kirk

The acute accommodation shortage which faces UCT students and even junior lecturers promises to worsen in the future.

At the beginning of the first term this year one student spent two weeks living in his Volkswagen Beetle which he parked every night on Rondebosch Common. Two women students spent the whole of the first quarter living in a cellar with only a curtain to separate them from the kitchen of somebody else's house.

Now with the demolition of Chester House approaching, and that of Rose Court already begun, approximately thirty more students will be looking for a place to stay.

Flat-owners either flatly refuse to let to anyone who has anything to

do with the University, or else price their rents so high that they are out of reach of most students. Those who lived at Rose Court were paying R90 a month for the ancient second floor.

Asked to comment on the shortage of accommodation, an overseas post-graduate said that in Europe and North America the universities commonly build blocks of flats for students who cannot or do not want to get a place in Res. The student suggested that this was obviously a matter for the University administration, and one which should be dealt with as soon as possible.

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STUDENT FLATS NEEDED

THE TWENTY-FIVE PER CENT INCREASE in State aid to the universities is inadequate. But, after janitorial wages, top of the priorities is student accommodation. The three residences planned will ease living problems for young students fresh from the sheltered life at school and home.

But consider the "Berlin Wall"-like appearance of UCT's women's residences: a seven-foot-high iron curtain topped by outwards-leaning barbed wire guarding the floodlit, patrolled, security zone of closely mowed grass encircling Baxter, built, like Fuller, to fortress blueprints.

Is this not more appropriate to a Victorian House of Correction for streetwalkers than as the free abode of adult voters? Compared to American or British universities even five years ago, does this not belong to the era of cloistered wives and chastity belts?

Granted that South African parents and public are more "verkramp" than overseas ones. Conceded that first-year students straight from school may need supervision.

But for senior students, residence regulations are a humiliating return to a second childhood. Apart from modernising the residences rules, many of the 21 to 30 year age group of scholars and teaching staff are in desperate accommodation straits. Not residences which promptly evict all during vacations.

There is an immediate, urgent need for UCT to build cheap flats for students over 21 — especially post-graduate, researchers, tutors and junior lecturers. At the very least UCT must follow the lead of overseas universities and immediately give the Lodging Bureau instructions and budget to enable it to buy up cheap housing and flats in lower income areas until it can erect bachelor and married quarters of its own.

The two new women's residences were first proposed in 1958. With new Driekoppen completed, the University could at that time offer places to 700 men and only 400 women. The number of applications for places from both men and women first year students was 400 in each case. Because of this demand, a decision to build additional residences for women was taken. The work was put in hand to meet the University's needs of the time and the basic assumptions of housing provision and residence hall design has presumably not been questioned or re-appraised.

Our administrators, pre-occupied with problems of growth, costs and budgets, have seldom questioned the basic assumptions of residence hall design. There is no feedback channel between planning assumptions and building use. Existing facilities have not been systematically evaluated to determine whether they are effectively providing the kind of environment all our students want and need. There would seem to be no attempt to understand and interpret the physical and social implications of changing patterns of student living from the time students enter the university to the time they leave as either graduates or postgraduates.

"Among university administrators there is much talk of the need for university-operated housing to provide the student with a humane 'educationally enriching' experience. Yet these ideals have seldom found their way into bricks and mortar. Despite good intentions when the time comes to make operative judgements about new facilities, ideals are often forgotten. Perhaps this is because there are few precise criteria to act on other than construction cost." (1)

(1) Bullock, Dickens and Steadman, 1968, Page 193.

6.1.11

A New Approach

It is on the analogy of the common household that there does seem to be emerging a principle of grouping student rooms which may result in a building type that really answers the needs of our time.

As an example, terrace housing used in a recent project at Loughborough University and schemes on these lines which are more adaptable as family houses should the need arise, especially where they incorporate rooms of different sizes, offer more scope for providing student accommodation in a flexible way and to a human scale.

Once student housing has adopted the principle of the household there is, of course, less reason for distinguishing student housing from housing for other members of the university or community.

6.1.12

LOCATION AND THE PATTERNS OF ACTIVITY

The correct provision of residence facilities and their location will ultimately depend on the maximum levels of demand.

Studying student patterns of movement has shown that in providing eating and communal space related both to teaching and residence functions, the University is duplicating facilities which if the students were to stay on the campus even in the evenings, need only be provided once.

By correct location on or near the campus, under-use of space would be avoided, staff costs reduced, congestion to, from and on the campus would, to a certain extent, be alleviated and those students living in lodgings at some distance from the University would no longer be socially and academically isolated.

If, on the other hand, the high percentage of students continues to live some distance from the campus, the 'nine to five' atmosphere will prevail.

But for the student, preference to live off campus has, in certain cases, also meant closeness to facilities offered by the neighbouring commercial centres. The large number of restaurants, pubs, student orientated bookshops and clothing stores are largely supported by students. In dealing with future residence location, the strong desire for this form of connection must be recognized.

6.1.13

The City, The Local Region and The University

Even on a coarse-grain level preference for certain areas of the City in a limited time/distance from the University has been shown.

These preferences manifested themselves in a clustering of university students as well as staff personnel within a comparatively limited definable sector of the metropolitan area.

A closer look at that sector previously referred to as the 'Local Region' revealed significant information about its housing characteristics and its inability to, in a housing sense, absorb any future student growth.

The significant facts which emerged were:

1. that the Local Region cannot be expected, in housing terms, to absorb an unlimited number of students.
2. For reasons of cost, zoning and municipal regulations generally the private entrepreneur could not, per se, contribute in the alleviation of student housing problems.

3. The group particularly in need of better residential provision is the small household category.

The present housing stock, within reasonable distance of the University, cannot therefore be considered as being capable of taking up further student numbers in any quantity. Under pressure for accommodation the Local Region is in fact spatially extending itself well beyond the original ten minute walking distance.

Because of the high incidence of demand from students and the small household groups, the provision of housing of the small house type would be attractive not only for the University but for the entrepreneur.

The University by providing single dwelling types for its senior and graduate students, need not drive away others by rising rentals. In the Harvard study on the University and the City the report stated (1)

"no institution of this size and with this purpose can be neutral about its environment. If it should act vigorously to secure land, erect buildings and shape events, it will impose however laudable its intentions, its preferences on others who may not share them ... it will implicitly choose a certain kind of environment - one perhaps in which all Cambridge slowly becomes like Harvard and M.I.T. until we find that we are no longer an urban university but one which has allowed there to grow up around itself a kind of inner-city suburb."

(1) James Q. Wilson, 1969, Page 18.

6.1.14

The Interface Concept

Sim van der Ryn in 'The Daily Californian' wrote: (1)

"of the reasons I have stated why campuses are not effective human communities, age segregation is certainly one. We live in a society where different age groups, social classes and occupations are partitioned off from each other in time and space on a massive scale... We would gain something by opening our often dry and strident campus world to other age groups, particularly children. A world of learning should have children present. It softens many hard realities."

Of critical importance is the recognition that the health of educational institutions depends on their spatial diffusion. For too long, universities have been fixated with building and maintaining self-contained spatially defined campuses. In the provision of more residences along the 'edge' of the campus the opportunity is afforded to soften the rigidly defined spatial boundaries of the campus. Also to remove physical boundaries which, at present, partition off the on-campus students from the human community that surrounds us would facilitate a close relationship between the presently divided communities.

University residences which are built should interface with our immediate neighbourhood, that is, they should both spatially and by their built form cohere with the community housing. The purchasing of large tracts of land to extend student type ghettos should be avoided. The scale of buildings themselves should be sympathetic within the context of the present urban fabric. In fact, student housing and community housing should merge both physically and functionally.

On the northern and southern boundaries the University interfaces with mainly residentially-zoned areas. On its eastern boundary

(1) S. van der Ryn, 1969.

is the Main Road shopping precinct. Preferences amongst a large number of the students strongly favour close connection to the community facilities offered by the neighbourhood's commercial centre.

For the University, structures similar to the present built form and providing similar commercial and residentially-mixed uses should be provided along the main road edge.

The University's planning strategies strongly recognise the relationship with the local region and the main road strip. The lower campus, if developed, would create the opportunity for interface connection with the community at its edges. Besides housing, other interface functions could be thought of in terms of extra-mural activities, welfare agencies, child guidance, public relation and exhibition activities - the Lodgings bureau and in fact, everything that has dealings with the public. This would create a U.C.T. shop window onto the pavement with a captive audience.

6.2.1 THE NEED FOR A POLICY

The problem of housing students is at an acute stage and the University recognises that it faces a real shelter crisis. Eventually, it will be necessary to find additional housing on campus as studies have shown that the community is not geared to offer the necessary accommodation. Each succeeding year will bring an increase in demand of similar or even greater proportion and the detrimental effect on University and community alike can only be magnified.

It has not been possible to get a clear statement from our Administrators of policy either regarding qualitative or quantitative pro-

vision of new residence places.

6.2.2

Quantitative Assessments of Future Provision

Quantitatively the university clearly has a two-fold problem, firstly, to bring our numbers in residence to, at least, a fair balance with our total student population and then to continue to provide additional accommodation in relation to the future growth of the University. At a very basic level, to attain a minimum of 25% population in residence we should at present have places for 2000 students.

Qualitatively the University has, by not re-appraising student preferences, not gained an understanding of the basic principles of type and form which residence accommodation should take or where it should be located and, in consequence, has not been able to formulate an acceptable housing policy to meet the changing needs of the students.

It has been expressly noted that this thesis does not seek to define precise boundaries of the student housing market but via an apparent trend in the demand, to begin to show cause for a re-assessment of the qualitative aspects of student housing needs.

The University, in approaching the problem of formulating a positive housing policy must assess all the relevant facts, advantages, and difficulties before a balanced programme can be outlined. As this thesis is primarily concerned with the qualitative aspects of student housing, projections and programming to meet these demands in each student category have not been made.

An indicator of need for on campus housing can be found in the applications from senior students wishing to transfer from their present Halls of Residence accommodation to the preferred arrangements offered at University House - the only senior mens' residence at present on the campus. By providing extensive housing suitable for senior students, it is expected that they will then choose to decant from their present places in the other halls of residence to take up the new accommodation offered and, in this way, make available further places for new students who have shown that the present Halls of Residence concept meets their wants and needs.

These assumptions are based on the fact that at University House in 1970, half of the applications for accommodation were from students who wanted to be 'transferred' from the other residences. Taking this proportion purely as an indicator, at least 300 further places will become available for new men in the existing residences. Similarly, 200 places could become available for new women if suitable senior accommodation for them is built.

The University's present policy is to provide residence places for 25% of its student population. Should the decanting referred to eventuate, there would be 700 to 800 places taken by new students and 400 taken by senior students in our present residences. The University's immediate minimum needs would be to provide a further 800 places for men and women senior and graduate students to bring our totals housed 'on campus' up to 25%. The ratio of places for new students to seniors would then be 8:12. Bearing in mind that over 3000 students are at present living in lodgings of one form or another, many more places for senior students should be provided.

If the 1:4 balance is applied a phased housing programme for senior students of up to 2800 should be considered. But this number should be weighted by preference trends and a staged programme of providing 400 student places at a time should be started immediately.

An initial project of this size is manageable within the University's present capabilities. The division into units of 200 places is also possible, if desirable, and multiples of these could be grouped together, each being served by its own satellite kitchen.

The new provision should cater mainly for senior students in the form of single study bedrooms. In order to attract more graduate and research students to the campus, 20% of the accommodation should be given over to this category in the form of two-roomed units. Initially, an additional 10% of the accommodation should also cater for married students.

Re-assessment of need and desirability should then be made at the end of each phase to assess whether the ratio of housing demand to student numbers has changed over time.

What is needed is an extensive on-campus housing programme immediately. The need for a firm housing policy which takes account of immediate needs and long-range objectives is clear; it should above all cater to all categories of student; it should concern itself with both on-campus and off-campus housing; it should supplement the propositions as outlined in the long-range planning strategies, it should be formulated in such a way that it integrates with and supports the overall educational and growth policies of the University.

6.3 ASSESSMENT AND PRIORITIES

By evaluating the data and comparing relative indices various patterns have emerged. Firstly, it has become evident that student preferences change radically from the time they enter the university to the time they leave. In order to understand and interpret the physical and social implications of these changing patterns a social typology of student by academic seniority must be prepared.

Secondly, by evaluating existing facilities and the University's proposals for the immediate future, it is evident that our residences will only effectively provide the kind of environment a proportion of our students want and need. It can be firmly concluded that in the provision of housing for our senior undergraduates, postgraduates and married students, there is no reason for rigidly distinguishing student housing from housing for other members of the University or community.

Outside of the basic unit, the 'study-bedroom', a wide range of service accommodation need not be necessary. However, a flexible building form must be evolved, which, can within its format, accommodate the various specialised functions required in student housing that does not occur in community housing and can, at the same time, be integrated with the present urban fabric identifiable in our local region.

A built form typology particular to the situation must be evolved by relating firstly the prepared social typology to housing types and finally housing types to the built form. The relationships between students and locational preferences must also be considered in the formulation of any housing strategy.

By introducing new concepts other problems will arise - operating costs, densities, zoning restrictions and new funding agencies will have to be considered.

6.3.1

Student Typology

Robert Ardrey, anthropologist and author, in his latest work wrote:

(1)

"The individual is the creature of the human future, and we still do not know quite what to do about him."

Dr. Nicolas Malleon speaking on 'sociologists and the universities' said:

"In the particular case of student living arrangements, sociologists cannot, I think give you the amount of help you expect. Disappointment has been expressed that the sociologist is not more helpful from the beginning, bringing forward lots of useful data. As an honest sociologist I admit it does not yet exist... you have to devise the places you want for students' houses, halls of residence, and so on; you have to dream them up. What we can do is to monitor what you have done when you have done it, so that 'phase two' can go off taking account of 'phase one'

I think that the sociological research workers' message on these human affairs is this: there is a price you pay for every design and pattern of living. Student houses for example are, I suspect a form of living good for 80% of students. But those who tend towards isolation and who find it difficult to make friends may be the sufferers." (2)

(1) Robert Ardrey, 1970

(2) Dr. Nicolas Malleon

In every society there are some areas of life in which the individual may choose among several possibilities. These Sinton (1) calls 'alternatives'. Our family patterns allow a man or woman to marry or to remain single. They may live with their parents or by themselves.

Methodologically, the first objective in establishing criteria for student housing is to correlate student 'alternatives'. The analysis that lead from these alternatives has been prepared after reviewing social studies, human opinions and analysis of student responses in the preference studies.

(1) . Ralph Sinton, 1936

ACADEMIC YEAR	SOCIAL TYPE												
		Single	Pairs Unisexual	Pairs Unisexual	Mixed Pairs	Small Groups Unisexual	Small Groups Unisexual	Small Groups Bisexual	Large Groups Unisexual	Large Groups Unisexual	Large Groups Bisexual	Residence	Lodgings
1st Year Male Local		♂	♂♂	♀♀	♂♂	♂♂♂♂	♂♂♂♂	♀♀♂♂	♂♂♂♂♂♂	♀♀♂♂♂♂	♂♂♂♂♂♂		
1st Year Male Foreign													
1st Year Female Local													
1st Year Female Foreign													
1st Year Married													
1st Year Married + Child													
2nd Year Male Local		●	●			●			●			●	●
2nd Year Male Foreign		●	●			●			●			●	●
2nd Year Female Local		●		●			●			●		●	●
2nd Year Female Foreign		●		●			●			●		●	●
2nd Year Married													●
2nd Year Married + Child													●
3rd Year Male Local		●	●		●	●		●	●		●	●	●
3rd Year Male Foreign		●	●		●	●		●	●		●	●	●
3rd Year Female Local		●		●	●		●	●		●	●	●	●
3rd Year Female Foreign		●		●	●		●	●		●	●	●	●
3rd Year Married													●
3rd Year Married + Child													●
3+ Year Male Local		●	●		●	●		●	●		●	●	●
3+ Year Male Foreign		●	●		●	●		●	●		●	●	●
3+ Year Female Local		●		●	●		●	●		●	●	●	●
3+ Year Female Foreign		●		●	●		●	●		●	●	●	●
3+ Year Married													●
3+ Year Married + Child													●
Graduate Male Local		●	●		●	●			●		●	●	●
Graduate Male Foreign		●	●		●	●			●		●	●	●
Graduate Female Local		●		●	●		●	●		●	●	●	●
Graduate Female Foreign		●		●	●		●	●		●	●	●	●
Graduate Married													●
Graduate Married + Child													●

FIGURE 35 ACADEMIC STATUS X SOCIAL TYPE

6.3.2

Academic Status by Social Type

Figure 35

Student alternatives have been correlated with academic seniority. These relationships have been taken as the first objective as the changing 'preference' patterns that emerged were directly related to the students' progress during their length of stay at the University.

Stratification mainly by academic year, with sex, marital status and place of origin as finer graining as the one set of values, was then related to the possible combinations of social sub-structural groups that could form. In simple terms, the students might choose to live singly, in pairs, in small groups or in large groups. In pairs or groups possibilities exist for living either unisexually or bisexually.

Almost all categories could live in lodgings, i.e. outside of the present university residence hall or at home with their parents.

From the students' second academic year the probability of the formation of unisexual pairs or groups became more likely.

From the third academic year most patterns of social grouping are considered possible.

SOCIAL TYPOLOGY

DWELLING TYPOLOGY	Single	Pairs Unisexual [M]	Pairs Unisexual [F]	Mixed Pairs	Small Groups Unisexual M	Small Groups Unisexual F	Small Groups Bisexual	Large Groups Unisexual M	Large Groups Unisexual F	Large Groups Bisexual	
Bedroom	●										-16
Bedsitter	●										
Bachelor Flat	●	●	●	●							
1 Bedroom Unit	●	●	●	●							
2 Bedroom Unit		●	●	●							
3 Bedroom Unit				●	●	●					
4 Bedroom Unit					●	●	●				
Group Living Unit					●	●	●	●	●	●	16- 60
Small Hall								●	●		+16
Hall of Residence								●	●		
	♂+♀	♂♂	♀+♀	♂+♀	♂♂♂♂	♀+♀+♀+♀	♂+♀+♀+♀	♂♂♂♂♂♂	♀+♀+♀+♀+♀+♀	♂+♀+♀+♀+♀+♀	

SOCIAL TYPOLOGY X DWELLING TYPE

Source: Adaptation of matrix prepared by Urban Design Consultants

FIGURE 36

6.3.3

Social Type by Dwelling Type

Figure 36

A methodological approach which was developed by the planning consortium, Urban Design Consultants, Cape Town for a current project for Rand Mines Properties (Pty.) Ltd., Johannesburg, was adopted in order to establish the nature of the most suitable accommodation required by the students. A set of ten combinations of internal spaces was devised. This allows the determination of the suitability of different dwelling unit types for different student groups.

The basic hypothesis that student housing need not be radically different from accommodation developed for the average community households is considered valid. Yet differences, no matter how subtle, do exist. For this reason, and to serve as a reference generally, an analysis and summary of current thinking and standards for the provision of student accommodation has been included at the back of this thesis - refer Appendix 5.

Figure 36 shows that as the student group grows progressively larger the dwelling type increases in size. Student groups of less than 16 persons could be accommodated in units of up to 4 bedrooms.

Medium size groups forming the traditional university 'House' could require a special 'group unit', while any number over 60 would form a small 'Hall' or 'Hall of Residence'.

BUILT FORM	DWELLING TYPE									
		Bedroom	Bed-sitter	Bachelor Flat	1 B.R. Unit	2 B.R. Unit	3 B.R. Unit	4 B.R. Unit	Group Living Unit	Small Hall
Single Detached										
Semi-detached										
Town/Row House										
Maisonnettes										
Stepped Housing										
Low-rise Cluster										
Low-rise Court										
Medium-rise Slab										
Medium-rise Cluster										
Medium-rise Articulated										
Medium-rise Link										
Medium-rise Tower										
High-rise Slab										
High-rise articulated										
High-rise Link										
High-rise Tower										
High-rise Cluster										

FIGURE 37 DWELLING UNIT TYPE X BUILT FORM TYPE
Source: Adaptation of matrix prepared by Urban Design Consultants

6.3.4 Dwelling Type by Built Form

Figure 37

Concurrently with the dwelling unit typology, the Urban Design Consultants prepared eighteen diagrammatic designs for residential building types, representing their initial hypothesis of the range of housing structures capable of meeting the needs of the projected population in the context of their site.

"The building types have been selected or derived from the traditional and contemporary housing forms and are calculated to afford the greatest possible choice of living conditions likely to be desired by any of the household types under consideration. Each housing type classified under low, medium or high rise is defined according to characteristics such as access condition, height, density, etc." (1)

The housing built form types considered suitable in the context of this thesis were correlated by dwelling type - Figure 31 - and are reproduced in 'cartoon' form in Addendum 6. The Urban Design Consultants specifically point out that the 'cartoons' or diagrams of housing types referred to do not represent final fully considered architectural designs and 'admit of an indefinite number of variations'.

(1) Urban Design Consultants

HIGH		MEDIUM		LOW RISE		BUILT FORM TYPES		CHARACTERISTICS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
High-Rise Slab	High-Rise Articulated	High-Rise Linked	High-Rise Tower	High-Rise Cluster	Medium-Rise Slab	Medium-Rise Articulated	Medium-Rise Link	Single Family Detached	Semi-Detached	Patio House	Row House	Town House	Stepped	Maisonette	Low-Rise Court	Low-Rise Cluster	Direct Entrance	Platform	Walk-up Point Access	Lift Point Access	Access Deck	Corridor	Parking in Unit	Parking in Building	Parking Shared	Self-Contained Units	Dependent Units	External communal space	Can incorp. non-resid. fac.	1 Unit	2 Units	3 - 12 Units	Over 12 Units	1 Storey	2 Stories	3 Stories	4 Stories	5 - 12 Stories	Over 12 Stories	Up to 10 DU P.A.	10 -20 DU P.A.	20 -30 DU P.A.	40 - 50 DU P.A.	50 -60 DU P.A.	Over 60	Ground orientated	Non Ground orientated	Single orientated	Double orientated	Expandable Building	Adaptable Building																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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FIGURE 38 SURVEY OF BUILT FORM CHARACTERISTICS

Source: Adaptation of matrix prepared by Urban Design Consultants

6.3.5 Built Form Characteristics

Figure 38

In an adaptation of the Urban Design Consultant's diagram, the characteristics of the housing types are summarised in Figure 38.

The summary is useful in assessing housing types by densities per acre, orientation, access and a number of other qualities.

	Single						Married			Married + Child			
	First Year	- Males	Other Undergraduates	- Males	Graduate	- Males	First Year	- Females	Other Undergraduates	- Females	Graduates	- Females	
Schools													Local Region Facilities
Major Centre	○	○	○	○	○	○	★	★	★	★	★	★	
Convenience Shopping	○	★	★	★	★	★	●	●	●	●	●	●	
Major Recreation	○	○	○	○	○	○	○	○	○	○	○	○	
institutional	●	●	★	●	●	★	●	●	★	●	●	★	University Facilities
Research	○	○	●	○	○	●	○	○	●	○	○	●	
General Administration	○	○	○	○	○	○	○	○	○	○	○	○	
Departmental Administration	★	★	●	★	★	●	★	★	●	★	★	●	
Library	●	●	●	●	●	●	●	●	●	●	●	●	
Audio-visual Centre	○	○	○	○	○	○	○	○	○	○	○	○	
Assembly	★	★	○	★	★	○	★	★	○	★	★	○	
Exhibition	●	●	●	●	●	●	●	●	●	●	●	●	
Food	●	●	●	●	●	●	●	●	●	●	●	●	
Health	★	★	★	★	★	★	★	★	★	★	★	★	
Lounge	●	●	●	●	●	●	●	●	●	●	●	●	
Merchandising	●	●	●	●	●	●	★	★	★	★	★	★	
Recreational	●	★	★	●	★	★	★	○	○	○	○	○	
Data Processing	○	○	★	○	○	★	○	○	★	○	○	★	
Seclusion from Major Traffic	★	★	★	★	★	★	★	★	★	★	★	★	Qualities
Privacy	○	○	○	○	○	○	★	★	★	●	●	●	

- Weak
- ★ Medium
- Strong

STUDENT TYPOLOGY X LOCATIONAL TENDENCY

FIGURE 39

6.3.6

Locational Tendency by Student Type

Figure 39

In order to determine a preliminary pattern of housing distribution, the inherent locational tendencies of each student type in terms of accessibility to university-orientated facilities such as research, library or assembly, in terms of the facilities offered in the local region such as convenience shopping or schools and finally in terms of such qualities as privacy and seclusion, have been correlated.

The results are summarised on Figure 39 with varying 'weight' given to the strength of connection desired.

It can be noted that weak or medium links with the local region generally applied to unmarried students. Strong connections to the university library, exhibition, food and lounging facilities are desirable for all categories of students.

Graduate students should have a strong connection with research facilities, departmental administration and data processing.

The study suggests that the married students and married students with children should be located closer to those campus edges fronting on the main road shopping precincts (provided that seclusion from major traffic can be satisfactorily achieved.)

Single students should be located closer to the central campus areas.

6.4 RELATED CONSIDERATIONS

By introducing new housing concepts certain considerations arise. Amongst these are funding, capital costs, operating costs and land costs. Those subjects will be covered in varying depth depending on their importance within the framework of the study.

By advocating a policy of 'community housing' for accommodating the more senior students of the university some of these problems should now be discussed.

6.4.1 Capital Costs

There are various ways of evaluating building forms and their use of land, in terms of the fit with activities for which they are planned, and in terms of building costs.

In the Cambridge study (1) the authors considered the consequences of selecting alternative space standards, the effect of placing the standards in alternative forms of building and thirdly, the effect of constructing these buildings to alternative standards of specification.

In studying space standards, it was clear that the size of the study-bedroom is particularly crucial in respect of variations in floor area.

With regard to building form it was clear that the range in possibilities is very great. In the study, by keeping the width of the building constant, the same amount of accommodation was placed in 3, 5, 8 and 11 storey buildings. Lifts were included in the costs for buildings over 3 storeys high. An important factor affecting the total costs in square feet was the exclusion of lifts in the 3 storey buildings and the authors concluded that the effects

on costs of varying the number of floors are generally small compared with the effect of changing space-standards. According to the Cambridge study, the variation in cost between 5, 8 and 11 storey buildings is 1.8%, 1.7% and 3.2% over the 3 storey building.

