AN APPLICATION OF THE NATURAL AREA CONCEPT TO EAST LONDON APARTMENT AREAS.

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CHAPTER 1

FOCUS OF THE INVESTIGATION

The world is faced with a population explosion, and cities are becoming ever larger. The world population will grow from its present 3 500 million to more than 7 000 million by the year 2 000. The majority of cities are thus faced with the problem of housing vast numbers of people living in single family dwellings forming low density urban sprawl. Conditions are no different in South Africa where the present white population of about four million is expected to grow to between six and seven million by the year 2 000. The present housing requirement (1970-75) for Whites, based on low and high population projections, is 32 732 and 40 150 houses respectively. From 1995-2000 the figures will have risen to 42 742 and 65 580 respectively. At that rate sprawl here will reach alarming proportions unless it can be curtailed by higher density housing. As the population trend does not seem likely to be reversed the problem lies in how to provide housing for an escalating population but at the same time to reduce urban sprawl and provide satisfactory living conditions.

Paradoxically very little information is available in South Africa on the nature of this specific housing problem. The author's interest in these aspects of urban geography was aroused by articles in the press concerning high density housing. In the South African context, high density housing refers primarily to conditions of high land density. This gives a dense concentration of inhabitants living in a particular locality. Technically, high density refers to buildings with a ratio of total floor area to net site area of 1,0 or more. This will accommodate 200 or more people at 35 to 40 dwelling units per net residential hectare. In contrast, low density refers to the kind of development presently characterising white suburban areas, and which contributes to urban sprawl. Single family houses, each on a plot of 1 000 sq. metres or larger, spread over the city's residential fringes, giving net densities of up to ten dwellings or 45 people per hectare (Pistorius, 1972). Medium density development

falls between these limits and can be achieved by means of closely-packed separate houses, multiple housing units of various kinds, or any combination of these types of housing.

The present importance of multifamily dwellings and the development of group housing is therefore significant, especially in the context of rapidly growing population numbers, coupled with increasing rural/urban drift, and urban sprawl evident in South African metropolitan areas. The perspective of the present study of high density living from a geographical standpoint, is focussed on one particular aspect, namely, low, medium and high rise multifamily dwellings. In this respect a semantic problem immediately becomes evident, and it is therefore necessary to define certain terms in a precise manner at the outset so as to prevent confusion.

Flat. A self contained dwelling unit comprising a suite of rooms, including a private bathroom and kitchen facilities, within a building structure. In addition, the flat should:

(i) have a common entrance to the building or site at street level,

(ii) be located within a building structure of at least two floors in height, and

(iii) also have some common open space.

Apartment. The plural adjective. Thus apartment block refers to a building of at least two floors containing four or more contiguous flats.

Apartment cluster refers to a bunched or grouped spatial distribution of four or more apartment blocks.

Apartment natural area refers to a spatial unit of differentiation, which can be within an apartment cluster, distinguished both by its physical individuality and by the social, economic and cultural characteristics of its population.

Household. Person or persons occupying a single flat, whose domestic economy is governed substantially by one budget.

Permanent residents. Apartment dwellers who have either bought their flat under sharehold occupancy, or rented it on the basis of one month or more notice.

Attention has been focussed on apartment dwelling in particular, because of its potential as an efficient and rational means of land utilisation in order to halt low density sprawl, at the same time as helping fulfil white housing requirements. Today there is a great variety of apartment types possible and as a result, apartment living has been accepted by a wider range of home seekers in many parts of the world. The changing demographic structure of South African whites as elsewhere, has been characterised by the growth of non-family households, i.e. single people living alone or sharing one residential unit. At the same time the cost of single family dwellings has risen markedly. These developments provide an important incentive to supply rental or low cost accommodation to suit the requirements of all potential residents. The reaction of South Africans, with their rural heritage and love of open space, to medium and high density living, forms an important topic for research as this form of housing is becoming incorporated into our urban life style.

The present study focusses on one specific aspect and is concerned with residential differentiation that has occurred within apartment clusters and the degree of satisfaction with their life style evidenced by apartment dwellers. Nevertheless the development of the apartment component should be seen in the context of its role in the total urban system, and in particular the residential system. The particular study area chosen is the Municipal area of East London because a larger survey of the general residential system is being conducted there by the Geography Department at Rhodes University, under the auspices of the I.S.E.R. Close co-operation has been achieved with the East London Municipality and estate agents who are interested in the present patterns that exist and any planning recommendations which may emerge from the study. It is hoped that the study will be useful to them and any others interested in planning East London's future apartment development on the basis of existing structural characteristics recognised in this study.

The need for research into the apartment component in East London was felt as a result of residential expansion expected to come with increasing industrial opportunity which is the key to future growth in the city and region. While East London's future as a growth point seems very much dependant on the success of the Government's decentralisation policy, there is already enough momentum to ensure residential growth in the immediate future. The city is presently sprawling across the Nahoon River to take advantage of the attractive scenic sites at Beacon Bay, Bonza Bay and Dorchester Heights for instance. Residential land is becoming more scarce and traffic problems are rife, so higher density residential development is essential. Fortunately the existing apartment clusters in East London provide a heritage of apartment living and a basis upon which future apartment growth can take place.

The study attempts to fill a serious gap in the knowledge of the nature of South African urban residential areas, and in one particular metropolitan centre, East London. In this respect, it is anticipated that the investigation will lay a firm basis in East London for:

- a future comparative study of temporal changes in the growth and residential stability of existing apartment clusters
- a larger study of residential mobility of multi versus single family dwellers
- a comparison with flats and their residents in other South African cities
- future planning decisions to encourage the growth and development of apartment natural areas which will provide residents with a high level of satisfaction.

This study involves an investigation into the location of blocks of flats, their morphological characteristics, and the socio-economic character of permanent white apartment dwellers in East London. The

general focus is the possible application to apartment areas of the natural area concept as supported by relevant theories of urban structure and change. In this respect therefore, Chapter 2 will deal with the existing theoretical background for a study of this nature, while Chapter 3 places the study area in its national, regional and local context. Together these chapters form the basis on which the hypotheses and aims of the study are formulated. The research objectives and methods used to achieve them are set out in Chapter 4, to provide the foundation for Chapters 5 and 6 which form the general empirical focus of the study. They include detailed results of a spatial analysis of physical and socio-economic characteristics in each of the major apartment clusters, and the characteristics of the natural areas. The final synthesis (Chapter 7) includes planning recommendations for future developments in East London apartment areas and the assessment of hypotheses.

In general people are presumed to be basically similar in their response to residential stressors, and therefore the present study examines apartment dwellers at the individual level to gain insight into the processes behind the patterns of residential differentiation within apartment areas. Overall, therefore, the study attempts to fulfil the need to investigate the apartment component of residential structure in a South African city with a view to contributing to the general theory of residential differentiation.

CHAPTER 2

URBAN RESIDENTIAL STRUCTURE, PROCESS AND CHANGE

This chapter will review both concepts and approaches to the socio-economic structure of cities and the residential decision giving rise to the spatial patterns within them. The basic