A tentative assessment was made of the effects on cost of alternate planning decisions.

"For example if we take a 3 storey building and decide to reduce the cost per student (£ 1302) to a practical minimum this could be done by

1. Reducing the rooms to double occupancy. (70 sq. ft. per student)
2. Omitting central kitchen and dining facilities.
3. Adopting a lower standard of kitchenette provision.
4. Reducing the level of specification. This gives a figure of £ 698 per student, or a reduction of 46%.

Alternatively, a more luxurious standard of accommodation which provided the largest study-bedrooms, private bathrooms, small private kitchenettes and a higher standard of communal accommodation with residence built of 11 storeys would result in an increase of 51% or £ 1971 per student."

The figures above give some indication of alternative decisions. No hard and fast rules apply. High rise buildings need not cost less than low rise buildings. The ultimate cost will depend on the balance of a large number of factors.

6.4.2

Funding, Operating Costs and Student Rents

Very little comparative information has been compiled on building forms and activities to running costs and to the associated quest-

ions of finance and student rents. A complication is the fact that certain buildings have been specifically designed to avoid high maintenance costs whilst other residences still in use were originally intended for temporary use only.

Government funds allocated to U.C.T. will in 1970 amount to R 4,733,900. A condition of the special Government subsidy for residences precludes the university from subsidizing the operating of its Halls of Residence from these funds which are available for academic purposes only.

However, the expedients for financing student housing still operate. Government in a special formula subsidises the University by 50% of the annual interest and redemption amount which it borrows from financing agencies. The University also, to a certain degree, looks to private benefactors to donate funds.

By borrowing money and repaying it over a period of time the need to meet all costs simultaneously is avoided. But the 'break-even' point must be calculated where capital, redemption and running costs equal the rent charged to students for accommodation. Also, some private developers have recently approached the University with a view to the construction of student housing as a commercial proposition which would, perhaps, also include the letting of rooms to tourists or delegates during vacations. (Although the university does make its residences available to conference delegates at a rate of R 2.00 per day, the undergraduate student normally living in the residence is compelled to leave the residence at the end of every academic year and may not avail himself of these facilities.)

Various opportunities are open to the university in regard to funding of future residences and it would be worthwhile considering some funding strategies possible within the university context.

6.4.2.1

Funding

Within any housing complex the rentals will be determined, in the first place, by what the tenant can afford. Specifically related to student housing, rents will be affected by the extent, if any, to which the university is prepared to subsidise student housing. Without subsidising in one form or another, it is unlikely that all student housing can be made entirely self-liquidating, as to be self-liquidating a project must have enough rental income to cover all expenses: annual operating costs, repayment of principal and interest and accumulation of required reserve.

At the rental rates charged in Britain and the United States of America most student housing financed with borrowed funds requires some kind of university subsidy. It is estimated that if the United States student rentals were to cover the cost of land and construction, they would rise to about twice the present average.

It has already been stated in a previous section that the average monthly expenditure of those of our students who have chosen to live in accommodation of their own is approximately double the charges made in university residences. Regardless of this 20% of our student population seem to be able to afford to and have chosen to live on their own.

Accommodation in close proximity to the University is at a premium. Although this study does not attempt to measure the extent of this market, the demand by students who wish to have their own accommodation is accepted.

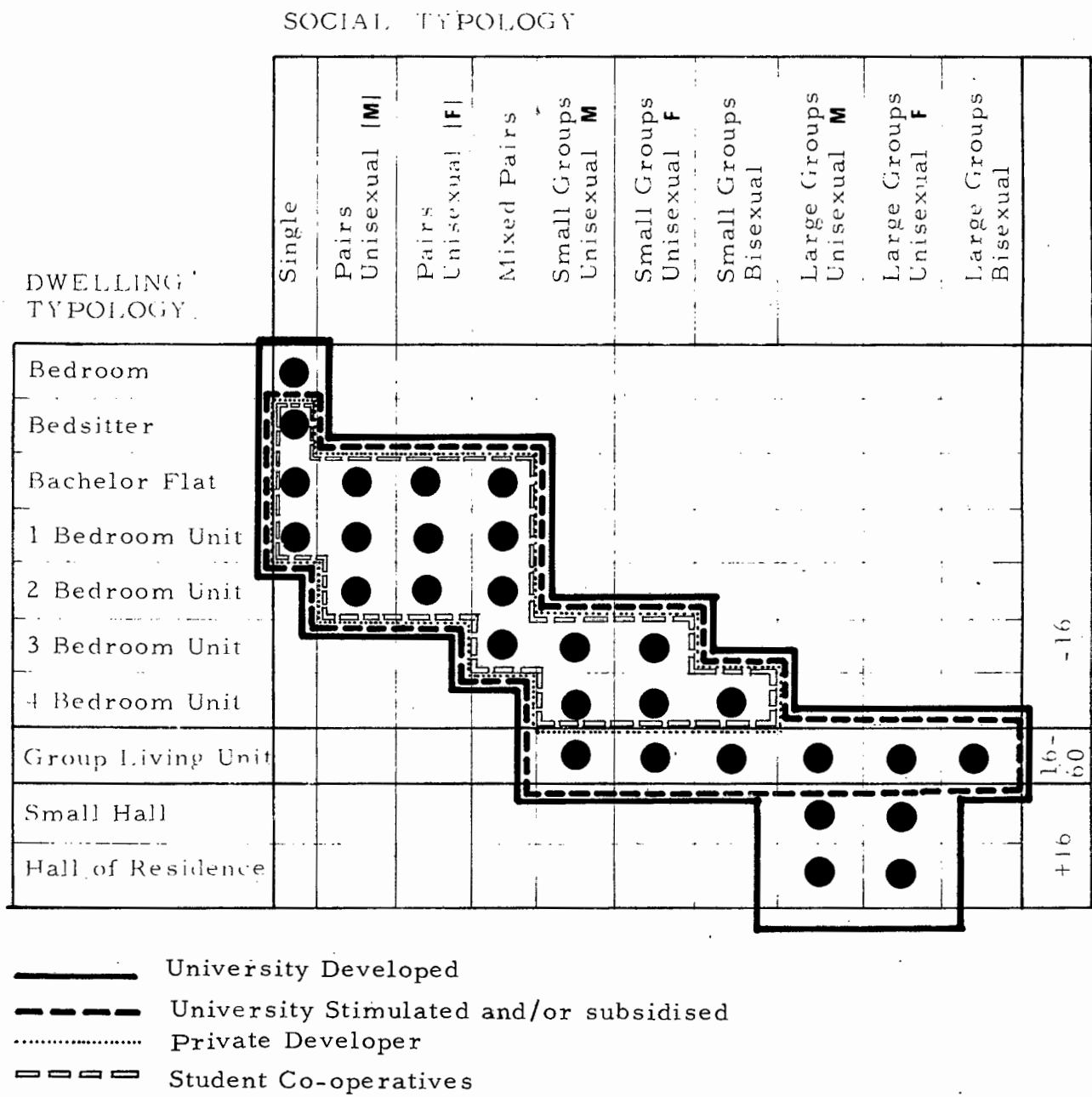


FIGURE 40 FUNDING AGENCY X SOCIAL TYPOLOGY X
DWELLING TYPOLOGY

There would seem to be four possible avenues open to the University in the funding of this form of student housing. In a tri-variate analysis the four funding agency types have been related to dwelling type by social group - Figure 34 - and dwelling type by built form - Figure 35.

1. University Developed Housing

The present funding method where the university borrows from financing agencies and has a proportion of the annual interest and redemption guaranteed and subsidised by the Government.

The main conditions in order to qualify are that firstly, the gross building area per student must not exceed 350 sq. ft. and secondly, that an amount not exceeding R 3,250 should be spent on each student housed. For example if the residence was to provide 100 places, the total building cost including kitchen, service access, covered way, etc. must not exceed R 325,000.

This category could cater for all levels of student types and dwelling types depending on university administration policy. Similarly it follows that all building form types could fall within the university-developed category.

2. University-stimulated and subsidised Housing

Recognising the increasing scale of university expansion and with a willingness to meet the changing needs of our student population the development of solutions other than the halls of residence are necessary. An alternative method is by the

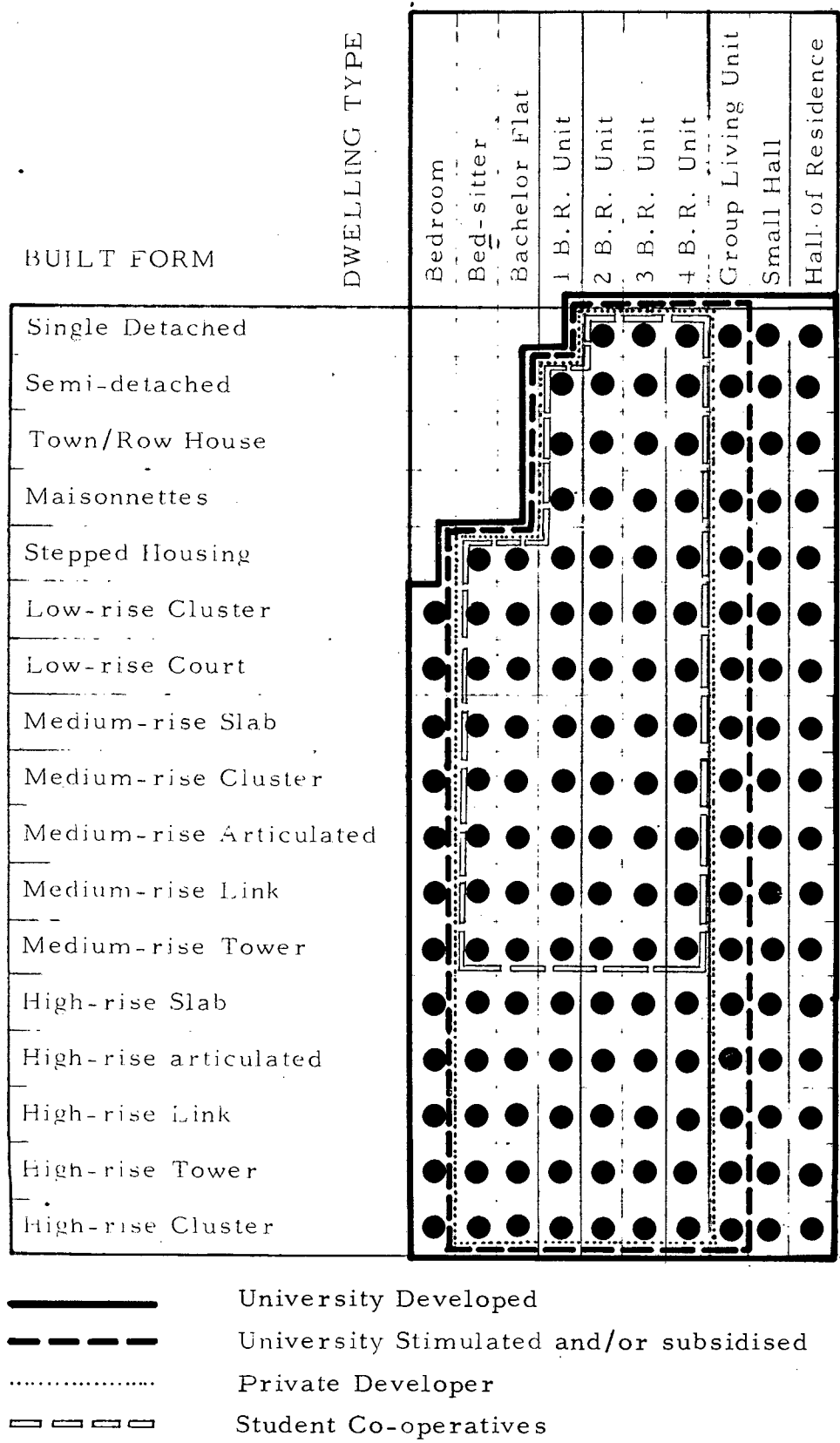


FIGURE 41 FUNDING AGENCY X BUILT FORM X DWELLING TYPE

co-ordination of the building of university residential accommodation with privately sponsored housing programmes. The Manchester planners (1) remark

"There is no doubt that the greatest single steps which could be taken to invigorate the life of the precinct would be to build as much residential accommodation as possible within the area."

To encourage private entrepreneurs in this field, subsidies in various forms could be offered. For example the University could 'donate' the land on a 99 year lease basis or guarantee a minimum occupancy rate.

Funding by private agencies would however reduce the field of involvement in certain dwelling types as it is unlikely that university policy would encourage private involvement in either small halls of residence (accommodating between 16 and up to 60 students) or large halls (anything over 60 students).

Similarly it is not likely that entrepreneurs would be interested in housing at the lowest unit size of a single bedroom.

Accommodation varying from bed-sitters up to housing for small groups of under 16 students could prove attractive. The built form would range from single housing to high rise clusters.

3. The Private Developer

The University has already been approached by private developers with a view to providing housing for students. The field of interest would be similar to the 'private developer subsidised' category of entrepreneur except that without sub-

(1) H. Wilson and L. Womersley, 1967, Page 31.

sidy (a guarantee on minimum rental and/or occupancy rate) only group living units of up to 16 students would probably be funded in this way.

Any unit from the bed-sitter up to the four bedroom class should be attractive to a developer as the nature of the provision would make the investment attractive to students and non-students alike.

In Britain the Loughborough scheme, for instance - one of several competitive design-and-build package tenders from local contractors - is estimated to cost less than half of the equivalent of a hall of residence. The basis for the design of the hall of residence is that of normal housing, except that each unit, whether a house or a flat has rather more small rooms than a conventional family dwelling. Provision is made in the design for the removal of partition walls, should it be necessary for the buildings to be used for family housing in the future, and this provision renders the project more attractive as security in the eyes of an intending lender.

4. Student Co-operatives

One way in which new housing policies may favour the student is in the rehabilitation of older houses as well as the building of new ones. At Edinburgh, Hull and other university towns in Britain, this form of student housing has been pioneered for some years, the universities themselves acting as the developers and managers. At York, an independent student housing association has been engaged in the same work since 1964. There it has been found possible to convert old houses into student houses - that is to say, houses consisting of study-bedrooms with communal facilities - at a cost of little over half that of the conventional hall of residence.

The provision of capital by way of loans is the hinge on which thinking about student co-operative housing should turn. By paying off the cost of their housing, at least in part, out of the rents that are charged, students become tenants rather than members of an institution. With their own organizations raising these loans, converting or constructing the housing and managing it, they become more like members of housing co-operatives than students paying residence fees. If the method of financing and the conditions of tenancy resemble those prevailing outside the field of higher education, then the buildings themselves need not be special.

The range of involvement for student co-operatives acting as a funding agency need be no different from the private entrepreneur providing accommodation from bed-sitters to the four bedroomed unit, with capital and security the only restraint on building form type. It is unlikely however that student co-operatives would interest themselves in any high rise building types.

6.4.2.2 Operating Costs

The relationship between capital and running costs has constantly to be considered. Maintenance and operating costs will be affected both by the design of the building and the way in which it is used. Examples of design decisions affecting operating costs are the inclusion of lifts in high-rise buildings and the influence of building depth on daylight penetration and consequently on lighting costs. operating costs will also be affected by the patterns of activity within residential buildings. Social patterns and the degree to which students are self-sufficient will obviously influence running costs.

Together with the provision of meals, wages to non-academic staff such as cooks, waiters or administrative officers represent the largest single proportion of a hall's operating expenses.

University House, because of its size (107 students) in relation to staff ratio continuously shows a loss. Whatever the disadvantages in terms of physical well-being, proposals which allow students to cook for themselves or become largely self-sufficient offer attractive economic alternatives to the traditional hall of residence.

Faced with the problem, on the one hand, of keeping charges for accommodation as low as possible, and not being able to subsidise running costs from general funds the University has from July of this year contracted out the preparation of all meals to a private firm who by using the method of bulk preparation and freezing will deliver the meals to the various residences where they will be heated and served as required.

Student rents at the University are calculated on a non-profit basis. The charges at all residences for full board and lodging are R 400 per annum except at College House and University House where the annual rent is R 380 and at Medical Residence R 440 per annum.

From the sample survey it was possible to evaluate the mean rental for students. Board and lodging lies on the middle range values of R 40 to R 59 per month. By discussion and interview it was determined that senior students living along the Rondebosch Main Road strip, by sharing flats, pay an average of R 44 per month for board. In addition to this, lunch and dinner is taken at restaurants on a 'table boarder' basis. The charge for these meals averaged R 16 per month for two meals per day. These students, therefore, pay approximately R 60 per month for full

board and lodging, that is R 720 per annum, an amount which is almost double that of the residences.

The location of student residence and its relationship with the rest of the university will also exert a considerable effect on operating costs. Most halls of residence are used for a relatively short proportion of the day, owing to their distance from the academic areas of the university. If, however, residence were close to teaching, student accommodation could be used during longer periods of the day for study or for social purposes, on this basis, savings in other parts of the university, such as libraries, common rooms or eating areas could be effected.

Since housing is one of the largest elements of the university the under-use of this accommodation is particularly serious.

"One example of the sometime economy of apparent luxury is a large urban university's decision to build residence halls with private or connecting baths (sic) so that going (current) hotel rates can be charged when the facilities are used for summer conferences. Semi-private baths will increase construction cost by about 3%; the increase in revenue is expected to be 20% annually." (1)

6.4.3

University Site, Size and Acquisition of Land

- "It is argued that the solution to both problems - of providing the student with the opportunity of belonging simultaneously to university community and to urban society as a whole - lies in the building of residential accommodation on or near teaching sites, in the city centre." (2)

(1) Bullock, Dickens and Steadman, 1968, Page 236.

(2) Bullock, Dickens and Steadman, 1968, Page 246.

Set against the social and educational advantages claimed for siting the university in the city must be the inevitable economic penalty of urban land costs and the difficulty of acquiring central sites of any size. When considering the price of land for development the university will be in competition for what would otherwise be residential rather than commercial or office sites.

Peter Hall in a paper 'The Location of a University' (1) draws attention to the theoretical difficulty presented by the fact that in many cases (as in the case of U.C.T.) the land occupied by university is donated and so from the university's point of view cannot be regarded as a true cost.

From a table prepared by Hall it was noted that the acreage of the sites listed on the table is, in most cases, of the order of 200 and over - 200 acres being about the size which the U.C.C. regarded as appropriate for the new British universities at the time of their foundation, making due allowance for expansion. Besides building land these sites comprise playing fields and often woodland, lakes and other open spaces. One would clearly not expect to provide the latter in an urban university, and as is the case at U.C.T. playing fields are sited at some distance from the main campus on cheaper peripheral land.

The present upper and lower campus at Groote Schuur comprises 154 acres. The University has recently applied to the Government for permission to 'acquire additional land for various purposes including the building of new residences.

Among the sites that could become available for building residences would be sector 'C' shown on the Strategy Diagram 3.

(1) Peter Hall, 1965-66, Vol. 4.

From Strategy 4 it will be seen that the areas preferred for 'residence' development are Sectors D, E and F. This study supports the siting of residences in these locations and endorses the policy of purchasing land along these campus edges.

Julian Elliott in dealing with location of universities in the cities raised the question of optimising land usage and continued by adding that

"... if the university is concerned with the social situation then this concern should be manifest not only in programme and action but by location in the cities. In extension these attitudes are causing universities to focus attention on their boundary conditions to ensure that hard edges are eliminated wherever possible in physical form and academic programme between the university and the community." (1)

On the northern and southern flanks the University is bounded by residentially zoned land. Most of this land is at present intended and used for single residential purposes. On the north-east edge denser development is permissible under the R4 zoning category - refer Table 8.

The university's eastern edge borders on the Main Road and the extent of use of this land must be dealt with by negotiation with the local authority.

Clearly the issue involves not only the purchase of land but maximising the opportunity to eliminate in physical form the present hard edges along these important boundaries.

Dealing firstly with that area of the University that is contiguous

(1) Julian Elliott

to the Main Road, here opportunity for creating the 'shop window' of the University to the public lies. As the land in question belongs to the University, it is not intended to deal with these land costs.

On the northern and southern edges U. C. T. by increasing the accommodation boundaries outside the traditional way of providing residences will affect land and property prices. This can have a number of repercussions.

Firstly, repercussions on its own policy which must be far-sighted otherwise the University will be priced out of the market. The area already has a high demand rating and land values have quadrupled over the last five years. Other demands are high because the area is over-provided with schools relevant to its resident population by almost 60%. Many of these schools are of high status, providing a regional function in the metropolitan area. The Provincial Administration placing policy which is geared to giving preference to those living close to schools only increases the demand.

Secondly, the fact that the purchasing of additional land is being implemented to bring students closer to the University might make it difficult for others to enjoy these benefits. This may affect the University's own staff position. As costs will rise, many staff members will not be able to afford the rentals at higher levels and be forced to take employment elsewhere. By uplifting the region the University may widen the gap between those users inside and outside the University.

In concluding, it seems imperative that a bold and far-sighted policy must be adopted in the purchasing of land.

7.0 ALTERNATIVE CASE STUDIES

The purpose in setting up alternative case studies is to bring out, in planning terms, physical implications of the main body of the thesis in relation to given sites.

It is not intended to list all of the assumptions on which the studies are based, but the main criteria are stated as a prelude to setting up a prototypical framework that could be applied under certain locational conditions.

7.1 CRITERIA: STUDENT ATTITUDES RESTATED

This study focuses on student attitudes, their wants and needs. In the light of the increasingly important role of student participation in university planning and decision-making, the comments of Trevor Fisk, President of the National Union of Students (British) are recorded here as a prelude to the listing of new criteria for student housing. (1)

"Whether we take account of the general attitudes of students towards their own university, as we did earlier, or look at their official pronouncements on the overall development and design of higher education, two key demands stand out - for integration and for equality. In terms of their general, and often ambivalent, feelings about the structure of their campus, students are uneasy about the notion of educational community and about the place of the teacher. They are uncertain about the isolation and academic single-mindedness of their universities. They feel the siting and design of their campuses often aim at reinforcing this sense of separation and undivided purpose. They want their college integrated with others in the neighbourhood. They want specifically student facilities, such

(1) T. Fisk, 1970

as residences and Union buildings, open to all fellow-students of the town, not just those of a certain institution. They also, once again in a frequently unspecified way, want to feel that their college is more integrated into the life of the local community, not set apart from it. They seek a design that will stress the college's setting in the surrounding community. They have for instance often stated that the buildings on campus should be planned with a conscious view to their use, in vacations or at weekends, when student demand is low, by the local population.

On campus, although their conclusions are themselves divided, they feel anxiety when confronted by designs which reinforce the comparative status of teacher and taught. Integration and equality - although the meaning of these terms is as fiercely disputed amongst students as anywhere else - these are the principal goals."

7.2 CRITERIA

1. Any housing should cater for all categories of students and should be calculated to afford the greatest possible choice of living conditions.
2. The housing need not be distinguishable from housing for other members of the community and should allow for occupation throughout the year.
3. The building type chosen should afford maximum flexibility for change either to allow 'coupling' of units or, without major alteration, change in internal use so that communal facilities

may, at any time, be incorporated easily within the built form proposed.

4. The scale of the buildings themselves should sympathetically reflect the neighbouring urban fabric.
5. At the campus edges, the scale of the buildings should be such that the purchasing of large tracts of land need not be necessary.
6. The building types should allow for the provision of independent living units affording the same level of privacy and independence for the student that community housing can offer.
7. The density applied must allow for a commercially viable development making the overall proposition attractive to entrepreneurs and university alike.
8. Any development must fall within the requirements of the regulations applied by the local authorities or, if application for re-zoning is necessary, that such applications should have maximum opportunity for success by reflecting the expansion of the existing urban fabric rather than the introduction of a foreign discussion on built form into the general fabric of the immediate neighbourhood.
9. The building forms should allow for quiet and, at the same time, either within themselves or within their interspaces create areas that are both pleasant and functional in their concept allowing for such additional facilities as children's play spaces.

10. The built form should be economic in conception to allow for a reasonable rent structure without sacrificing comfort standards or unduly increasing maintenance overheads.

7.3 CASE STUDIES

There are at least two clearly definable separate edge conditions related to the University's Upper and Lower Campuses. These are firstly, the northern and southern edges which adjoin land, at present, zoned for single residential use, and secondly, the Lower Campus edge which has a common boundary to the Main Road commercial strip.

The range of building types capable of meeting the needs of the student population could be structured around an indefinite number variations. It is not intended, nor in fact is it considered desirable or possible, within the context of this study, to explore an infinite number of housing alternatives. Three case studies are outlined, the first being typical of the campus to the residential precinct condition; the second the campus to the Main Road commercial sector condition and the third, an on-campus condition.

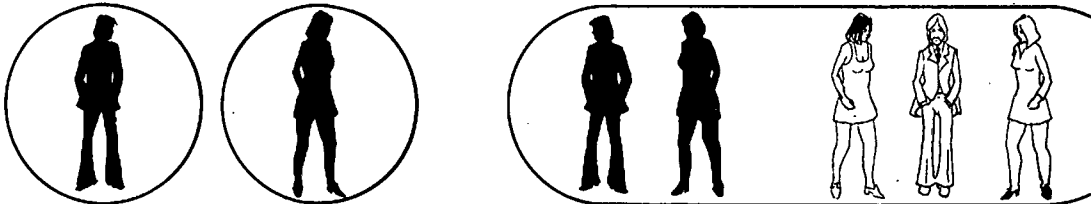
In the provision of housing types, all of the case studies are based on the recommendations made in Section 6.2.2, that is, 10% of accommodation for married students, with or without children, in the form of two, three or four-bedroomed units; 20% in the form of two-roomed flats for graduates and/or tutors, and the remaining 70% as bachelor quarters which in themselves can be linked together to form larger units.

BASIC STATISTICS

Mixed Residence Male and Female
Single and Married
Students and Fellows
Low-rise building centred around courts
Total students accommodated 45

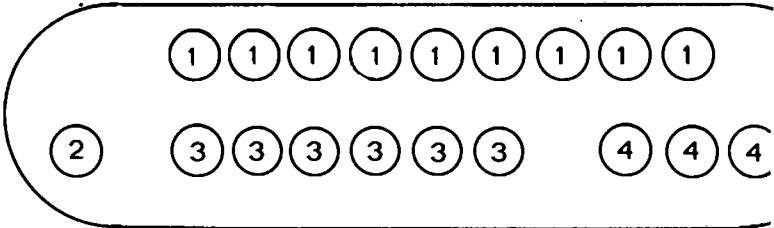
FIRST UNIT

Single study-bedrooms
Two-person bedsitters
Flats



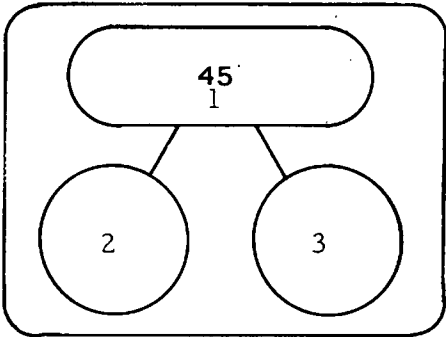
SECOND UNIT

9 Single study-bedroom units
1 Two-roomed unit
6 Three-roomed units
4 Four-roomed units

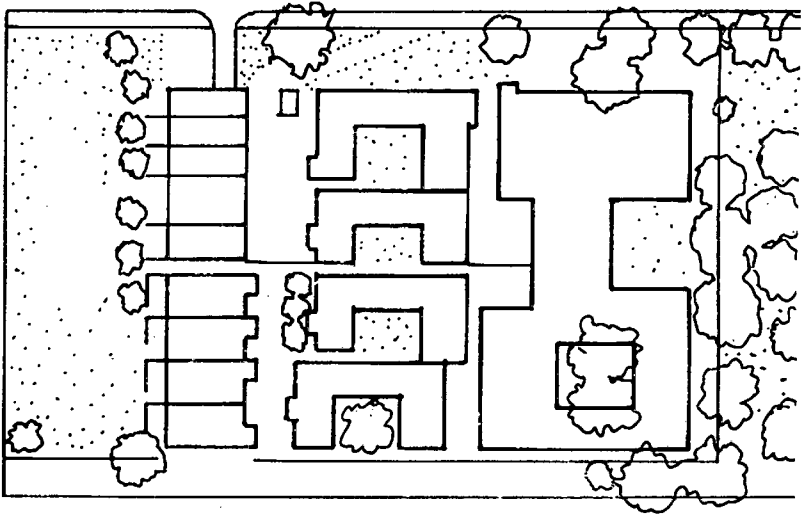


THIRD UNIT HALL OF RESIDENCE

- 1. Residential Facility
- 2. Communal Study Facility
- 3. Communal Recreational Facility



Diagrammatic Plan



Diagrammatic Section

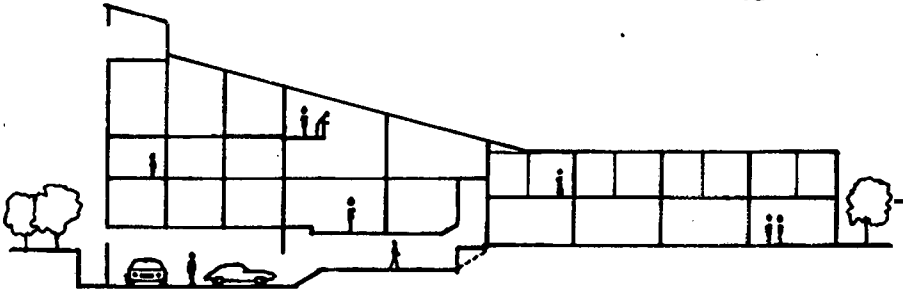


FIGURE 42 CLARE HALL, CAMBRIDGE
Source: Adaptation from AD, Vol 39, December, 1969

It is noted that 30% of the accommodation is of the two-roomed or larger type, providing more accommodation than the bachelor flat and could be used for faculty members as well as for students.

7.3.1

Case Study One: The Campus to the Residential Sector; The North/South Boundary Condition

Considering all of the criteria, the main opportunity along these boundaries is in providing housing that will help to soften the campus edges. A medium density in line with the present mean number of persons per acre should be applied. In the Cape Flats Report (1) it is recorded that the current gross density for the Claremont Central (P.D. 35) planning district is 50 persons per acre.

The precedent for Case Study Number One was taken from Clare Hall, a mixed graduate College with a density of 44 persons per acre. Founded in February, 1966 by the Trustees, the Master and Fellows of Clare Hall College, Cambridge, and since recognised as an Approved Foundation by the University of Cambridge, Clare Hall is intended as a mixed graduate college, including complete families, in which all divisions between students and faculty would be discouraged.

A description of the building taken from the Journal, A.D. (2) is given. An analysis of the social groupings has been prepared and is illustrated on Figure 42 which should facilitate comparison with other residences discussed in this and previous sections. The case study siting is indicated on Figure 45.

- (1) Cape Flats Report, Joint Town Planning Committee, March, 1967, Pages 7 and 8.
- (2) A.D. Volume 39, December, 1969, Pages 650 - 656.

"On the east is a study block which also contains seminar rooms and the administrative offices, and which connects with the common room and dining room. Across the Scholar's Walk lies the central block, made up of four 'court houses', each U-shaped so as to enclose its private courtyard. The court house at the north end, the President's house, is the only part of these two blocks to rise to two storeys. The west block across the Family Walk from the court houses, is a terrace rising at the north end to three storeys, and containing ten single-room apartments (each with its bathroom and kitchen) and four three-bedroomed houses, as well as a laundry and children's play room. A narrow cross-walk through the court houses connects the scholars with their families, providing means of access within the site while not encouraging too intimate a mingling.

Along Herschel Road the site is excavated to provide a garage for 35 cars, as well as giving an opportunity to raise the floor level at this end and cause the whole complex to slope gently down towards the south.

Waldo Camini writes: A modest academic village, sensibly zoned and arranged, and fitting in well with its neighbours in suburban Herschel Road. Welcome in Cambridge on three counts: Firstly its commonsense is a much needed corrective to the vacuous pretentiousness of nearly all recent college and university buildings.

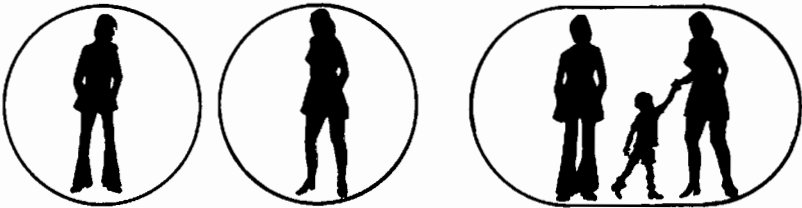
Secondly it houses a new type of academic organisation and pioneers a building-type protective and compact, yet unimposing and adaptive. Thirdly it accepts that for fellows and research graduates in a suburban situation (at Present) car ownership is reasonable.

BASIC STATISTICS

Mixed Residence
Total students accommodated 250
Eight-storey building
Residential accommodation on top of
shops and communal facilities

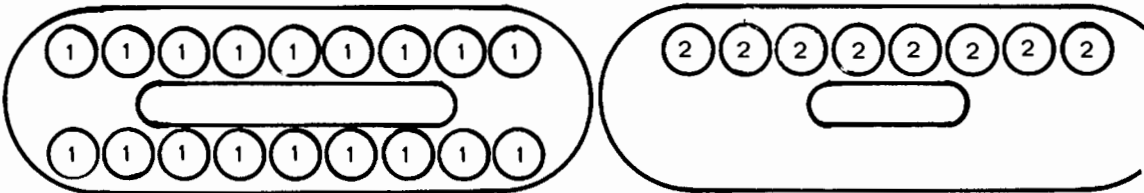
FIRST UNIT

Single study-bedrooms
Two-person units
Flats



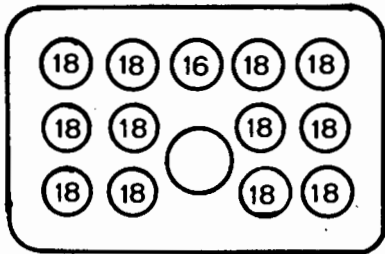
SECOND UNIT

18 single
rooms with
communal
facilities
8 Flats on
elevated street



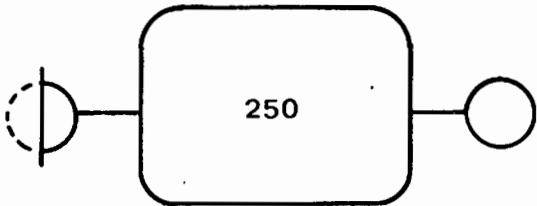
THIRD UNIT

6 Floors of 2 x 18 units each
1 Floor of Flats on elevated street

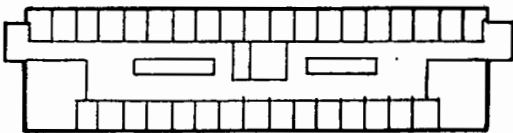


FOURTH UNIT THE HALL OF RESIDENCE

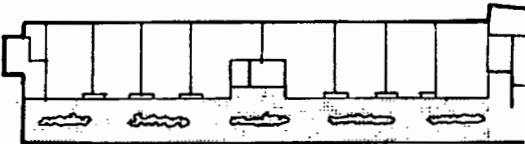
The Third Unit plus Administrator's Flat,
plus communal facilities and public
facilities



Typical floor of double single units



Typical secondary unit of Flats



Diagrammatic Section showing public
facilities at Ground Floor

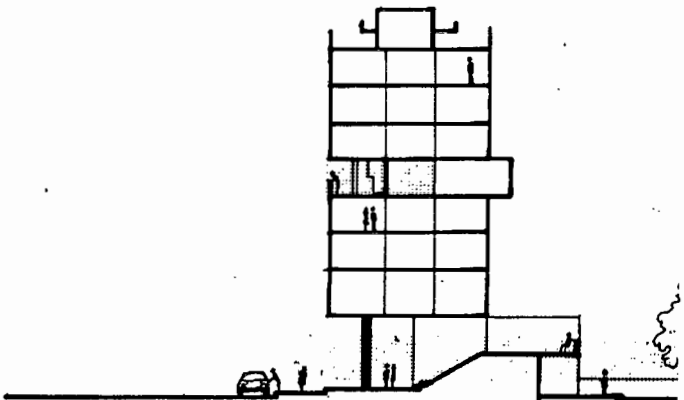


FIGURE 43 UNION OF AMSTERDAM STUDIES CENTRE - AMSTERDAM
Source: World Architecture, 1967, Studio Vista Publication

Architect to the scheme, Ralph Erskine writes: (1)

"The reality of Clare Hall - people, ideas and aims - was in existence well before I was called to help clothe it in buildings. This is a community of people who are elected to the college to further their self-chosen studies and who are selected according to capacity without regard to age, sex or origin - a group of scholars and their families.

Its needs are the needs of any other community: of a place for living, for work, rest and recreation, for individuals and groups. In our first discussions it was established that there was no necessity for any special 'aura' around the life and work of scholars. Should symbols be needed there could be none better than results achieved.

In Cambridge, as in Newmarket or Tibro we wished to achieve an open-ended and attractive environment which was free from memories of Medieval and Renaissance monumentality or opulence; to ally ourselves with new-society builders rather than the 'establishment'."

7.3.2 Case Study Two: The Campus to the Main Road commercial sector The east boundary condition

The edge conditions along the Main Road strip offer different opportunities from those on the north and southern boundaries.

This edge has firstly, both residential and commercial use-functions; secondly, a higher density ratio is warranted, and thirdly, the built form falls mainly into the medium-rise category.

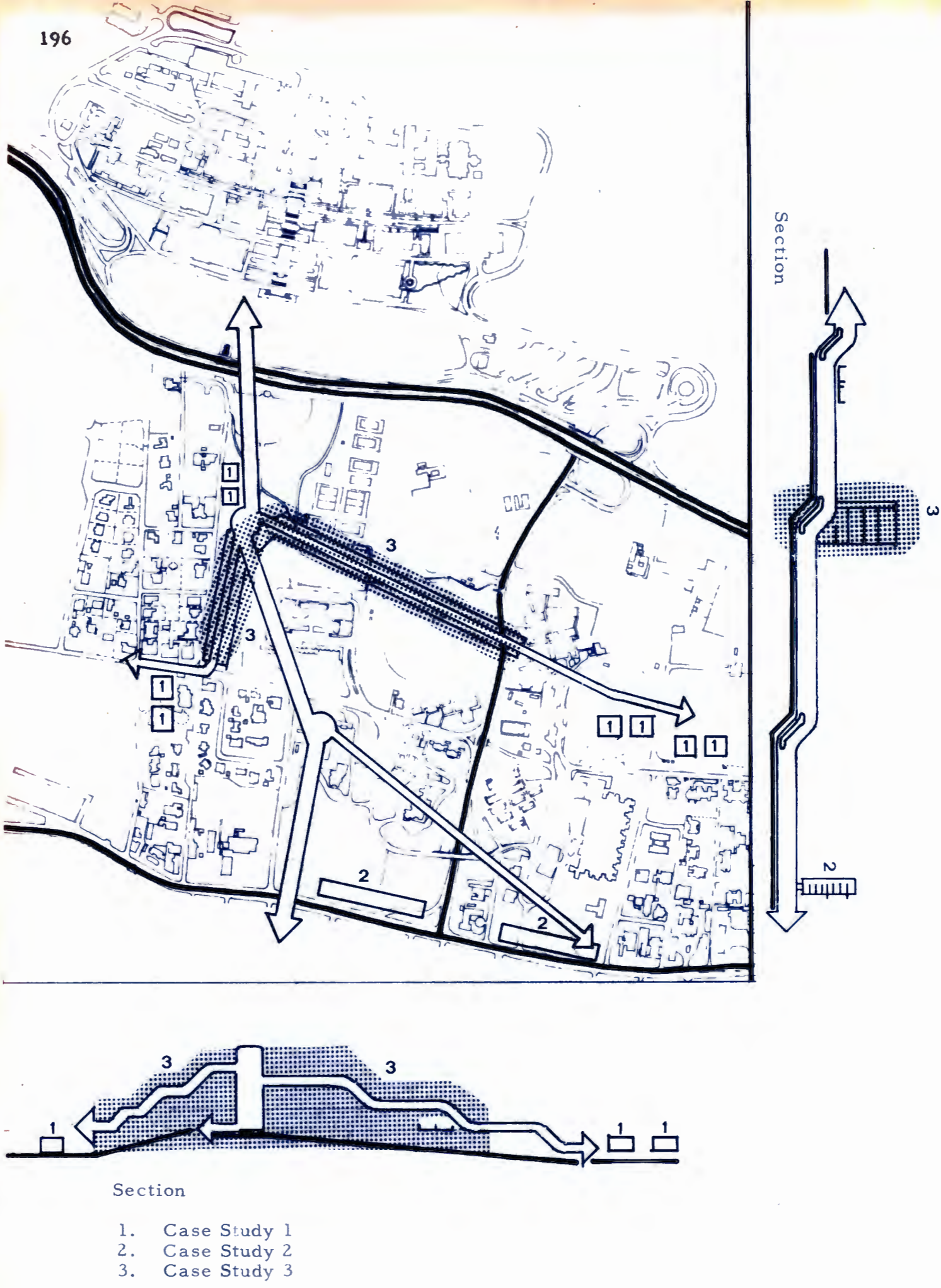


FIGURE 45 CASE STUDY SITING

The adjoining sites are zoned B1 - refer Appendix 7 - which has a bulk factor of 1.2. That is, the amount of floor area permissible is 1.2 times the area of the site. For example, a 10,000 sq. ft. site may have a floor area of 12,000 sq. ft. This zoning also allows for both residential and commercial use.

The university has the opportunity to optimise the university 'shop-front to the community' concept and should plan accordingly.

The precedent for Case Study Two was taken from the Union of Amsterdam Students' Centre, which has an estimated density of approximately 300 persons per acre and incorporates both residential and commercial functions. The Building is illustrated on Figure 43 with possible siting indicated on Figure 45.

A brief description taken from World Architecture 4 (1) written by the Architect, Herman Hertzberger, is given below.

"This building provides living accommodation for two hundred and fifty students with a number of services on the ground floor directly, or indirectly related to student life: the ASVA (Union of Amsterdam Students) centre with meeting rooms and the central accommodation agency for the whole town; a student restaurant; a bookshop, and a cafe with an outdoor terrace.

There is no clear delineation between outside and inside. Where one enters, in the literal sense, at the point where the weather is shut out, is only of secondary importance - just one of a number of places one passes through on the way in, each one of which is part of a continuous sequence. To reach the 'living unit' you pass the gallery under the building, the outside stair, terrace, lobby, hall, lift lobby, entrance and corridor to your own individual room.

(1) World Architecture 4, 1967, Pages 77 to 81.

This arrangement of the way in, deliberately breaks down any hard-and-fast barriers between the public and private areas of the building; there is a gradual transition from the anonymity of the public street to the privacy and individuality of your own room.

The living-units of eighteen rooms, each have their own entrance with front doors and letter boxes. They are self-contained apartments round a common stairwell. Visitors and deliveries find their own way to the 'public' entrance - even the postman comes all the way to the door. Inner corridors give access to the individual rooms and house island units for washing and storage facilities.

Upon the fourth storey, halfway up the building is the gallery street. The 'street' was suggested by special accommodation on this floor for married students. The opportunity was taken to design a prototype residential street free from traffic where children could play safely, that would serve not just as access to your front door but as a practical extension of your living area, a shared place where you can sit outside in front of your house.

The living room units for married students are an intermediate form between a student room and a complete flat; they consist of one living area with an additional space that can be used for a study, bedroom, or child's room. There are also a toilet, shower, open kitchen and entrance lobby.

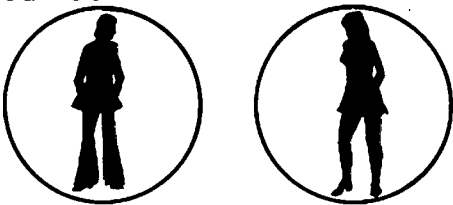
The house on the fourth storey terrace was intended as open house for all the occupants of the building, for meetings,

BASIC STATISTICS

Mixed Residence
Linear Development in wings connecting at
communal facilities
Three-storey building with central communal
floor and study-bedrooms above and below
served off 5 internal staircases
Total students accommodated 250

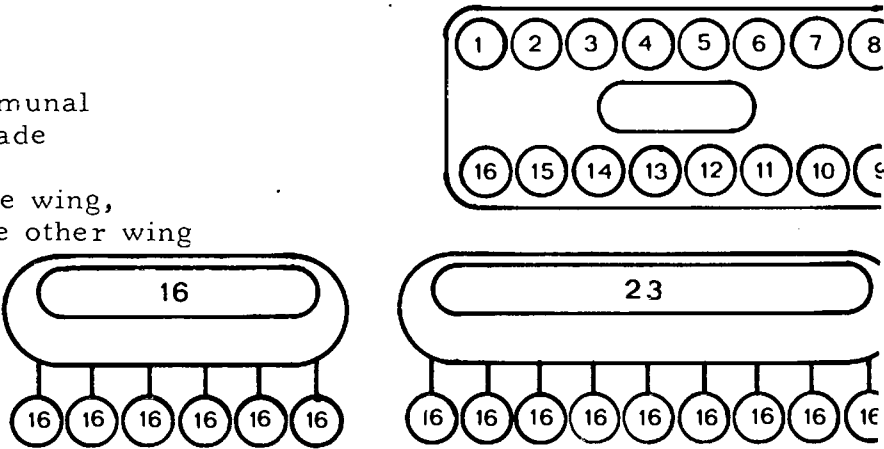
FIRST UNIT

Single study-bedrooms



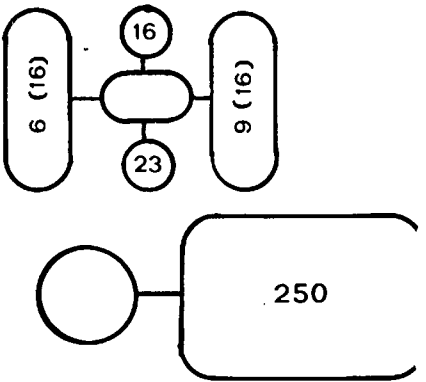
SECOND UNIT

16 single rooms sharing communal
washrooms linked to Promenade
Gallery
with 16 study-bedrooms in one wing,
and 23 study-bedrooms in the other wing

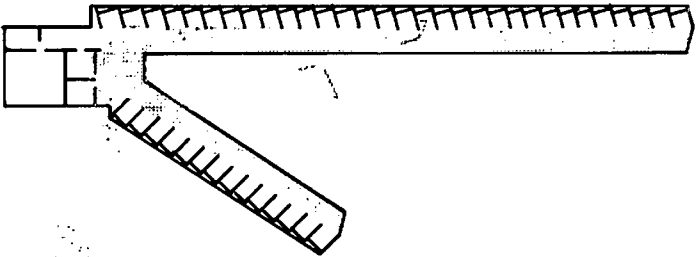


THIRD UNIT HALL OF RESIDENCE

Linked to Dining facilities



Diagrammatic Plan



Diagrammatic Section



FIGURE 44 ANDREW MELVILLE HALL, ST. ANDREWS UNIVERSITY,
SCOTLAND

parties and gatherings of any kind. It was to be used in the morning as a nursery for married students' children.

The ground floor, originally intended for shops, has been brought progressively into the student domain, but its restaurant, cafe and bookshop are all open to the public. This part of the building mediates, or forms a link between the student house and the town. The student restaurant apart from being a place where you can get cheap meals, is above all a place for meeting people."

7.3.3

Case Study Three: The on-campus condition

The third case study focuses on the housing type that could occur on the lower campus areas. It would be most unlikely that accommodation provided in this location would be made available to the public generally.

Here the opportunity exists to develop at densities in excess of 300 persons per acre. Faculty members and students mix should be encouraged with the provision of a variety of independent units as in Case Study One.

Suggested locations are indicated on Figure 45 with the housing 'straddling' the secondary pedestrian routes connecting the 'academic spine' to the neighbouring housing areas. This aspect of the proposal is important, as the overall conception should be of a micro climatically-controlled pedestrian linkage system, providing open passage to members of the public and students alike, and so linking the community neighbourhood to the facilities, offered by the University located in the 'academic spine'. The faci-

ilities in the spine could incorporate child guidance clinics, theatres, restaurants, audio-visual centres, exhibition spaces, as well as large dining facilities.

The overall form of this housing 'arm' should start with lower densities and also a low-rise building form at the campus edges, with the buildings rising progressively higher in 'decks' until high-rise towers are developed at the optimum point of use connecting at the academic spine.

At these junctions dining facilities could be provided. Escalators at these points would give access to the various levels on the housing arm as well as facilitating movement from the Main Road to the upper campus areas.

This building form would support the proposals made in Strategies Two, Three and Four. Diagrammatic representation is shown on Figure 44.

The precedent for Case Study Three was taken from the Andrew Melville Hall designed by Architect James Stirling for St. Andrew University, Scotland. The first 'arm' was built in 1966. The description and comments on the relevant sections of the scheme have been extracted from an article in the AD (1) architectural journal.

"The main approach from the town is by footpath/cycle track running along the top of the ridge and entry into each of the halls (wings) is down an enclosed stairway.

This two way (up/down) stair has wide landings from which entry is made at different levels to the special rooms in the central block... The promenade galleries run along the

(1) AD, September, 1970.

length of the wings, and from this gallery are five internal staircases up and down to the single study bedrooms.

Besides being the circulation route, the gallery is also the major socialising element, and in line with the gallery and adjacent to the stairs are lay-bys with fixed seating, tables and stools.

Within the internal stairs, the level of the promenade gallery is identified by circular see-through windows indicating where to get access off the circulation system. From the staircases, the study/bedrooms are reached by internal corridors. All study/bedrooms have washing and storage units.

At the ridge end of the wings ... is the central block of accommodation containing all the non-repetitive rooms (common rooms, kitchens, etc.)."

The importance of the 'promenade gallery' and its ability to function as a 'way through' was brought out in the same article.

"The ethos of present student life increasingly suggests that students reject the academic 'ghetto' and urgently seek to be integrated into urban life or, failing that, to be able to stimulate an intense urban environment of their own. The traditional quad or pavilioned campus models are of little use to this end; and in this context, Stirling's dormitory expansion scheme for St. Andrews becomes problematic. Even if three more dormitory blocks are eventually built, ... Indeed the whole complex will be socially and architecturally still-born if the pedestrian spine ... is not 'reified' by its conversion into a permanent wall; extended towards the town in a positive manner and flanked 'inland' by further university faculty buildings and other multi-purpose facilities."

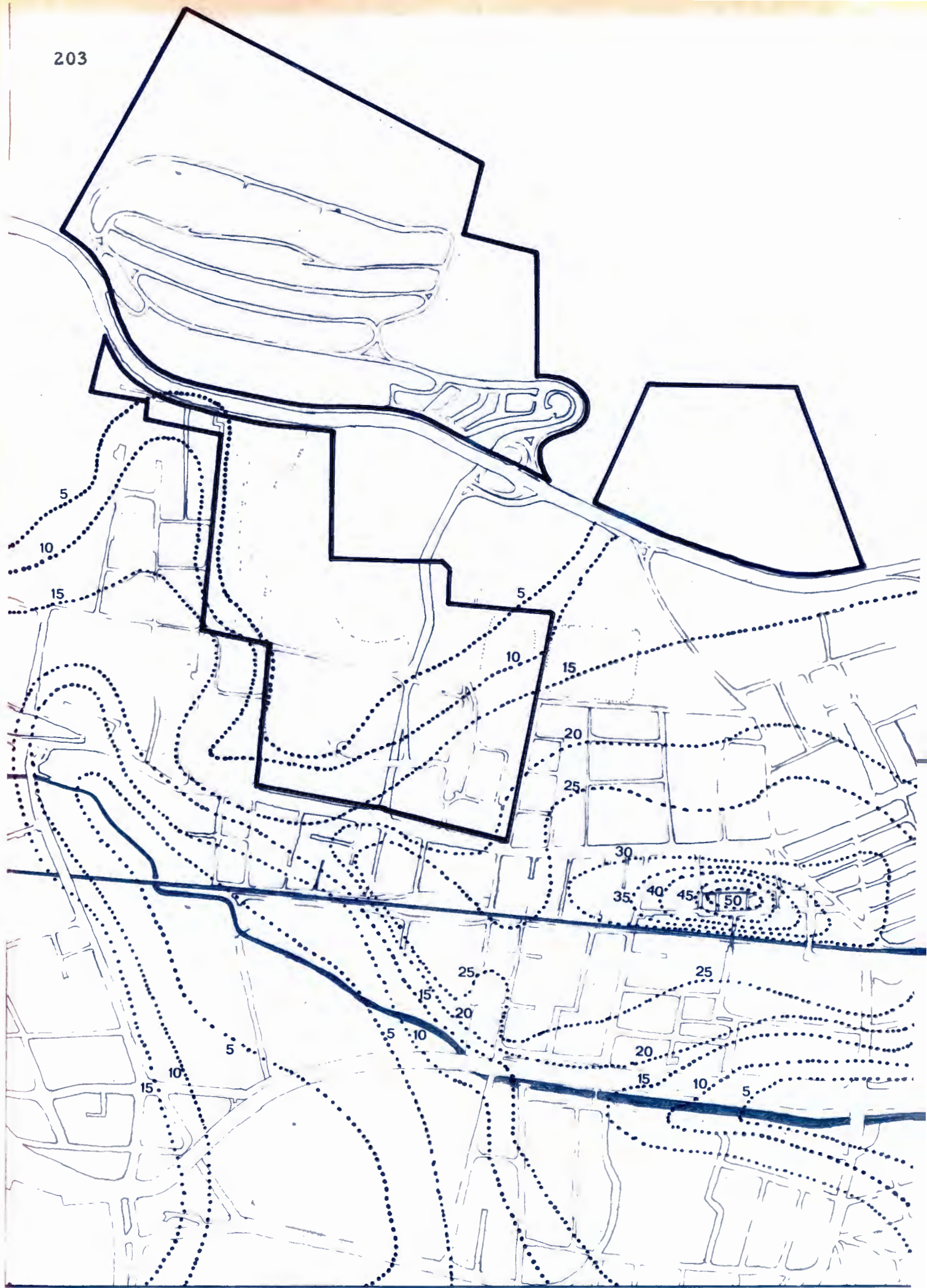


FIGURE 46 1960 DENSITY PERSONS PER ACRE GROSS

Source: U.C.T. Planning Unit, Work Paper No. 6, From 1960 Census

7.4 CASE STUDIES: OTHER IMPLICATIONS

The physical implications of the main body of the thesis have been described in Section 7.3. There are other related issues that will arise.

7.4.1 Reasoning and Densities

The major determinant in the control of densities per acre is the Town Planning Scheme. The basic decision concerning the number of people that can, or should, be settled on an acre of land is one of the most important single choices in the planning of residences.

From the 1960 census, gross densities per acre were plotted in the student survey (1) and reproduced here on Figure 46. The higher density concentrations are reflected on the eastern side of the Main Road with densities reducing in intensity moving up the slopes towards De Waal Drive, creating the visual impression of the university projecting into these areas and down to the Main Road strip.

By introducing the housing outlined in Case Studies One and Two, the patterns of density will radically change with the lower campus area becoming an extended focal arm leading off the Main Road and at right angles to it.

At present the land adjacent to the University on the northern and southern edges is zoned single residential - refer Figure 47.

In previous sections it has already been stated that the extension of the present adjacent zoning, rather than the introduction of a new zoning category would be desirable. By applying for an R4 re-zoning of private land adjoining the northern and southern edges

(1) M.U.R.P. Course, Project 1970/1/1



- State-owned Property
- Single Residential
- Residential - R4
- Residential and Commercial - B1

FIGURE 47 ZONING DIAGRAM
Source: U.C.T. Planning Unit, Work Paper No. 6

a bulk factor necessary for the 'Clare Hall' type of residence will be permissible. Coverage factor of 0.33 and maximum height restriction of seven storeys will also adequately meet this building form type - refer Appendix 7.

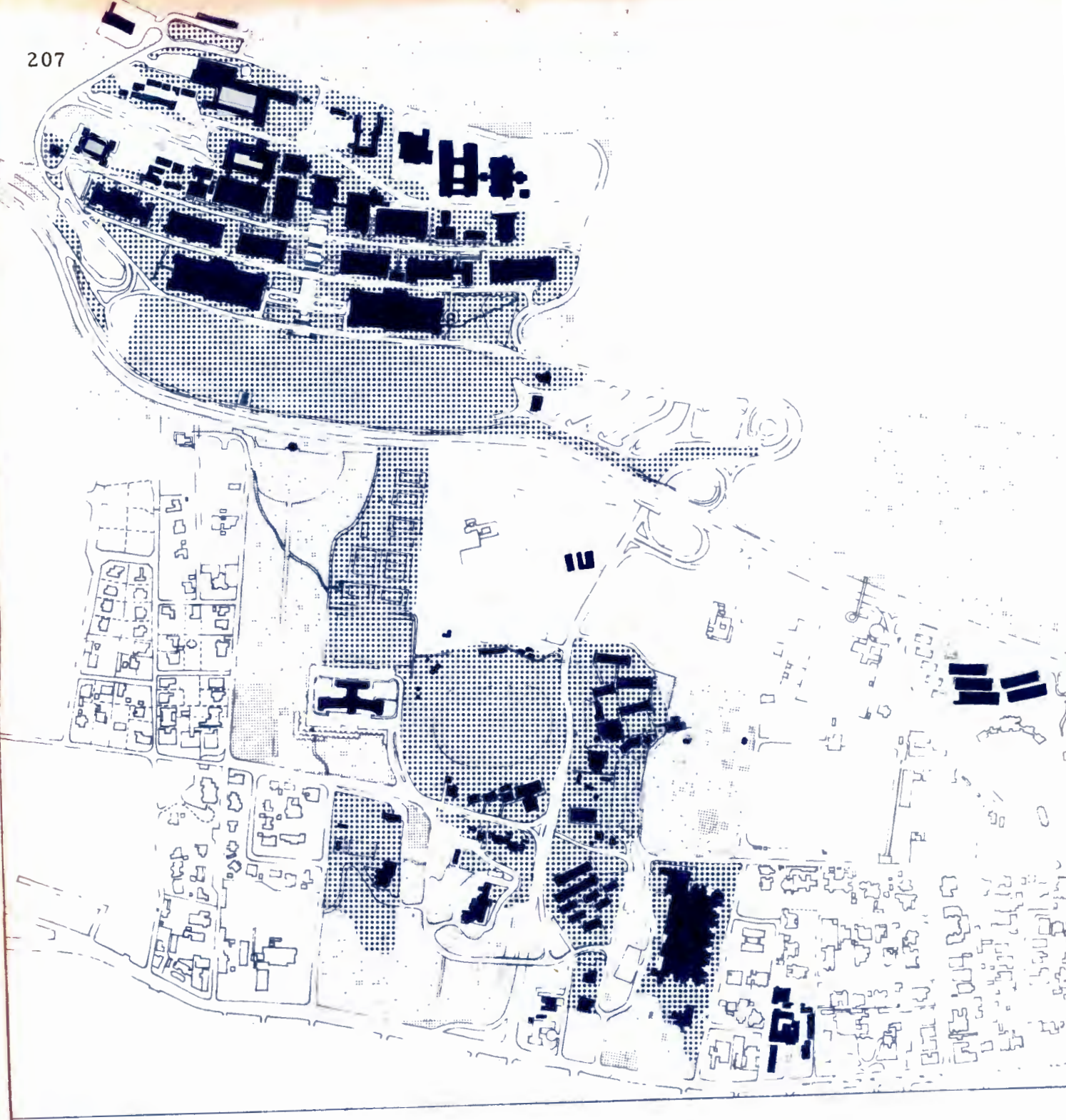
Along the Main Road strip an extension of the present B1 zoning will similarly allow for the densities and height restrictions required, and will also allow the inclusion of commercial uses in the scheme.

Taking, for example, the R4 zoning category which allows a floor area factor of .9. This would mean that on an acre site of approximately 44,000 sq. ft. a floor area of 40,000 sq. ft. would be permissible. At the Government Grant's formula figure of 350 sq. ft. gross per student housed, a density of 125 persons per gross acre would be achievable. In fact, a much higher density is possible as a large proportion of the floor area being used in our present residence building forms is required for service facilities which need not be included in these housing proposals.

At a very coarse level some idea of the amount of land that will be needed for residence purposes can be assessed.

To house 25% of the students by 1980 in university-promoted housing accommodation for 4000 persons will have to be provided. On completion of the two new residences proposed at present and assuming all of the places are taken up, a shortfall of 2000 units will still have to be made up. At an average density of 125 persons per acre this would require 15 acres of land.

The gradual increasing of density from the outer edges, to the linear academic spine at the centre of the lower campus has already



- Buildings
- ▤ Garden, grass and paved areas
- ▦ Uncommitted land

FIGURE 48 LOCATION OF EXISTING ON CAMPUS RESIDENCES
Source: U.C.T. Redevelopment Survey, 1964

been put forward. If then on the northern and southern edges a density of 60 persons per acre was introduced with, say 2 acres on the University side of Stanley Road and 2 acres purchased on the southern side of Stanley Road, housing for 250 students would be available along this edge.

By repeating this development pattern on the northern edge, a further 250 students could be housed.

Along the Main Road two acres of university-owned uncommitted land - refer Figure 48 - could be developed on the 'Amsterdam' pattern at a density of 300 persons per acre, thus providing accommodation for a further 600 students. Finally, to accommodate the remaining 900 students, three acres at the same average density of 300 persons per acre could be developed along the secondary pedestrian routes as shown on Figure 45.

It is emphasized again that the development of housing on the lower campus itself would be stepped up from the boundaries at say 60 persons per acre to a maximum of 500 persons per acre at the point of connection to the 'academic spine'.

A review of recent attitudes on densities prepared by Revel Fox in his thesis (1) is included in Appendix 8.

(1) Revel Fox, 1969,

7.4.2

Parking

Space for parking is at present calculated on the basis of 3 cars for every 5 students with 300 sq. ft. per car including access roads. This Cape Town City Council standard requirement was apparently very difficult for the University to meet in designing the two new residences which are projected for 1971. The present car ownership for the university generally stands at the high figure of 35%.

It is recognized that car ownership is of more concern than car usership for residential areas, since students will keep their cars where they live rather than where they work. If, of course, residences were located close to the University's teaching facilities there would probably be no need to duplicate parking space at both ends of the journey to work, since students could be expected to walk. The additional cost of the purchase of land to construct residences close to the university may be therefore seen against the savings made by not providing parking space twice.

In addition, the land comprising the lower campus areas slope consistently down from De Waal Drive to the Main Road at a fall of approximately 1:25 - refer Figure 49. By taking advantage of these 'underspaces' created by the falls, covered parking can be accommodated on site reasonably economically. This is illustrated diagrammatically on the section showing stepped housing in Appendix 6, built form type 6.6.

7.4.3

The Surface and Landscaping

Devil's Peak, rising 3000 feet, dominates the area on the western flank of the campuses and is the most significant topographic feature, falling steeply down to the Liesbeek River - refer Figure 49.



FIGURE 50 LANDSCAPING
Source: U.C.T. Redevelopment Survey, 1964

Fine parkland on the lower slopes of the mountainside flank and extend into the lower campus areas - refer Figure 50.

"One's views about student residence are inevitably coloured by one's own experience when a student ... For one bred in the semi-detached insipidity of a London suburb these experiences were a great enlargement. They convince me that our concern for the quality of student housing is right, and that a generation of students who have been awakened to the pleasures of life in beautiful places will not tolerate the spoliation of those we already have, or the continued waste of opportunities to create more." (1)

(1) David Crease, April, 1970, Page 267.

8.0 CONCLUSIONS

The problem of housing students has, in concept, changed radically over time - from the Oxbridge approach to the Redbrick, from the Redbrick to the concept of the Sixties. Contemporary students, at least the more senior members of the student body, rejected the rigidity and self-imposed sub-cultural groups inherent in the present hierarchical system.

A new concept is needed, one that takes regard of the requirements of all of our students; one that will optimise the social and academic contacts and strengthen the concept of a 'community of scholars'.

By adopting a new approach to housing, the present institutional facade of the university would be softened and eventually, through this process, there could develop a use-zone on the campus edges which are both University and Community.

8.1 LIMITATIONS OF THE STUDY

Certain limitations apply to this thesis.

- 8.1.1 In order to assess the full implications of the student housing shortage, further consideration should be given to the part-time student population as well as to the housing of single people generally.
- 8.1.2 An intensive on campus housing programme is needed immediately. This requires a firm and detailed housing policy which should take account of immediate needs and long-range objectives. No such policy was forthcoming and a phased programme for future housing provision has not been formulated.

8.1.3 The student 'preference' study cannot be considered to be statistically valid, but the results were encouraging enough to suggest that further work undertaken in this field would yield fruitful results.

8.1.4 Three case studies were produced, the purpose being to bring out, in planning terms, physical implications of the main body of this thesis.

In proposing that student housing need not radically be differentiated from community housing, the effect on cost of these new proposals must be questioned. To test the validity of the new proposals, various cost benefit analyses should be undertaken; for example comparing the cost of accommodating a student requiring 350 sq. ft. gross floor area against those students sharing a three roomed 900 square foot flat.

8.2 PROBLEMS THAT HAVE GROWN OUT OF THE THESIS

Many problems have grown out of the field of study. Of concern is the question of staff housing and to what extent accommodation for staff should be considered in relation to student housing.

Together with staff housing are those service functions such as nursery schools, which, by their location, could be used to soften the edges of our campus boundaries.

The casual relationship between student and staff housing and vehicular congestion on the campus should also be studied.

APPENDIX 1 U.C.T. PLANNING UNIT - METHODOLOGIES

Extracts from Section 1, Work Paper No. 3

1.1 UNIVERSITY POPULATIONS AND SAMPLES:

In order to obtain data relevant to the purposes of the Planning programme, the following University populations were defined and sampled:

- a) The student population consisting of all full-time students who use the Groote Schuur campus for scheduled activities between 9 a.m. and 5 p.m. from Monday to Friday;
- b) The staff population consisting of all those employed by the University on the Groote Schuur campus;
- c) The combined population consisting of both the above populations.

1.2 STUDENT POPULATION:

1.21 Sample:

The student population was calculated from an official student registration list giving figures as of 3.6.1969 which was then adjusted for part-time students (and others outside the definition of the population) and students registered for double degrees. An overall reliability figure of approximately 6% was considered acceptable giving a desired sample size of approximately 240. A computerised random sample was then drawn by Professor Troskie of the Dept. of Mathematical Statistics. This sample was checked against the central file of student registration forms and stratified into categories of students living in University residence and students living outside University residence. A standard letter was then sent to the residential address of each student in the sample explaining the purpose of the investigation and asking each to come

to the Planning Unit to be interviewed at any time during the week, Monday 15th September to Friday, 19th September (see Appendix A) This week and the week before (some of the questions asked referred to activities of this previous week) were chosen so as to be characteristic of other university teaching periods as well. The names of the sample were given to the S. R. C. who had agreed to cooperate by contacting students, and a list was also published in Varsity. By the end of the interview week, 70% of the sample had responded and further efforts were then made to contact the remainder. By circulating lists to faculties and making phone calls to faculty secretaries and university residences, the percentage was increased to just below 80%. This sample return was then checked for its distribution by faculty and after discussion with Professor Troskie, considered sufficiently suitable for the purpose of the planning programme. The tables below contain details of the stratification of the student population and sample:

Table 1.1

Student population and sample by residence

Stratification	Population		letters sent out (sample drawn)		successful inter- views (final sam- ple)	
	Total	%	Total	%	Total	%
in university residence	962	21	64	21	59	25
outside university residence	3713	79	242	79	176	75
Total	4675	100	306	100	235	100

Table 1.2 Student population and sample by faculty

Faculty	Population Total	%	Sample Total	%
Fine Art & Architecture	332	7	23	10
Arts	1077	22	53	23
Commerce	677	15	34	14
Education	245	5	17	7
Engineering	847	18	40	17
Law	103	2	1	0
Medicine	217	5	8	3
Science	782	17	46	20
Social Science	253	6	9	4
Music	142	3	4	2
Total	4675	100	235	100

1.22 Questionnaire and Interview

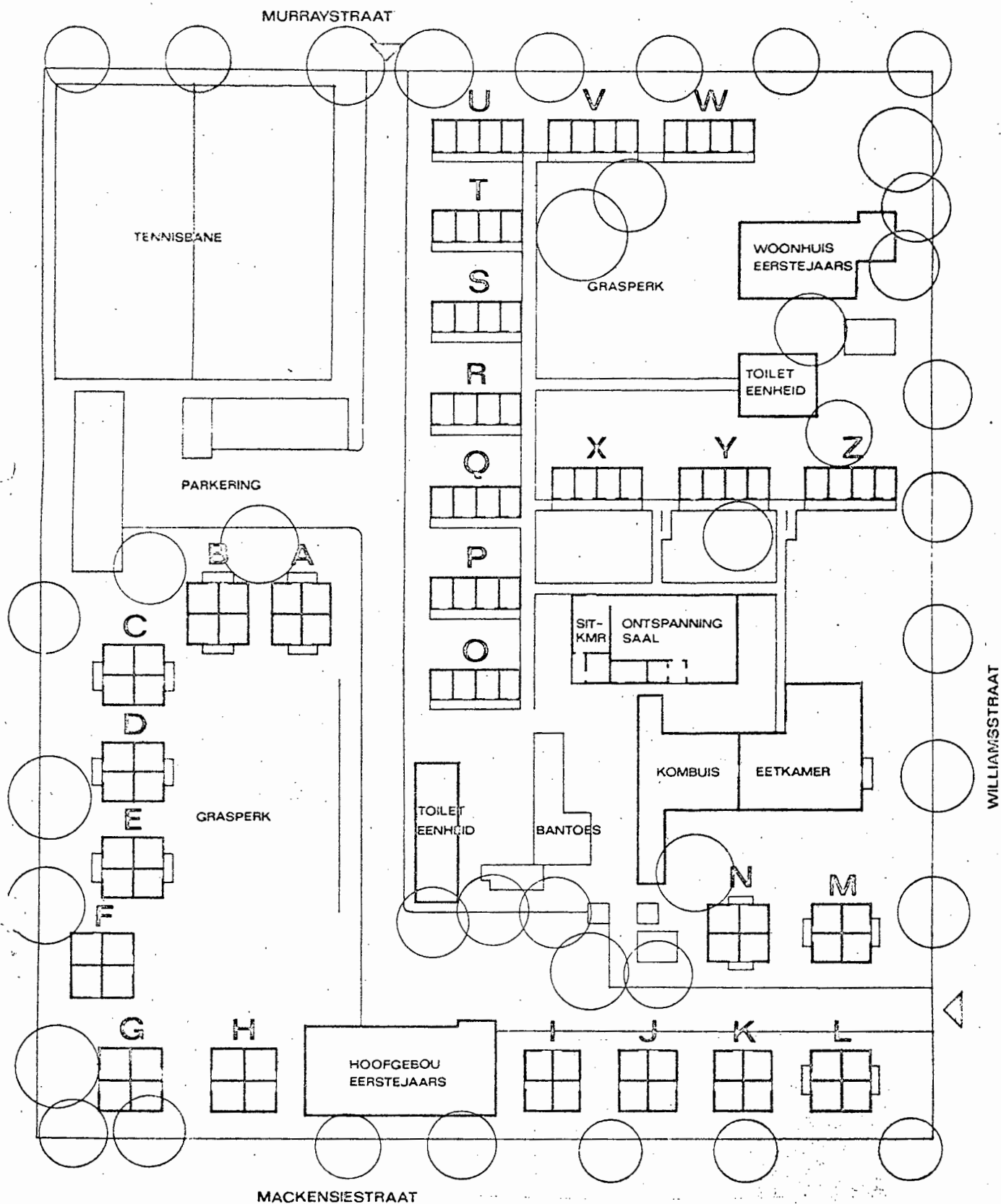
The student questionnaire was constructed to obtain information in three major categories: basic and residential characteristics; expenditure patterns and travel habits. It was decided that for the purposes of this survey no questions regarding the preference of students would be asked: this would, if possible, be the subject of a second survey. A pilot questionnaire was constructed, submitted to specialist consultants concerned with the use of the derived information reformulated and then given a pretest on students selected at random on the campus. This led to further modification before the final questionnaire could be put into use.

Before the interview, the nature and purpose of the questionnaire was explained to each student and his questionnaire checked on completion. Staff of the Planning Unit were in constant attendance during the interviews. A copy of the questionnaire is included in Appendix A.

1.23

Diary sub-sample

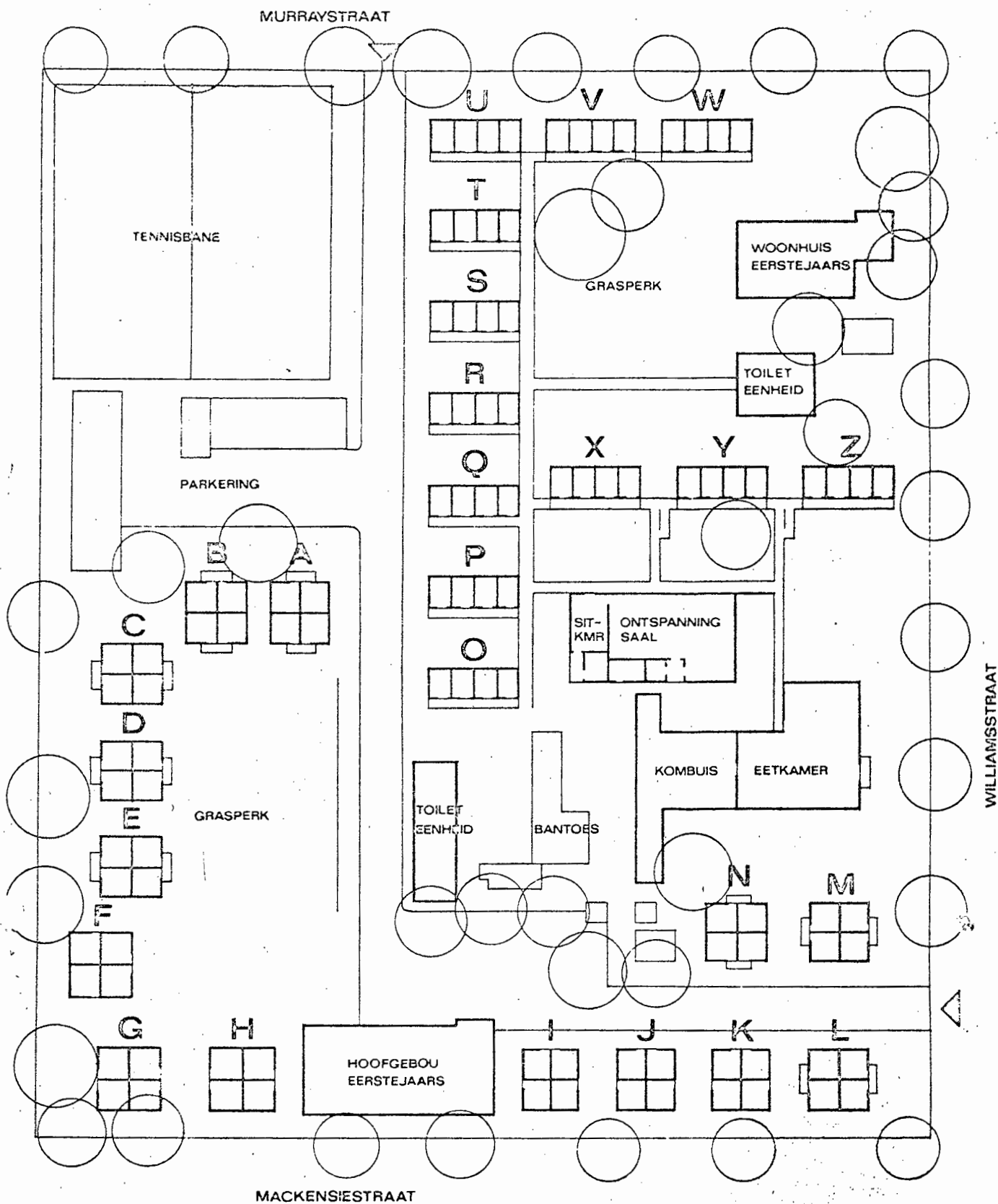
In order to probe the pattern of scheduled and unscheduled activities of students, 40% (123) of the student sample were asked to keep a diary of their activities over a period of a week. (Wednesday 10th to Wednesday 17th September). A specimen from a similar study conducted at an American university was included in the instructions to each student. (see Appendix A). Students were asked to return the completed diary when they came for their interview: over 70% (90) of those written to returned completed diaries.



PLAN

SKAAL 0 40

SONOPTER



PLAN

SKAAL 0 20

SONOPTER 13

APPENDIX 4

CUSTOMS:DEGREES OF STATUS OF STUDENTS IN RESIDENCE:

1. Members of House Committee, Graduates and 4th Years and those over 21, at the discretion of the Lady Warden.
2. 3rd Years - academically in 3rd year (5 subjects)
3. 2nd Years - academically in 2nd year (3 subjects)
4. 1st Years - through 2 subjects
5. Freshettes - 1st year undergraduate students

The status of any student who has not passed all her subjects of the previous year, or has completed a course or part of a course at another University institution, will be determined by the Lady Warden in consultation with the House Committee.

READMISSION TO RESIDENCE

To be readmitted to Residence a student must pass NOT LESS than two full subjects per year. At the Warden's discretion students who were ill or for other adequate reasons merit special consideration may be readmitted to the Residence. Supplementaries are NOT considered as passes.

NO first year student may own a motor-car without special permission from the Lady Warden. Students owning cars must please notify the Warden, giving make, colour, and registration number of their car.

ENTRY AND EXIT

There is only one entrance and exit to Baxter Hall, that is, the front door. Any student found using any other means of exit or entrance is liable, on consultation with the Principal, to be sent out of the Residence.

SICKNESS AND INJURY

Sickness and injury MUST be reported to the Matron and Assistant Matron or the Lady Warden. Students are permitted to have the doctor of their choice. If a student wishes to consult a doctor she should inform the Lady Warden who stands in loco parentis even for minor disorders.

PERMISSION

ALL STUDENTS, wishing to go out for the evening, for the day during week-ends or public holidays, or for the week-end, are required to obtain permission.

NOTE WELL:

A student who is not in the Residence by DINNER TIME (6.30 p.m.) MUST have permission or have signed herself out in the COFFEE BOOK until 8.30 p.m., EXCEPT on Mondays (A COMPULSORY FORMAL DINNER) otherwise they are regarded as OUT WITHOUT PERMISSION. Those attending late lectures in town, who do not wish to return to the Residence for their late dinner MUST 'phone the Study, on coming out of their lecture, to explain the position and get evening permission.

PERMISSION TIMES in Lady Warden's Study:

Monday - Thursday: 6.00 - 6.30 p.m., 7.20 - 8.20 p.m.

222

Friday: in addition for W/E leave 8.15 - 8.45 a.m. and 1.30 - 2 p.m.

Saturday: 9.00 - 9.30 a.m., 1.30 - 1.45 p.m.
6.00 - 6.30 p.m., 7.20 - 8.20 p.m.

Sunday: 9.15 - 9.45 a.m., 1.45 - 2.00 p.m.
5.45 - 6.15 p.m., 6.45 - 7.30 p.m.

Telephoning for permission is permitted - NEVER FOR SLEEPING OUT - during normal permission times.

COFFEE LEAVE

Until 8.30 p.m. coffee leave is granted to all students, provided they sign the Coffee Leave Book in the Lodge on going out and on returning. (Every evening 2 Freshettes are on duty at the Lodge, and the Coffee Leave Book is checked by the Warden or Tutor on duty.) Coffee Leave can now be used for DINING OUT, EXCEPT ON MONDAY WHEN DINNER IS COMPULSORY. However, your whereabouts must be put next to your name in the Coffee Book.

SOCIAL LEAVES:

Freshettes: Three social leaves are allowed per week.

1st Years: Four social leaves are allowed per week.

2nd Years: Three social leaves are allowed in the week, in addition to 2 week-end leaves.

3rd Years: May have any number of social leaves.

Third, Second, First years and Freshettes are required to be back in the Residence at the following times and to sign their names and the exact time of their return in the register provided in the Lodge:-

Monday to Thursday inclusive ... 12.00 midnight

Friday & Saturday 1.00 a.m.

Sunday 11.00 p.m.

PEOPLE WHO MISS DINNER

Students who miss a Monday compulsory dinner or late dinners without permission will be liable for a 25c fine. Unless they telephone for permission by 6.30 p.m. the penalty will be a 25c fine.

OTHER LEAVES

Sports Leave is given until 10.30 p.m.

Library Leave is given until half an hour after Library closing time.

Cultural Leave is given until 11.00 p.m.

DAY PERMISSION

3rd years, House Committee, 4th years and post-graduates to sign themselves IN and OUT in their own books.

Freshettes (after one term in Residence), 1st years and 2nd years to use DAY BOOK between the stairs.

N.B. FULL DETAILS MUST BE GIVEN AND ALL SLEEPING OUT PERMISSION MUST BE OBTAINED PERSONALLY FROM THE STUDY.

Members of the House Committee, Graduates, 4th year students and **223** students over 21 have the privilege of using a latch key, at the discretion of the Lady Warden and are asked to sign their respective leave books on going out and on returning, plus the word "KEY".

DANCE PERMISSION

Students may have special late permission for University dances, such as:-

Commemoration Ball, Graduation Ball, Intervarsity Ball, Rag Ball, Medical Ball, Engineering Ball, Rugby Dance, Official dances, i.e. one official dance per Faculty, Club or Residence.

WEEK-END PERMISSION

ALL STUDENTS require a written invitation for week-end leave. No permission to sleep out is given on the telephone. It has to be personal from the Lady Warden or Tutor on duty.

WRITTEN CONSENTS FROM PARENTS

Written consents from parents are required for:

1. Mountain climbing
2. Camping
3. Riding on motor-cycles or scooters
4. Hitching - students are advised that it is necessary to be in pairs or groups of three when hitching.
5. Under-water swimming and diving
6. Sleeping out in flats, etc., of young friends under 21 years.

TRAVELLING FOR VACATIONS

If a student does NOT go straight home the Lady Warden requires specific written permission from the parents for the student to proceed elsewhere. A similar permission is required for transport by other means than public, i.e. for acceptance of lifts with young men, family friends, etc.

BABY SITTING

Baby sitting must have the Lady Warden's approval. Freshettes may NOT baby sit.

GENTLEMEN VISITORS

may be entertained at all times in the Public Rooms until 11.45 p.m., at which time they are expected to leave the Residence.

After 8.45 p.m. the Visitors Book in Lodge MUST BE SIGNED.

- Please note:
- 1) On Sunday evenings - all gentlemen MUST leave by 10.45 p.m.
 - 2) Students who are GATED may only entertain gentlemen visitors until 8.45 p.m., and if STRICTLY GATED NOT at all after 6.30 p.m.

DRESS

Academic gowns are to be worn at all formal meals. Students must change and wear neat dark shoes.

NOTE: Denims or shorts may NOT be worn

- (a) on the University Campus
- (b) in the University Library

DRESS (cont'd)

No scanty clothing, slippers, hair-curlers or dressing gowns may be worn at any meal - Breakfast and Tea included. 224

QUIET

No radios, gramophones, etc., may be played to the annoyance or disturbance of any other student, especially after 8.30 p.m. during the week.

LIQUOR

No liquor is allowed in the Residence, except with the Lady Warden's special permission.

COMMUNICATION FROM WINDOWS

There is to be no communication with friends from windows.

BEDS

Students make their own beds.

GENERAL

SEWING MACHINES: These are obtainable from the Assistant Matron and can be used in her office. They are not to be removed from this room. The fine for this and for using a machine for longer than 48 hours is 50c. The Sewing Book provided must be signed to show the usage of the machines.

PARCELS: Parcels are to be collected and signed for in the Lodge. Individual post must be collected by owner ONLY except in cases of illness.

ELECTRICITY AND WATER FAULTS

All water and electricity faults, especially in irons, kettles and sewing machines, must be reported to the Receptionist in Lodge.

LAUNDRY

LINEN

Every Friday morning beds must be changed. One dirty sheet, pillow case, two towels and one table napkin must be made into a bundle, (NOT pushed into the pillow case), and left in the room for collection for the laundry.

PERSONAL LAUNDRY

This is collected on Mondays. The laundry list should be entered correctly in the book provided, and the book put into the bag with the dirty laundry. Articles must be marked, in marking ink, with the student's laundry number and name. Any article in excess of those listed in the Laundry Book will be charged for at a fixed rate. Matron has the authority to confiscate a bag of clean personal laundry until outstanding excess fines have been paid. Bags must be placed outside Matron's office door by the students themselves before 9 a.m. on Monday.

PETS

NO pets are allowed in the Residence.

NO BAXTER girl is allowed in a man student's bedroom in the Residences.

1. Monday Dinner is a compulsory formal meal. Tuesday - Thursday dinners are formal meals. During swot week meals will be semi-formal.
2. Men visitors may be permitted to eat in residence on Sundays and Friday night dinners, provided they are neatly dressed.
3. Meal tickets for visitors are to be bought from the Receptionist and handed to the waiter at table.
Tariff for visitors: Breakfast 35c, Lunch 45c, Dinner 55c.

MEAL TIMES

Monday - Friday:

Breakfast	7.30 a.m.
Lunch	1.00 p.m.
Afternoon Tea	4.15 p.m.
Dinner	6.30 p.m.

Saturdays and Public Holidays:

Breakfast	8.30 a.m.
Lunch	1.00 p.m.
Afternoon Tea	4.15 p.m.
Dinner	6.30 p.m.

Sunday:

Breakfast	8.45 a.m.
Dinner	1.00 p.m.
Afternoon Tea	4.15 p.m.
Supper	6.15 p.m.

PUNCTUALITY

All students must be punctual at formal meals. Students may only leave early (or miss the compulsory dinner) with the permission of the Tutor on duty.

COURTESY

At all meals students must acknowledge the High Table.

SICK TRAYS

Students who lie in bed sick all day without reporting to the Matron will NOT be served their meals in their rooms.

To receive an evening meal on a tray, Matron must be notified before 6 p.m.

MENU

Any suggestions with regard to the menu will receive consideration by the House Committee, provided it is signed by at least two members of the House. No food complaints are to be made to the Housekeeper.

SANDWICHES - SANDWICH MONEY - FRUIT PACKS

are available for WORK ONLY. No sandwiches, etc., are given for pleasure.

APPENDIX 5 STUDENT HOUSING

Accommodation Standards and Current Thinking

Michael Brawne, in appraising the architectural achievements of the new universities' building programme, wrote: (1)

"The particularized spaces of a university have clearly certain specific spatial attributes which influence their form - lecture theatres are not like laboratories. In addition to this, they have certain other characteristics which, when examined, may alter our view of the university as a whole. The chief of these is their degree of permanence.

... It becomes, on a closer view, possible to establish a hierarchy of permanence which has at one end science research laboratories, at the other students' rooms. The wide range of university buildings can then be categorised with teaching laboratories, kitchens and other highly serviced spaces at the 'less permanent end, seminar rooms, common rooms, small lecture theatres, library reading areas and so on at the more permanent end. ... perversely, the least permanent spaces are the most expensive both in terms of capital cost per unit of built floor area and in terms of equipment, while the most permanent spaces are the most expensive both in terms of capital cost per unit of built floor area and in terms of equipment, while the most permanent are the cheapest."

Much fruitful work has been done by social scientists on the basic cell - the student room - than on the building forms in which they are grouped. Before developing a typology of possible building forms it was necessary to have an inventory of the accommodation and standards envisaged.

(1) Michael Brawne, April, 1970, Page 284.

UNIT

1 STUDENT

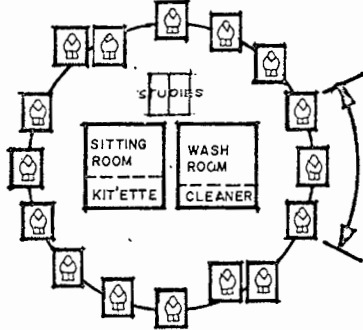


THE SINGLE ROOM FORMS THE PRIVATE DOMAIN OF THE STUDENT. IT WILL BE USED FOR SLEEPING, PRIVATE STUDY, RELAXING AND TALKING AMONGST SMALL GROUPS & OTHER RELATED FUNCTIONS. ROOMS SHOULD SHOW A VARIETY OF SHAPES & A FLEXIBILITY OF FURNITURE ARRANGEMENT. AREA MAY VARY BETWEEN 110-115 SQ. FT. A HIGH DEGREE OF SOUND PROOFING IS MANDATORY. DOUBLE ROOMS WILL COMPRISE 2 SINGLE ROOMS WITH CONNECTING DOOR.

11

GROUP

16 OR 13 STUDENTS



DON'S SUITE IN EACH HOUSE

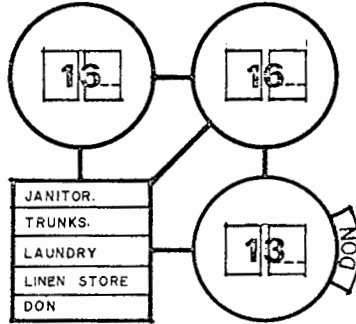
BASIC NO. OF ROOMS (STUDENTS) PER GROUP WILL BE 16 OR LESS. EACH GROUP WILL SHARE A NUMBER OF COMMON FACILITIES.

- SMALL SITTING ROOM WITH ATTACHED KITCHENETTE
- WASHROOM INCLUDING:
 - 2 SHOWERS
 - 1 TUB WITH SHOWER OVER
 - 3 W.C.S
 - 4 WASHBASINS
- 2 STUDY ROOMS

EACH GROUP OF 16 SHOULD HAVE 2 DOUBLE (CONNECTED) ROOMS.

HOUSE

45 STUDENTS
1 DON.



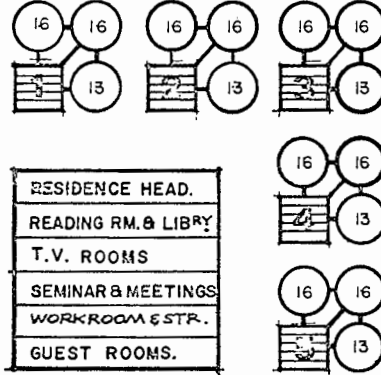
3 GROUPS + 1 DON WILL FORM A HOUSE OF 45. EACH HOUSE WILL SHARE A NUMBER OF COMMON FACILITIES:

- A DON
- LAUNDRY WITH COIN-OPERATED MACHINES
- TRUNK STORAGE
- LINEN STORE

GROUPS MAY BE CONNECTED HORIZONTALLY OR VERTICALLY WITH STAIRCASE ENTRY.

RESIDENCE

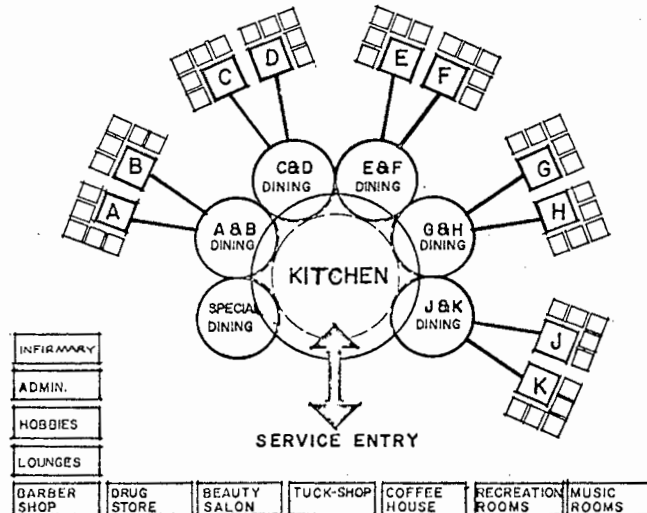
225 STUDENTS.
5 DONS.
1 RESIDENCE HEAD.



5 HOUSES WILL FORM A RESIDENCE OF 225 STUDENTS + 5 DONS AND 1 RESIDENCE HEAD. THE RESIDENCE IS THE MOST IMPORTANT SOCIAL GROUPING. IT IS POSSIBLE FOR EACH STUDENT TO KNOW EVERY OTHER. SPORTING TEAMS, DEBATING AND MUSIC GROUPS, AND DRAMATIC & SOCIAL ORGANISATIONS CAN BE FORMED. THE RESIDENCE HEAD SHOULD BE A FACULTY MEMBER—PREFERABLY MARRIED. A WIDE RANGE OF COMMON FACILITIES ARE PROVIDED (SEE DIAGRAM)

COMPLEX

2,250 STUDENTS.
50 DONS.
10 RESIDENCE HEADS.



TO CREATE A TRUE COMMUNITY WITH WIDELY VARIED GROUPS INTERESTS AND FACILITIES AND TO EFFECT KITCHEN AND DINING ROOM ECONOMIES, COMPLEXES OF 2,250 STUDENTS, 50 DONS AND 10 RESIDENCE HEADS ARE FORMED.

KITCHEN FACILITIES ARE CENTRALISED AND ARE SURROUNDED BY SIX DINING ROOMS. ONE DINING ROOM FOR EACH PAIR OF RESIDENCES AND A SPECIAL DINING ROOM FOR FORMAL DINING AND OFF-CAMPUS STUDENTS.

EACH DINING ROOM HAS A CAPACITY OF 225 SEATS AND WILL SERVE 450 PERSONS PER MEAL.

A diagrammatic analysis prepared by Evan H. Walker (1) of an undergraduate complex with transition stages from the individual single room to the total number in ten halls of Residence is shown on Diagram 11.

No direction is given in terms of the architectural solution to be arrived at, and it is entirely possible, if desirable to maintain the indicated groupings in single-storey, low, walk-up structures, or in high-rise buildings.

Useful analyses of elements were also undertaken in the Guelph Study and are recorded diagrammatically.

The Study Bedroom

In almost all cases a single room is provided in which a number of private activities can take place. This 'study-bedroom' unit is where the student sleeps, studies in private and entertains small numbers of friends. These units, when added together, usually form the largest single element in a residential complex, and hence variations in their size are of considerable significance.

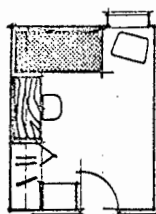
Although double rooms are a common phenomenon in the U.S.A. and Canada not many instances of study-bedrooms for more than two people have been found. In the student housing Study for Guelph University, Evan Walker has adapted the British standards of 110 sq. ft. minimum to 120 sq. ft. maximum for study-bedrooms. (2)

"Plate 14, lower half, is a diagrammatic representation of the desirable access space required around standard items of student room furniture.

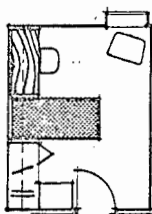
...Plate 14, upper half, indicates a variety of possibilities for furniture arrangement in two standard study-bedrooms.

(1) Evan H. Walker, Page 51

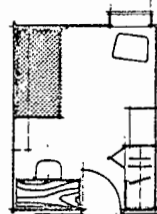
(2) Evan H. Walker, Page 56



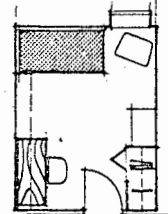
A.



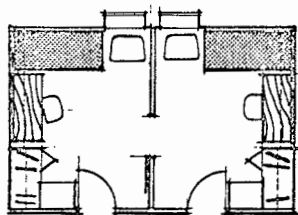
B.



C.



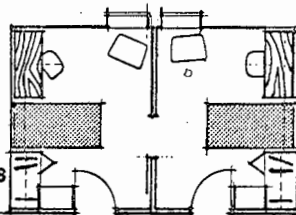
D.



A.A.

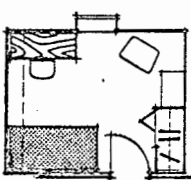
A, B, C & D SHOW FOUR FURNITURE ARRANGEMENTS FOR THE SAME ROOM. MAJOR DIFFICULTY: POOR NATURAL LIGHT FOR THE DESK.

A-A, B-B, INDICATE POSSIBLE DOUBLE ROOM ARRANGEMENTS WITH CONNECTING DOOR.

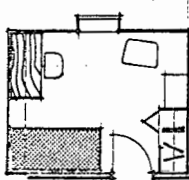


B.B.

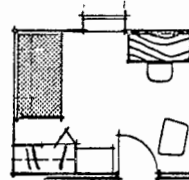
E, F, G & H. FOUR ARRANGEMENTS FOR SAME ROOM. SQUARE SHAPE IS LESS ADAPTABLE THAN RECTANGULAR ROOM, FEELS SMALLER.



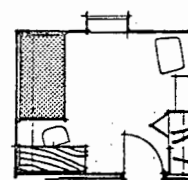
E



F



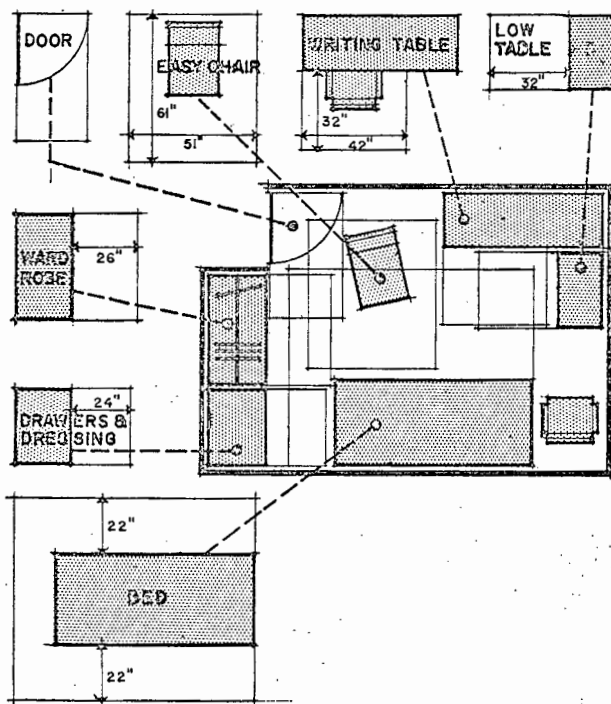
G



H

MOVEABLE FURNITURE ALLOWING ROOM FLEXIBILITY

FROM STUDIES BY ARCHITECTS MOODY MOORE & PARTNERS FOR THE UNIVERSITY OF SASKATCHEWAN.



THIS DIAGRAM PREPARED BY THE L.C.C. INDICATES THE SPACE REQUIRED ABOUT ITEMS OF STUDY/BEDROOM FURNITURE REQUIRED TO MAKE THE ROOM COMFORTABLY USEABLE.

ROOM AREA — 124 SQ. FT.
FURNITURE — 62 " "
ACCESS — 62 " "

IN GENERAL ACCESS SPACE SHOULD BE AT LEAST 50% OF TOTAL FLOOR AREA.

FOR ECONOMY OF SPACE IT IS WISE TO TRY AND ARRANGE THAT DOOR AND WARDROBE ACCESS SPACE COINCIDE DIAGRAMS D, E, F & H, ABOVE ILLUSTRATE THIS.

NOTE:

ALL ROOM PLANS SHOWN ARE INTENDED AS DIAGRAMMATICAL & EXPLANATORY ONLY. THEY ARE NOT INTENDED TO SUGGEST THE SHAPE OR ARRANGEMENT OF ACTUAL ROOMS TO BE DESIGNED

UNIVERSITY OF GUELPH HOUSING STUDY.

ACCESS SPACE FOR ROOM FURNITURE AND ALLOWABLE OVERLAP
STUDY PREPARED BY THE LONDON COUNTY COUNCIL ARCHITECTS DEPARTMENT.

...the arrangement of furniture should allow the possibility of two students grouping their desks in one room and their beds in the other. Other possibilities for these 'doubles' are indicated."

Double Rooms

On the basis of a study of individual bed-sitting rooms alone, a provision of double rooms would apparently achieve considerable economies of space. However, such an assumption can be misleading, and the University of Guelph Study (1) has pointed out the dangers of considering the study bedroom in isolation from the rest of the residential complex. In this case the requirement was for a group of study-bedrooms for 16 students related to a set of communal facilities. Single rooms were calculated at 110 sq. ft. per student, and double rooms at 190 sq. ft., thus leaving an apparent difference of 15 sq. ft. per student. However, it was felt that in order for this small group to remain socially viable, a drop in floor area in study bedrooms required a rise in floor area for central facilities such as lounges and kitchenette facilities. Furthermore, extra accommodation was required for typing and study which would not be required in the case of single rooms.

The Guelph Study is important in showing that a reduction in the floor area provided in one type of space will probably start off a chain reaction in other parts of the complex, involving the provision of extra space elsewhere. Apart from the physical and economic aspects of providing double rooms, there are also considerable social issues involved.

Toilet Facilities

Related immediately to study-bedrooms are w.c., washing and bathing facilities. Generally speaking, w.c.s., baths and showers

(1) Evan H. Walker

are usually provided for groups of students up to twelve. More affluent institutions sometimes provide an individual bathroom for each student. The apparently expensive provision of one bathroom for each student, is in some cases, felt to be justified by its attraction for visiting conference delegates in vacation who expect something approaching hotel standards.

The Communal Kitchenettes

In Britain the smaller social group in a hall of residence is usually given a more realistic focus in the form of a 'Kitchen/Pantry' in which modest cooking and possibly eating can take place. In more recent projects this facility is given more extensive cooking and storage facilities and becomes a 'kitchenette' in which a small group can meet, cook and eat. A number of small study-rooms for the use of commuter students may be included in this group.

A typical figure for the first type of pantry is around 10 sq. ft. per student. A larger 'kitchenette' with its provision of extra cooking and storage facilities of around 35 sq. ft. per student has also been introduced in many British universities.

Sub-cultural Group - Area Analysis

In an area facility analysis of the grouping of 16 study-bedrooms in the Guelph report the following schedule of requirements was recommended:

Table 26

Floor Area Analysis of the Secondary Sub-group Element of 16 Students

16 Study Bedrooms at an average of 115 sq. ft. 4 of these rooms are linked by a door making two pairs of doubles	approx. 1840 s.f.
Lounge and Kitchenette Kitchenette unit built in with cupboard over for utensils, etc.	" " 180
Washroom Includes 2 showers, 1 tub with shower over, 2 w.c.s, 5 washbasins. Washrooms must be useable by men or women. No urinals to be installed.	" " 260
2 Study Rooms each approximately 60 sq. ft. planned in such a way that they are useable by out-students or can be turned into one study-bedroom if necessary	" " 120
Cleaner's Room Cleaner's sink, storage shelving and space for cleaning appliances.	" " 60
Access and Stair, etc. Remaining floor space in corridor, stair and access should not exceed	" " 860
Total Space per group	should not exceed 3300

Common Rooms/Lounges

As a category 'common rooms' is very vague, covering provision for a wide range of activities.

"The main lounge in student dorms is often a good example of poor programming. It may be well furnished and decorated, but it appears mainly as a setting to impress visiting parents. Students commonly refer to lounges as 'furniture showrooms'. Though programmed as spaces to bring people together lounges seldom meet this purpose spontaneously." (1)

(1) S. van der Ryn and M. Silverstein

This is often the case in British universities. The large common rooms are generally under-used and serve as little more than ante-rooms to the dining accommodation. The kitchenettes mentioned previously are an attempt to break down these large common rooms into more intimate units. However, central common room space is often intended for more specialised activities such as hobbies, music practice, society meetings and so forth. The need for all these facilities will, of course, depend on the extent to which the residence forms a social centre in the university. The Cambridge study (1) suggests that the area per student varies between 15 sq. ft. per student in large complexes of 150 or more.

Dining Rooms and Kitchens

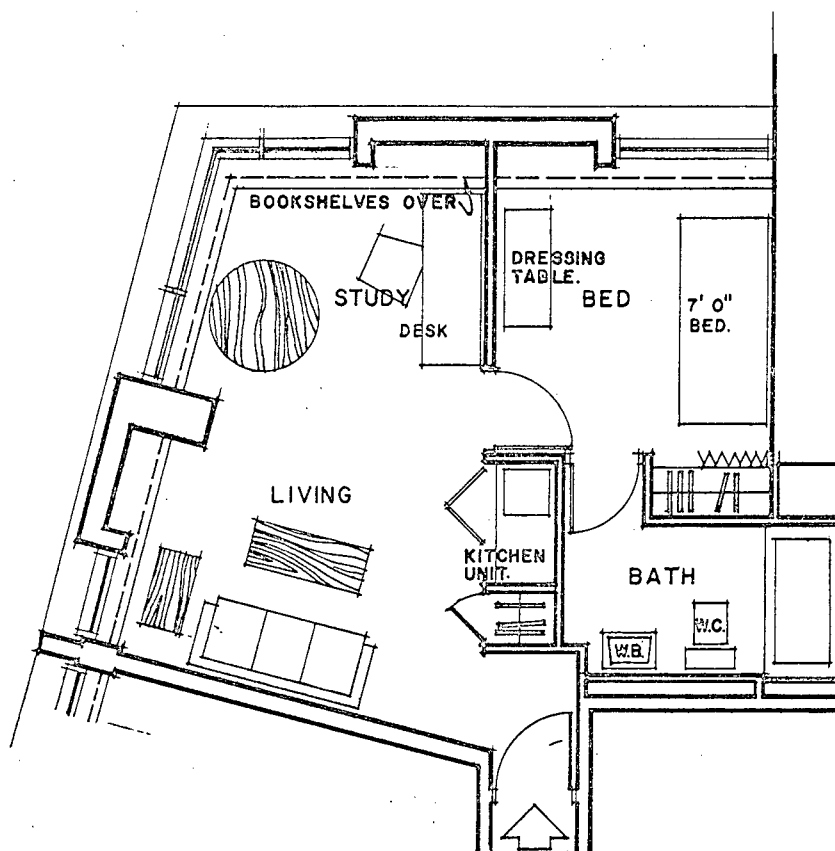
Like other facilities, the use of dining rooms and kitchens is closely related to overall patterns of activity. The need for such facilities depends on the broad patterns of movement between residence and teaching.

Dining and kitchen facilities are among the most expensive elements of the university; consequently, the duplication or inefficient use of this plant can have serious economic consequences. The figure of 12 sq. ft. per person is usually applied to dining rooms and 6 sq. ft. per person for kitchens.

Library Facilities

In the traditional halls of residence studied, there was usually provided a small library which houses some basic reference books and textbooks, and a number of work-places for private study. These libraries, however limited, can usefully supplement the functions of the central university library and those attached to faculties or colleges. Where university residence is broken into very small units, these cannot individually support even small libraries, though they could provide study space.

(1) Bullock, Dickens and Steadman



EXAMPLE:
NEW COLLEGE MEN'S
RESIDENCE,
DON'S SUITE
UNIVERSITY OF TORONTO

REQUIREMENTS:

(i) SMALL BEDROOM WITH;	WARDROBE DRESSING TABLE BED CHAIR	-----MIN. AREA 90 SQ. FT.
(ii) BATHROOM 4 PIECE		-----MIN. AREA 35 SQ. FT.
(iii) LIVING-STUDY ROOM WITH	EASY CHAIRS DESK & CHAIR COAT CUPBOARD COMBINED KITCHEN UNIT BOOKSHELVES 2 SMALL TABLES COUCH.	-----MIN. AREA 200 SQ. FT.
(iv) SMALL ENTRY		-----MIN. AREA 15 SQ. FT.
		<u>TOTAL MIN. AREA 340 SQ. FT.</u>

NOTE:

AT LEAST ONE DON'S SUITE IN EACH RESIDENCE SHOULD BE LARGE ENOUGH FOR A MARRIED COUPLE, I.E. MINIMUM SIZE OF SUITE TO BE 500 SQ. FT. WITH SEPARATE STUDY AND LIVING ROOMS.

The Warden

In the traditional hall of residence, a house is usually provided for a warden in the belief that a senior member of staff, quite apart from his administrative functions, has much to offer to the social life of the Hall.

Many universities feel that a close proximity between staff and students can be oppressive to both parties, newer projects have separated staff and student residence. At the universities of Essex and East Anglia, for example, staff residence is no longer integral with that of the students. In this way, undergraduates are largely left to run their own social lives and 'authority' is kept at arm's length.

At the University of Toronto, a sub-group of 45 students centres around the 'Don' who becomes the binding factor of the 45 people in the 'House'. No social rooms are included but the Don will entertain students in groups and singly, and in some cases, will give private tutorials in his or her discipline.

He has a dual role; he is a counsellor and tutor and he is a disciplinary figure. Plate 20 (1) outlines the requirements for the 'Don'.

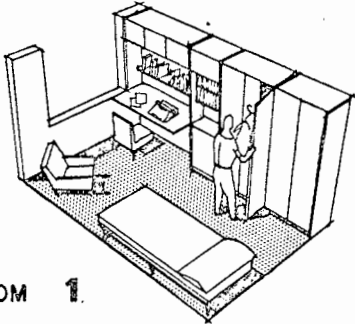
Graduate Accommodation

A graduate student may choose to live independently of others, or he may choose to live in a more social situation sharing common living space with 4 or 5 others.

To allow for a variety of preference in types of living arrangements, it is suggested that a proportion of each unit size be arranged in suite fashion with a common living room. The

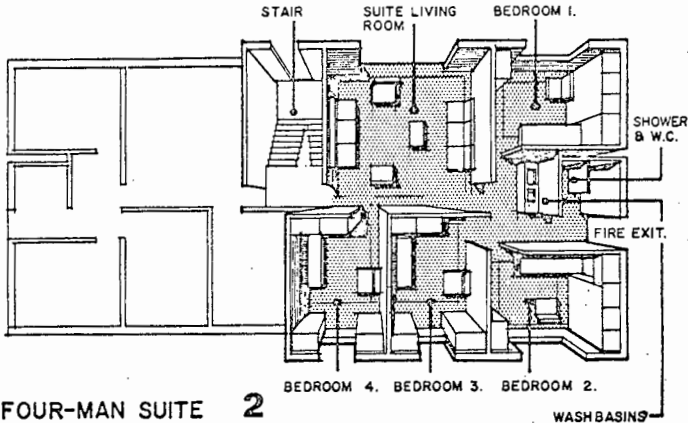
(1) University of Toronto, Don's suite

THE GRADUATE STUDENT, MALE OR FEMALE SHOULD HAVE A STUDY - BEDROOM OF HIS OR HER OWN. IN SOME CASES IT MAY BE POSSIBLE TO ARRANGE THE SPACE AVAILABLE SO THAT A SMALL STUDY SPACE IS PROVIDED SEPARATELY FROM THE SLEEPING AREA.
FLOOR AREA PER GRADUATE SHOULD BE 140-150 SQ. FT.



SINGLE BEDROOM 1

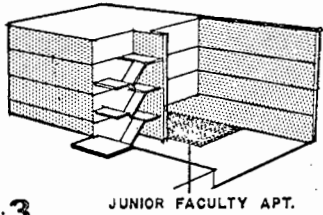
THE PREFERABLE GROUP SIZE FOR GRADUATE STUDENTS IS 4-6 AND THIS DIAGRAM SHOWS AN ARRANGEMENT WHEREBY 4 STUDENTS SHARE A LIVINGROOM AND WASHROOM FACILITIES.
A SINGLE STAIRCASE SERVES TWO SUCH SUITES AND FIRE ESCAPE ACCESS IS PROVIDED THROUGH THE WASHROOM TO THE ADJOINING SUITE



FOUR-MAN SUITE 2

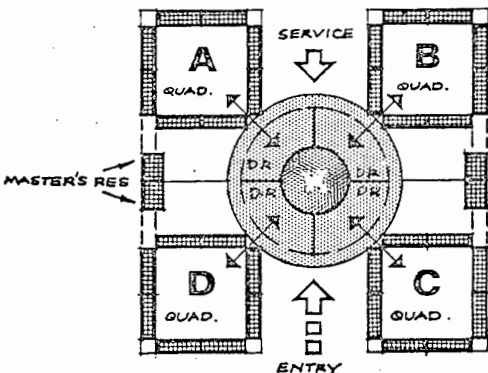
DIAGRAM 3 INDICATES THE WALK-UP GROUPING OF APPROXIMATELY 24-30 GRADUATES ABOUT EACH STAIRCASE
A JUNIOR FACULTY MEMBER IS ACCOMMODATED ON THE GROUND FLOOR AND AS HE SHOULD PREFERABLY BE MARRIED, THE APARTMENT SHOULD BE DESIGNED ACCORDINGLY.

- SUITE 1.
- SUITE 2.
- SUITE 3.
- SUITE 4.



STAIRCASE GROUP 3

IN THIS DIAGRAM, 4 QUADRANGLES (3 FOR MEN, 1 FOR WOMEN) ARE GROUPED ABOUT A COMMONS BLOCK. DINING ROOMS, COMMON ROOMS, LIBRARY AND OTHER COMMON-USE ROOMS ARE PROVIDED.
EACH QUADRANGLE IS INTENDED TO HOUSE 200 GRADUATES IN 4-6 MAN SUITES PLANNED AROUND THE STAIRCASE ENTRY SYSTEM (DIAG. 3). A "MASTER'S" RESIDENCE IS SHOWN CONNECTED TO EACH "QUAD"



GRADUATE CENTRE 4

DIAGRAMS 1, 2, 3. ARE FROM THE ANATOMY OF THE HOUSE PLAN BY GEDDES, BRECHER, QUALLS AND CUNNINGHAM ARCHITECTS FOR THE DEVELOPMENT PROGRAMME FOR UNDERGRADUATE MEN'S HOUSING, UNIVERSITY OF PENNSYLVANIA.

remainder should include larger single rooms and share only washroom facilities and small kitchenette - see Diagram 23 - prepared by Evan Walker for the Guelph Study. Floor areas and grouping arrangements are more fully described in the same diagram.

Married Student Housing

By comparison with other student categories married students are simple to house in that virtually their sole requirement is an apartment and they require very few supporting, maintenance or administrative personnel.

The requirements listed below are taken from the Guelph Study.

(1)

The provision of one and two bedroom apartments will cater to the great majority of needs. Some three bedroom units might be included, but bed-sitting units are to be discouraged.

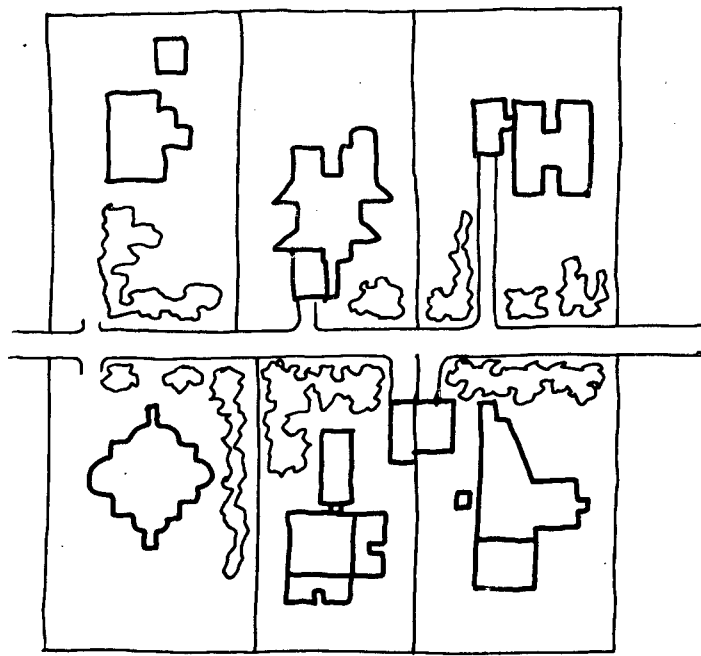
Within each grouping of married units, a number of common use facilities should be provided:

A community laundry

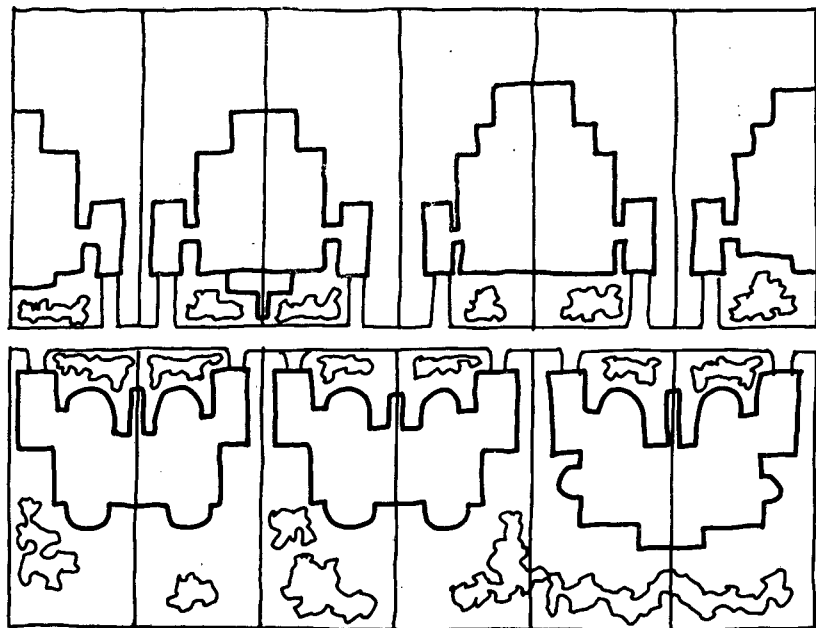
Caretaker's Residence

A day nursery for young children

Small general purpose storage.

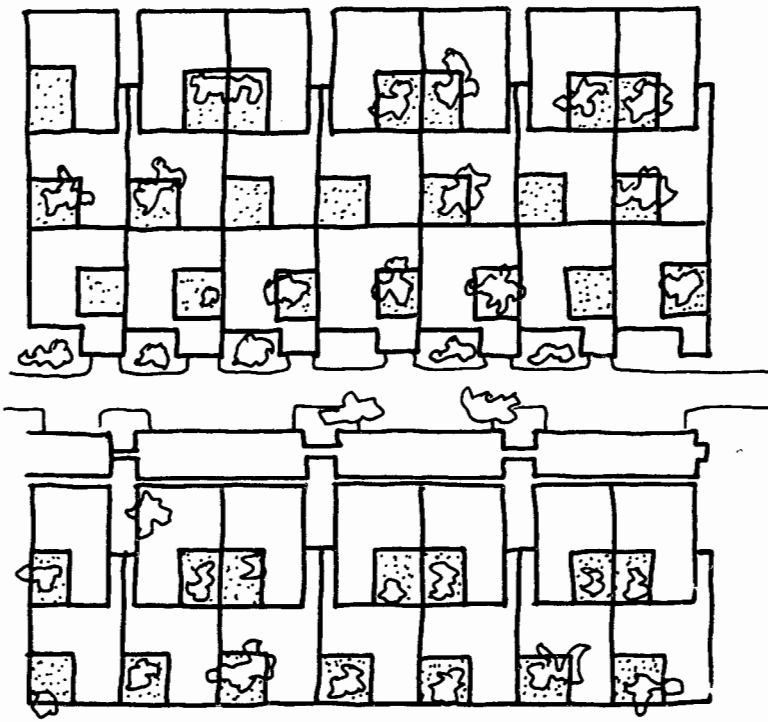


6.1 Single-detached

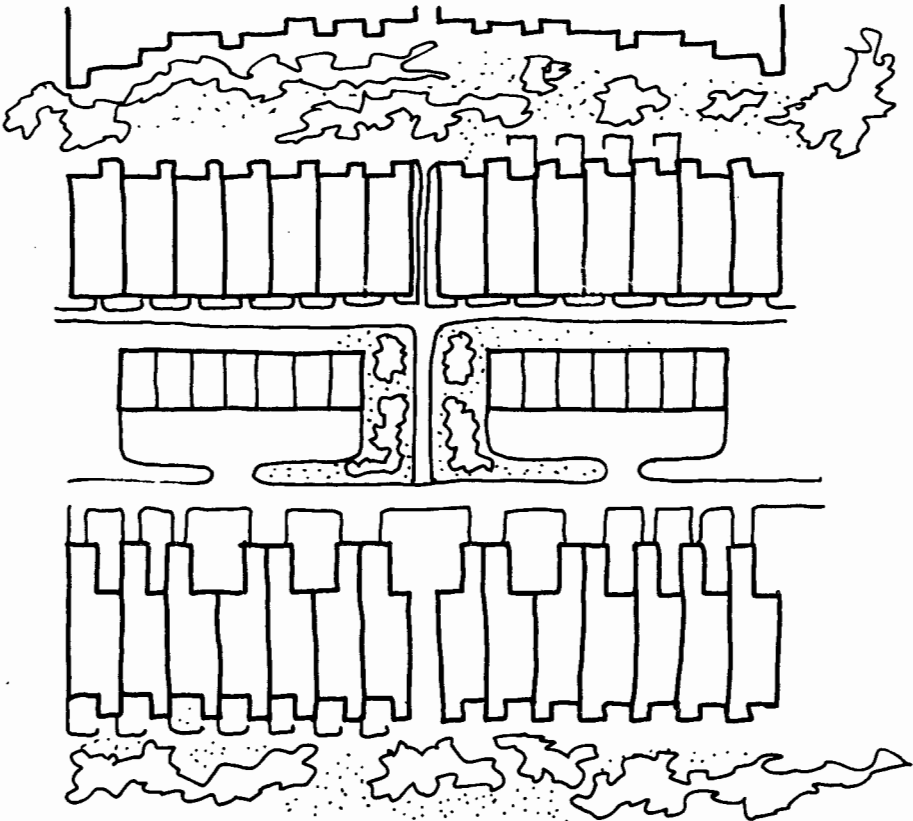


6.2 Semi-detached



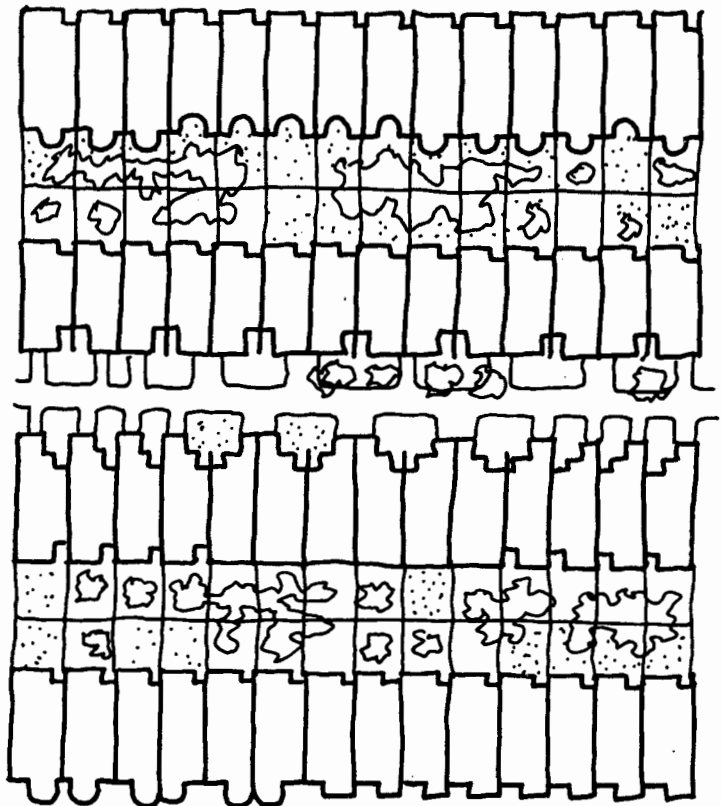


6.3 Patio House

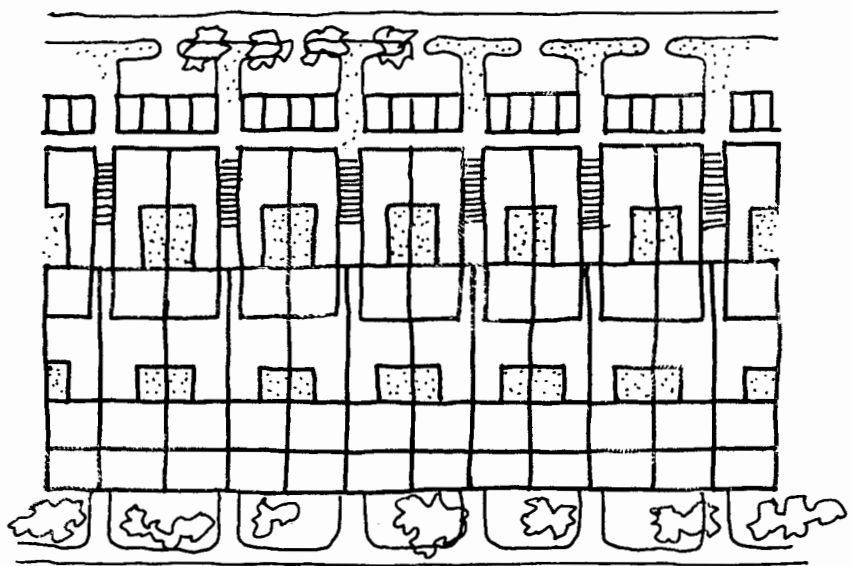


6.4 Row House

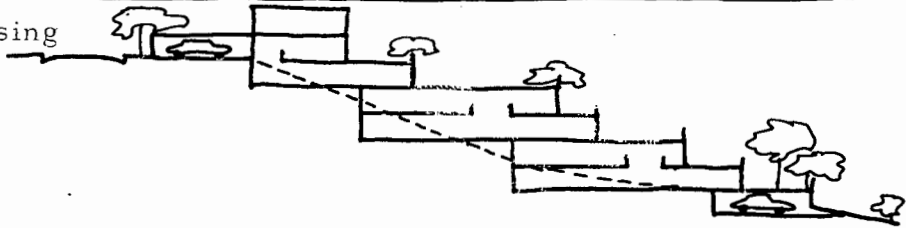


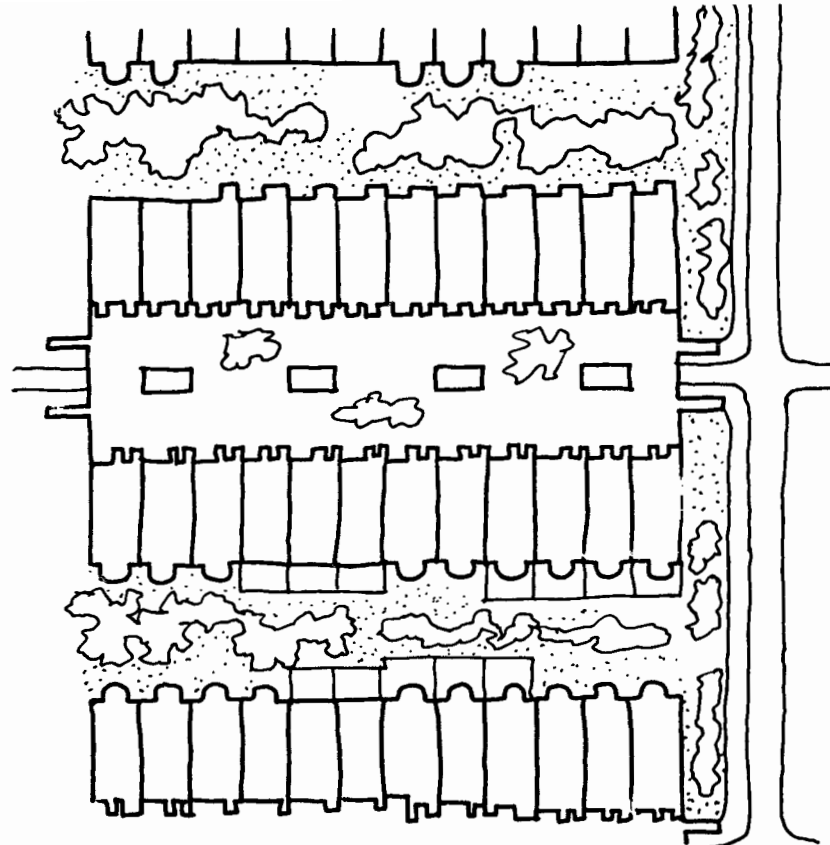


6.5 Town House

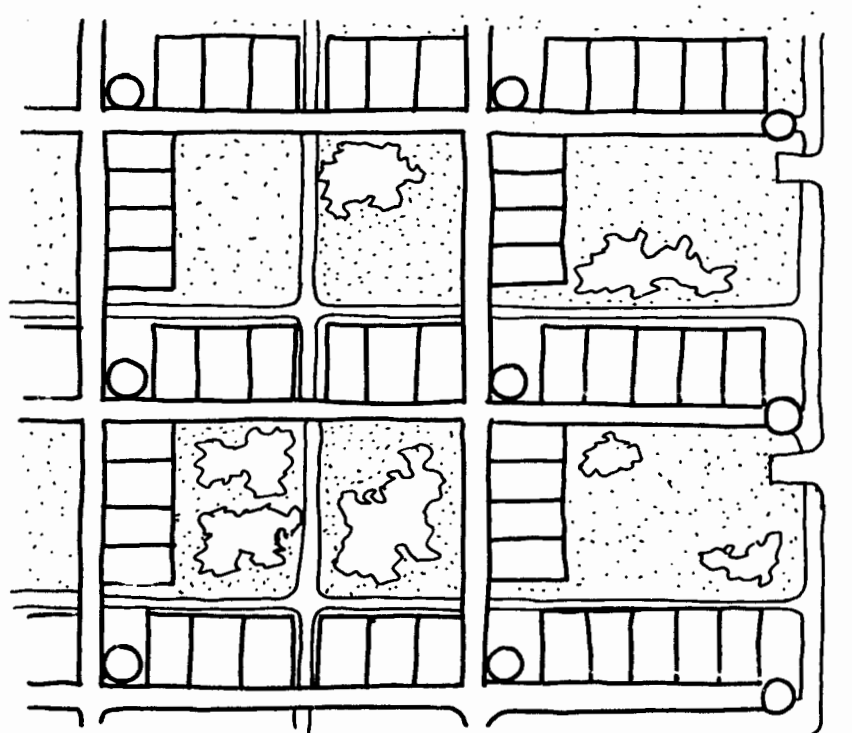
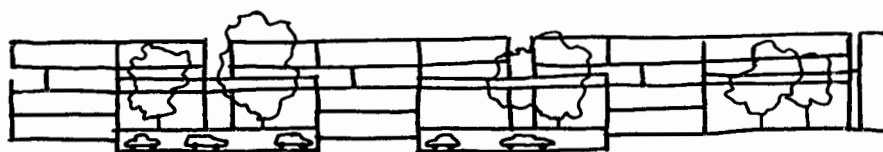


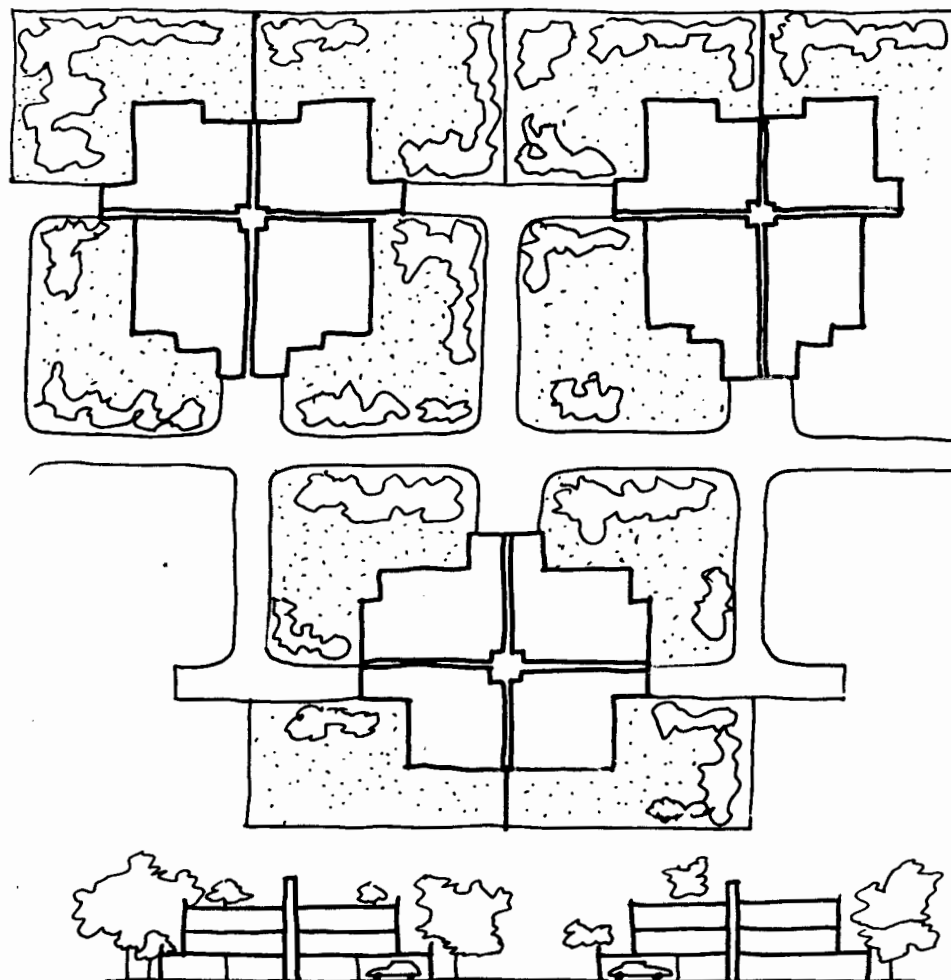
6.6 Stepped Housing



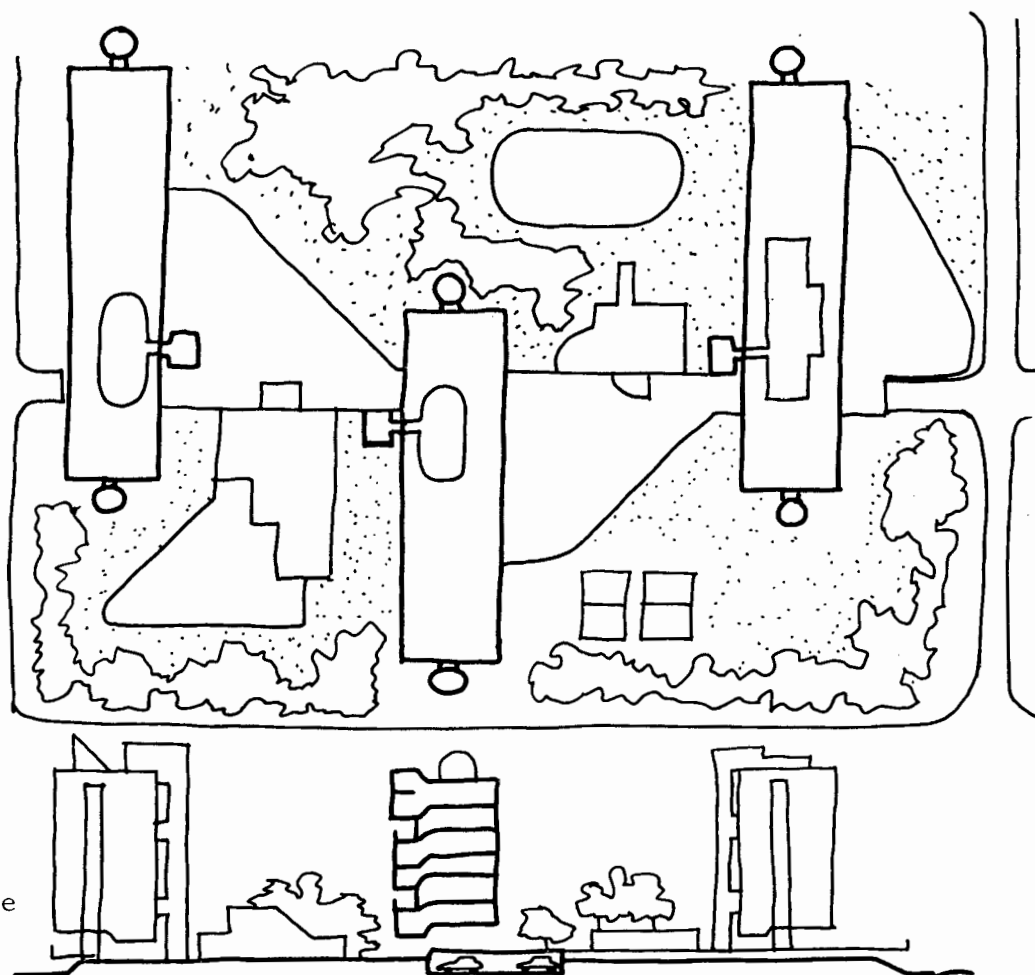


6.7 Maisonettes

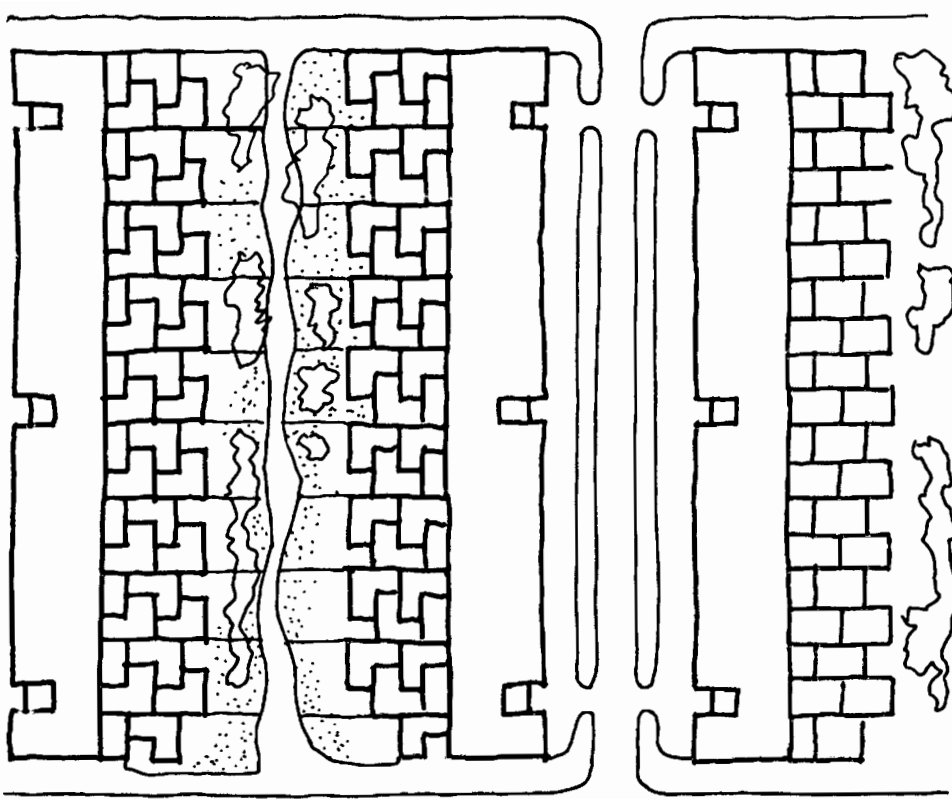
6.8 Low-Rise
Court



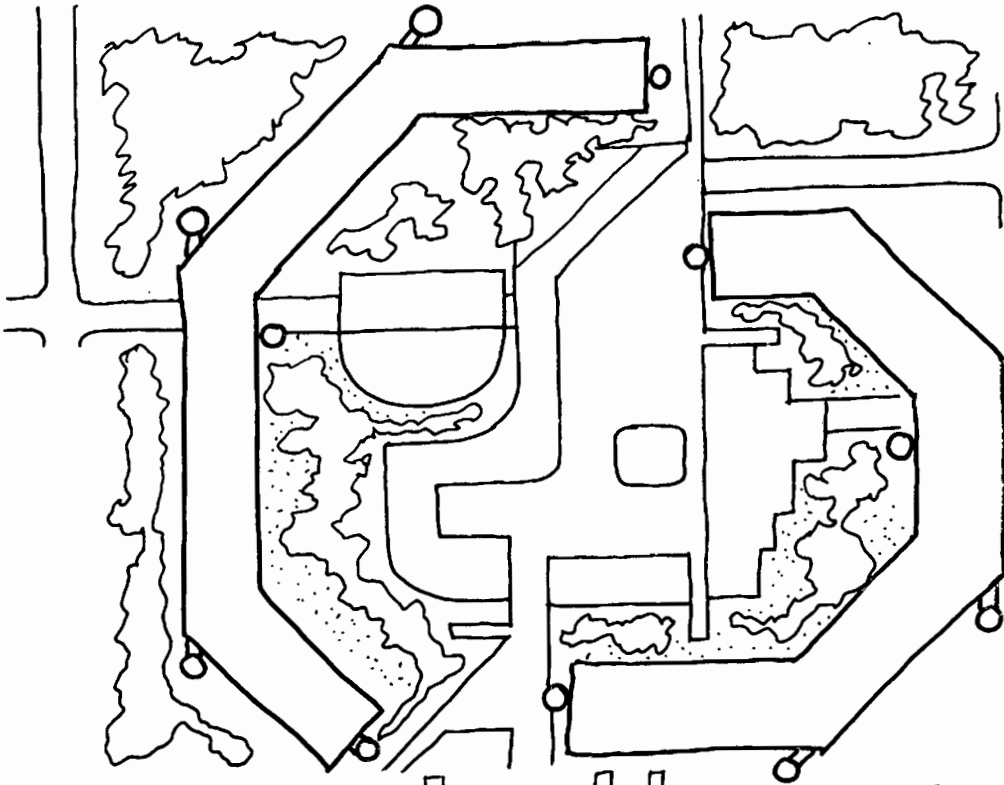
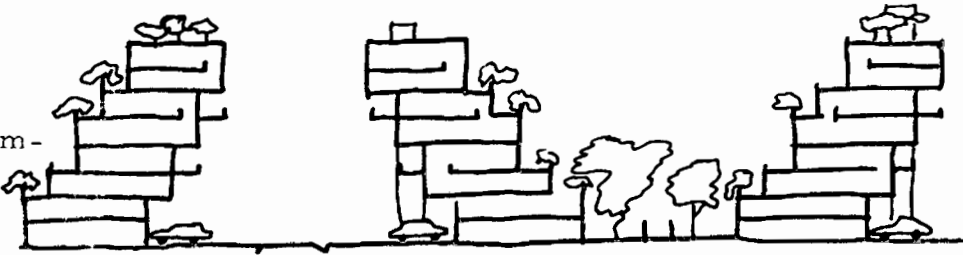
6.9 Low-rise
Cluster



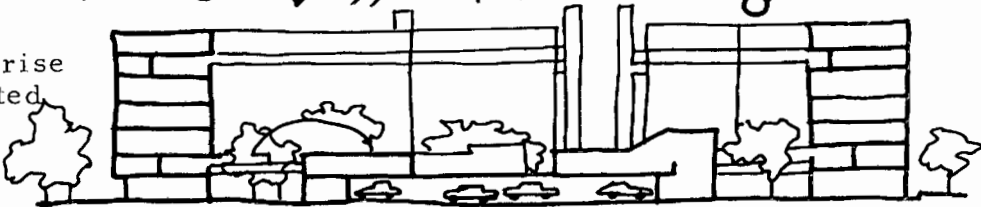
6.10 Medium-rise
Slab

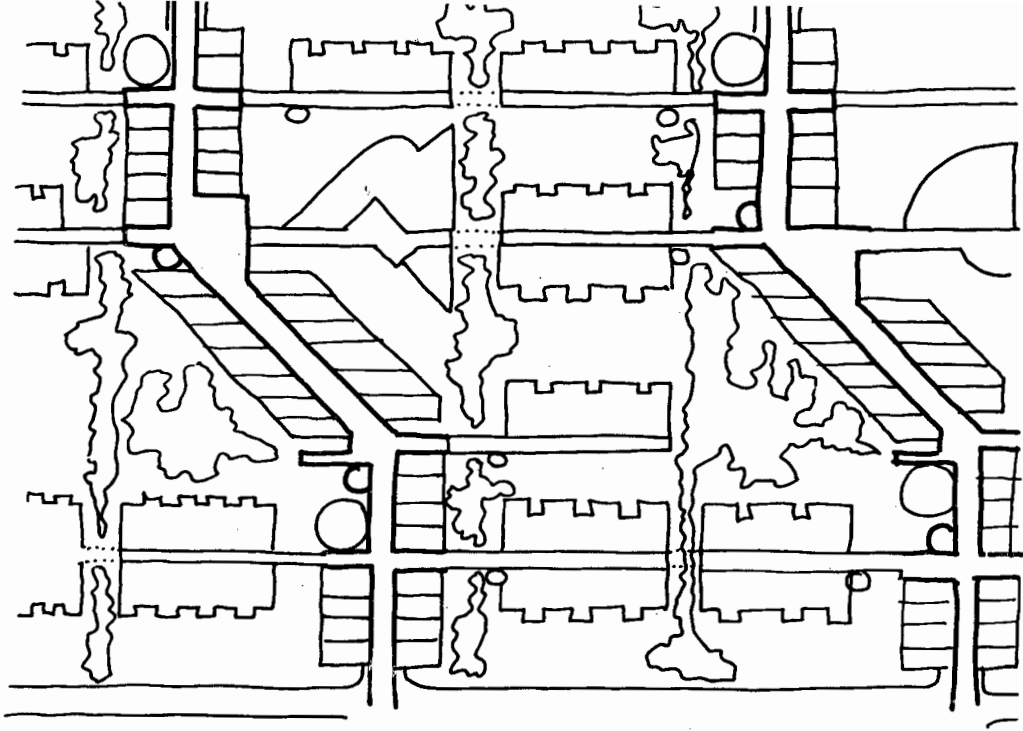


6.11 Medium-rise
Patio

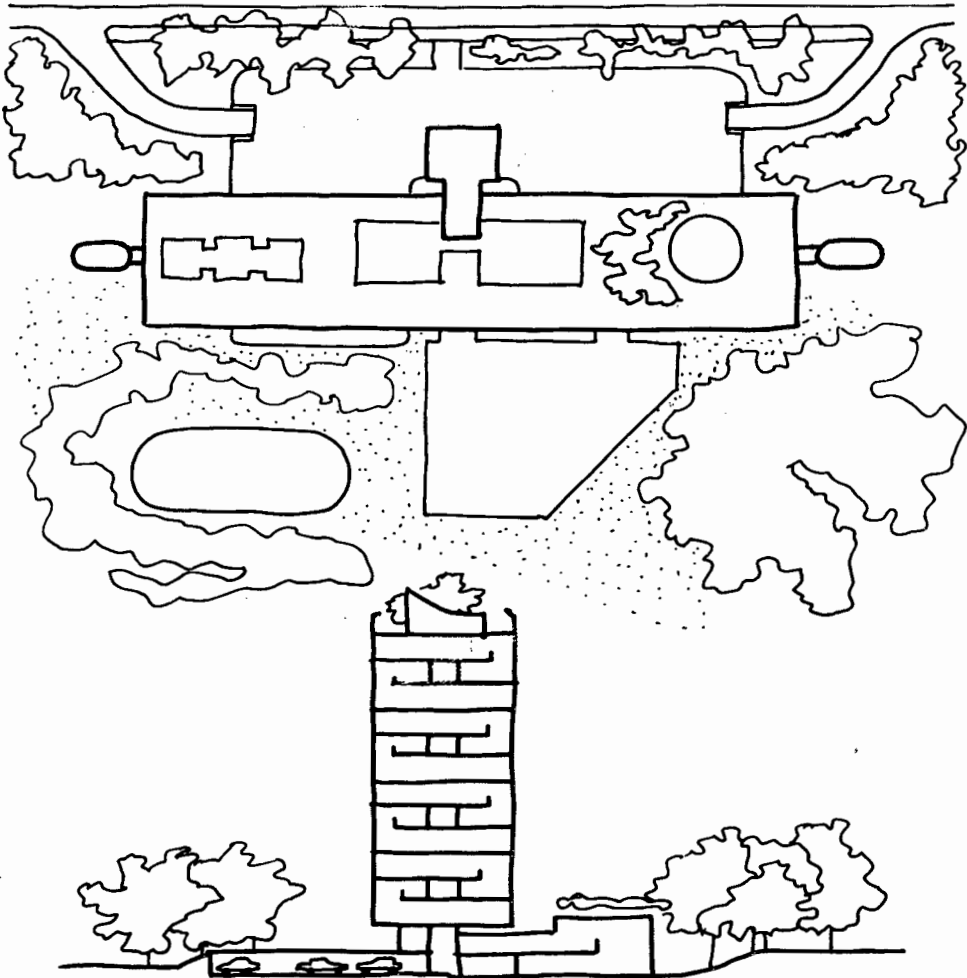
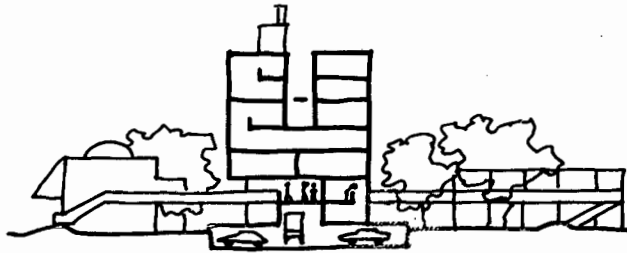


6.12 Medium-rise
Articulated

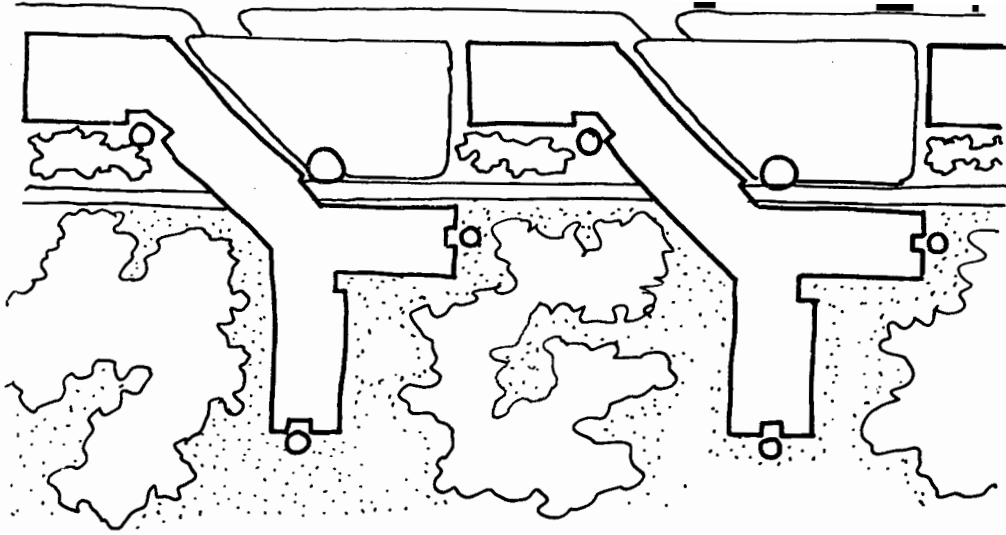




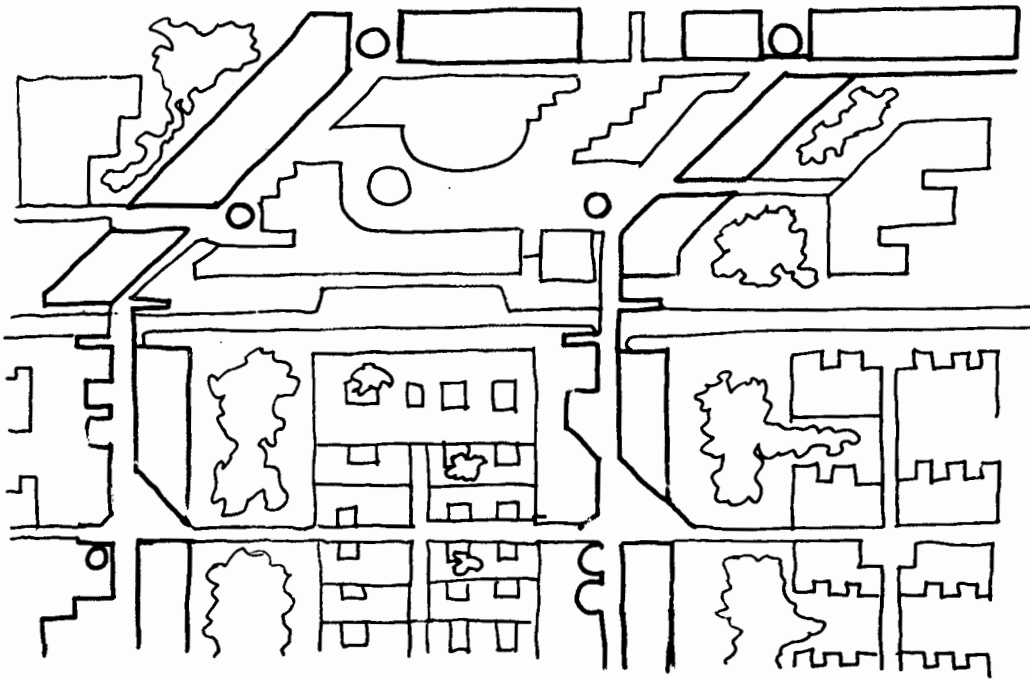
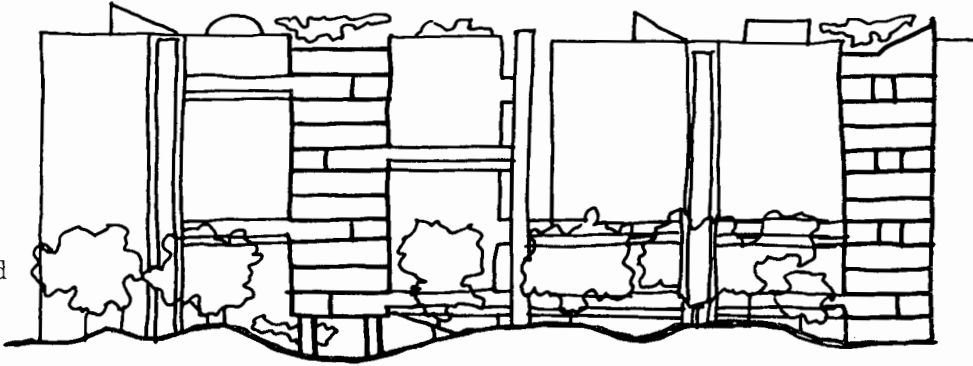
6.13 Medium-rise Cluster



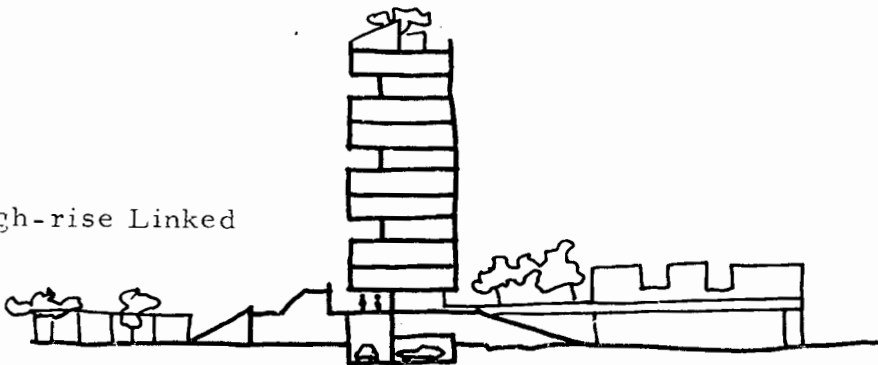
6.14 High-rise Slab

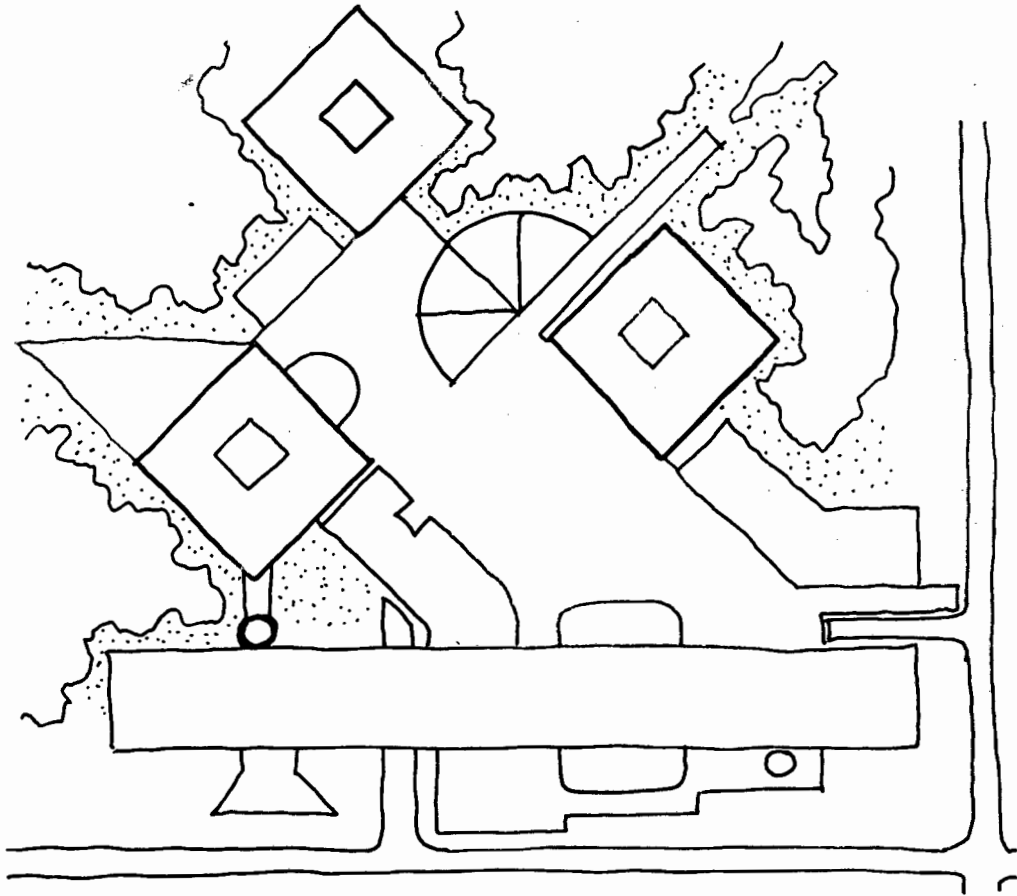


6.15 High-rise
Articulated

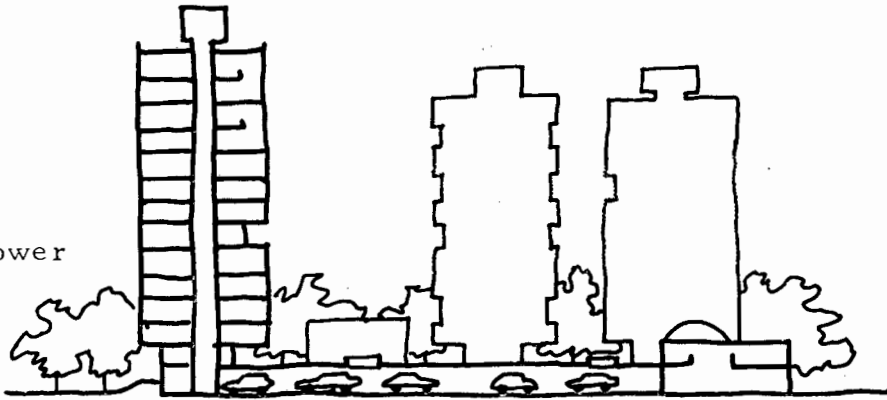


6.16 High-rise Linked



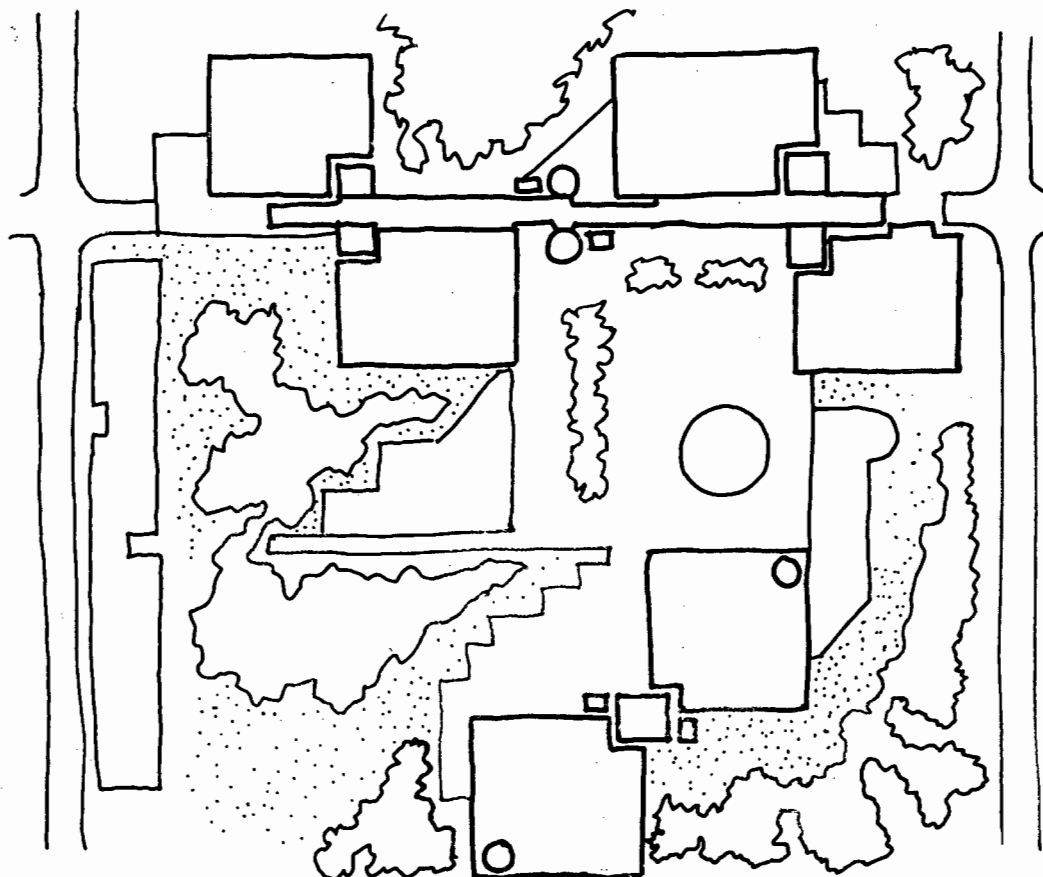


6.17 High-rise Tower

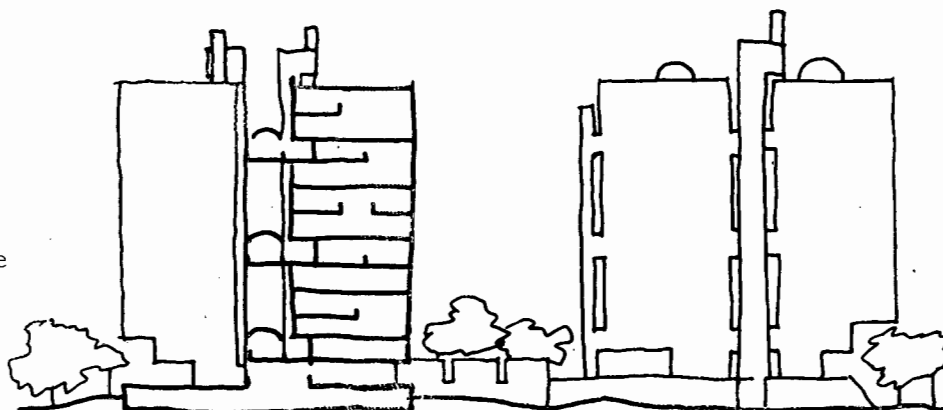


APPENDIX SIX BUILT FORM STUDIES

Source: Urban Design Consultants



6.18 High-rise
Cluster



APPENDIX SIX BUILT FORM STUDIES

Sources: Urban Design Consultants

APPENDIX 7

CAPE TOWN MUNICIPALITY TOWN PLANNING SCHEME REVISED FINAL STATEMENT

Extracts of Major Provisions affecting Residential Buildings

	General Residential											General Business					General Commercial						
Permissable Factors	R											B					C						
	6	1	2	3	4	5	7	8	9	10	11	12	1 ^h	2	3	1	2	3	4	5	4	5	
Coverage	0.75	0.33																	1.0				
Floor Area - Residential	0.4	2.2	1.9	1.2	0.9	0.4	1.2	1.9	5.6	0.6	0.8	1.2		1.9	1.2		1.9	5.6	5.6	5.6	5.6	5.6	
Shops												1.2	3.7		1.2	3.7		5.6	5.6	5.6	5.6	5.6	
Setbacks From Street	50	25	25	15 or .6h			30	15 or .6h	0		15 .6h	s	15 or 6h					0	s	0	s	s	
Res. Bldgs. Common bound.		25	15				30		0			s											
Shops on Street - Ground Floor												0											
1st and 2nd												15	0			15	0						
Shops - common boundary												0											
Maximum Height in storeys	4	9		7			4		80			s	7					80	s	80	s	s	
Parking Requirements	Residential Buildings											3 Bays for every 5 Bedrooms											
	Licenced Hotel											3 Bays for every 5 Bedrooms plus 20 Bays											
																							Minimum width of street 25 C. ft. for all other zones 40 C. ft.

Minimum
width of
street
25 C. ft.
for all
other zones
40 C. ft.

APPENDIX 8 DENSITIES

Part of a review of current attitudes prepared by Revel Fox, March, 1969, in his thesis, 'A Model for an Urban Structure on the Cape Flats

K. Collins in the 'Radiant City' envisaged a density of 1,000 per hectare (slightly less than $2\frac{1}{2}$ acres).

"The large metal animals can be absorbed in very low density areas plenty of trees to conceal and muffle, as well as space, but at normal garden city densities of 30 to 40 persons per acre; the usual Levittown, where town house types need some adaptation if they are not to be overrun, especially with regard to noise intrusion."
(1)

"....we find our nett population densities to be 45 for detached houses, 121 for terraced houses and 166 persons per nett residential acre in the five-storey layout. These figures are not very high when we consider Hillbrow, Johannesburg, with about 600 persons per acre" (2)

"Typical densities in persons per nett acre illustrating broad categories of low level compact housing for comparative purposes could be taken as:

Detached single family houses in a suburban subdivision 15; row housing with front and rear gardens 35; single storey 'L'-shaped court houses with pedestrian access 50; narrow frontage multi-storey row housing on hillside 70; two storey row housing with single garden and pedestrian access 120." (3)

(1) Alison and Peter Smithson, 1968, Page 43

(2) D.M. Calderwood, 1964, Page 51

(3) Serge Chermayeff, and Christopher Alexander, 1966, Page 63

APPENDIX 9 TABLE 9

Source: U.C.T. Redevelopment Survey, 1964, Page 152

The information given on this Tabel does not, in every respect, relate to the latest information collected in this thesis.

	FEMALE RESIDENCES				MALE RESIDENCES			MIXED RESIDENCE
	FULLER HALL	BAXTER HALL	SMUTS HALL	COLLEGE HOUSE	UNIVERSITY HOUSE	OLD DRIEKOPPEN	NEW DRIEKOPPEN	MEDICAL RESIDENCE
STUDENTS	215	200	270	117	85	241	249	89
TUTORS -								
SUB - WARDENS	2	2	0	0	0	4	4	0
WARDEN / family	1	1	3	1	6	4	5	5
EUROPEAN								
FEMALE STAFF	4	4	2	2	2	3	3	2
EUROPEAN								
MALE STAFF	0	0	1	1	1	1	1	1
NON-EUROPEAN								
FEMALE STAFF	14	10	0	0	0	0	0	1
NON-EUROPEAN								
MALE STAFF	8	11	18	16	12	20	20	9
TOTAL NUMBER								
LIVING IN	244	228	241	137	106	273	282	107
CHARS - LAUNDRY	23	17	19	1	9	25	25	14
PORTERS	0	0	4	4	0	1	1	4
TOTAL DAILY								
STAFF	23	17	23	5	9	26	26	28
STUDENT CARS	15	12	85	30	48	73	-	55
STAFF CARS	3	3	5	2	2	2	2	3
TOTAL SITE AREA								
in square feet	85,880	144,160	80,160	65,600	87,720		132,040	
SITE COVERAGE								
in square feet	35,012	44,880	35,117	24,600	19,640		31,880	
TOTAL BUILDING								
AREA, in sq. feet	105,036	134,640	105,351	52,200	19,640		127,520	
BUILDING AREA								
PER PERSON	430	590	440	380	190		455	
OPEN SITE								
in square feet	50,868	89,760	45,043	41,000	67,720		100,160	
OPEN SITE AREA								
PER PERSON	208	393	186	292	640		385	
AREA OF								
STUDENT ROOM	150	90	150	130	110	100		100

APPENDIX 10 TABLE 12

POSTGRADUATE STUDENT PROJECTIONS

GROOTE SCHUUR CAMPUS ONLY

Source: From Records at Bremner Building

FACULTY	1961		1962		1963		1964		1965		1966		1967		1968		1969	
	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P	F	P
Architecture	2	2	2	3	0	1	1	2	2	4	0	41	3	57	5	67	6	63
Arts	45	29	50	29	65	26	45	45	60	40	55	63	62	55	71	70	73	83
Commerce	7	9	28	9	9	2	26	5	25	5	63	12	69	43	89	31	75	21
Education	101	2	71	28	107	1	54	13	129	3	112	3	141	3	98	22	124	2
Engineering	4	16	12	24	12	22	21	37	14	25	15	24	15	28	13	28	32	49
Fine Art	0	1	0	2	0	1	0	2	0	0	0	0	0	0	0	0	0	0
Law	58	79	60	74	60	90	53	82	43	85	40	78	31	79	34	89	39	84
Music	0	2	0	2	0	0	0	0	0	3	0	2	0	3	5	5	2	5
Science	41	46	42	50	42	63	42	80	48	86	53	102	51	122	50	127	56	141
Social Science	0	0	5	0	10	2	0	2	14	2	23	6	18	5	17	3	13	3
	258	186	270	221	305	208	242	268	335	253	361	331	390	395	382	442	420	451
	444		491		513		510		588		692		785		824		871	

APPENDIX 11 TABLE 5

SOUTH AFRICAN UNIVERSITIES

BASIC STATISTICS — GROWTH AND RESIDENCE

		U.C.T.	WITS	RHODES	FORT HARE	STELL.	RAU	P.E.	UNIV. OF THE NORTH	OFS	PRETORIA	
Growth	1965	6000	7127	1543	317	6096	-	320	391	2747	11835*	36376
	1970	8000	9054	1835	613	7656	1191	1114	820	4153	14069**	48495
	1975		11500		1100		2433	1750	1500	5300	-	
	1980		14300		2000		3380	2350	2500	6000		
Own Cars	1970		6000	150	3	2000	-	-	2	2000	-	
Cars Allowed on Campus			750	-	-		420	40%		-	-	
Students in Residence	1960		500	1195	314	2284	-	-	-	981	1100	
	1965	1196	500	1200	303	3005	-	48	100%	1327	1100***	9070
	1970	1196	500	1322	585	3555	-	210	100%	1497	3400	13075
	1975	-	-	-	-	-	653	-	-	-	-	
	1980	-	-	-	-	-	1880	-	-	-	-	

* Includes for 1577 postgraduate students in 1965

** Includes for 1848 postgraduate students in 1970

*** Assumed

TABLE I

(C)

APPENDIX 12- TABLE 1

HOME	FULL-TIME			PART-TIME			TOTAL			MISCELLANEOUS			TOTAL		
	FEMALE	MALE	TOTAL	FEMALE	MALE	TOTAL	FEMALE	MALE	TOTAL	FEMALE	MALE	TOTAL	FEMALE	MALE	TOTAL
1	411	411	822	6	94	100	417	505	922	0	0	0	417	505	922
2	18	18	36	0	0	0	18	18	36	0	0	0	18	18	36
3	12	12	24	0	1	1	12	13	25	0	0	0	12	13	25
4	46	46	92	0	1	1	46	47	93	0	0	0	46	47	93
5	8	8	16	0	1	1	8	9	17	0	0	0	8	9	17
6	85	85	170	0	0	0	85	85	170	0	0	0	85	85	170
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	1	1	2	0	0	0	1	1	2	0	0	0	1	1	2
9	3	3	6	0	0	0	3	3	6	0	0	0	3	3	6
10	15	15	30	0	0	0	15	15	30	0	0	0	15	15	30
11	1	1	2	0	0	0	1	1	2	0	0	0	1	1	2
12	2	2	4	0	0	0	2	2	4	0	0	0	2	2	4
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	1	1	2	0	0	0	1	1	2	0	0	0	1	1	2
16	5	5	10	0	0	0	5	5	10	1	0	1	6	5	11
TOTAL	608	608	1216	6	97	103	614	705	1319	1	0	1	615	705	1320

D)

	AFRIKAANS	ENGLISH	AFR + ENG	NETHER	GERMAN	OTHER	TOTAL
FEMALE	66	1793	90	39	8	68	2064
MALE	254	4184	212	101	57	156	4964
TOTAL	320	5977	302	140	65	224	7028

E)

	AFRIKAANS	ENGLISH	AFR + EN	NETHER	GERMAN	OTHER	TOTAL
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APPENDIX 2 - TABLE 2

TABLE II(A)

AGE	1ST YEAR			2ND YEAR			3RD YEAR			4TH YEAR			5TH YEAR			6TH YEAR		
	F	M	T	F	M	T	F	M	T	F	M	T	F	M	T	F	M	T
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	11	3	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	143	101	244	8	1	9	0	1	1	0	0	0	0	0	0	0	0	0
18	342	379	721	116	78	194	4	1	5	0	0	0	0	0	0	0	0	0
19	109	380	489	241	273	514	75	55	130	0	1	1	0	0	0	0	0	0
20	24	169	193	109	336	445	166	229	395	18	20	38	0	1	1	0	0	0
21	17	71	88	42	209	251	95	268	363	21	81	102	11	8	19	0	1	1
22	8	31	39	11	107	118	27	161	188	11	132	143	9	57	66	5	15	20
23	4	47	51	7	54	61	10	119	129	1	91	92	1	77	78	9	29	38
24	2	24	26	6	31	37	1	47	48	1	41	42	2	28	30	2	37	39
25	27	45	72	42	93	135	18	101	119	3	67	70	2	65	67	3	53	56
TOTAL	687	1250	1937	582	1182	1764	396	902	1378	55	433	488	25	236	261	19	135	154

APPENDIX 2 - TABLE 3

AGE	1ST YR POST			2ND YR POST			HONOURS			MASTERS			DOCTORS			DIPLOMAS		
	F	M	T	F	M	T	F	M	T	F	M	T	F	M	T	F	M	T
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	3	3	0	0	0	6	7	13	0	1	1	0	0	0	24	0	24
21	1	5	6	0	1	1	7	17	24	3	7	10	0	0	0	48	2	50
22	0	5	5	1	7	8	5	22	27	5	24	29	0	1	1	17	8	25
23	1	2	3	0	4	4	1	16	17	5	33	38	1	5	6	10	8	18
24	0	1	1	0	3	3	1	7	8	6	20	26	2	9	11	2	2	4
25	0	3	3	4	18	22	4	17	21	34	175	209	13	117	130	18	45	63
TOTAL	2	19	21	5	33	38	24	86	110	53	260	313	16	132	148	119	65	184

AGE	OCCASIONAL			TOTAL UNDERGRADS			TOTAL POSTGRADS			GRAND TOTAL								
	F	M	T	F	M	T	F	M	T	F	M	T	F	M	T	F	M	T
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	11	3	14	0	0	0	11	3	14	0	0	0	0	0	0
17	3	1	4	151	103	254	0	0	0	154	104	258	0	0	0	0	0	0
18	4	2	6	462	458	920	0	0	0	466	460	926	0	0	0	0	0	0

APPENDIX 12 TABLE 4

AGE	1ST YR POST			2ND YR POST			HONOURS			MASTERS			DOCTORS			DIPLOMAS		
	F	M	T	F	M	T	F	M	T	F	M	T	F	M	T	F	M	T
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	3	3	0	0	0	6	7	13	0	1	1	0	0	0	24	0	24
21	1	5	6	0	1	1	7	17	24	3	7	10	0	0	0	43	2	50
22	0	5	5	1	7	8	5	22	27	5	24	29	0	1	1	17	8	25
23	1	2	3	0	4	4	1	16	17	5	33	38	1	5	6	10	8	18
24	0	1	1	0	3	3	1	7	8	6	20	26	2	9	11	2	2	4
25	0	3	3	4	18	22	4	17	21	34	175	209	13	117	130	18	45	63
TOTAL	2	19	21	5	33	38	24	86	110	53	260	313	16	132	148	119	65	184

AGE	OCCASIONAL			TOTAL UNDERGRADS			TOTAL POSTGRADS			GRAND TOTAL								
	F	M	T	F	M	T	F	M	T	F	M	T	F	M	T	F	M	T
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	11	3	14	0	0	0	11	3	14	0	0	0	0	0	0
17	3	1	4	151	103	254	0	0	0	154	104	258	0	0	0	0	0	0
18	4	2	6	462	458	920	0	0	0	466	460	926	0	0	0	0	0	0
19	2	7	9	425	709	1134	0	0	0	427	716	1143	0	0	0	0	0	0
20	5	5	10	317	755	1072	30	11	41	352	771	1123	0	0	0	0	0	0
21	3	2	5	186	638	824	59	32	91	248	672	920	0	0	0	0	0	0
22	3	14	17	71	503	574	28	67	95	102	584	686	0	0	0	0	0	0
23	3	10	13	32	417	449	18	68	86	53	495	548	0	0	0	0	0	0
24	6	2	8	14	208	222	11	42	53	31	252	283	0	0	0	0	0	0
25	52	100	160	95	424	519	73	375	448	220	907	1127	0	0	0	0	0	0
TOTAL	81	151	232	1764	4218	5982	219	595	814	2064	4964	7028	0	0	0	0	0	0



FIGURE 51 SERVICES

Source: U.C.T. Redevelopment Survey, 1964

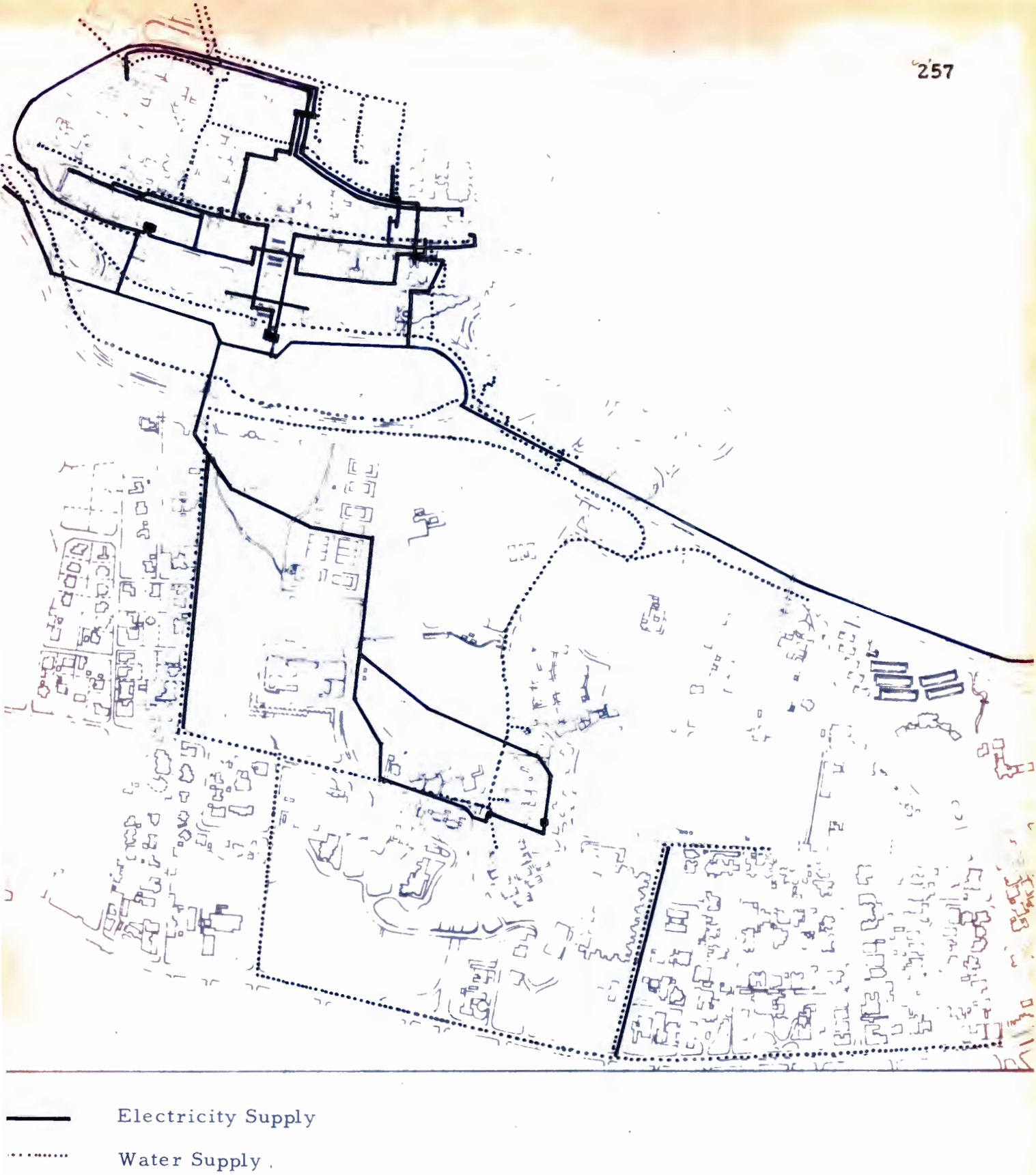


FIGURE 52 SERVICES

Sources: U.C.T. Redevelopment Survey, 1964

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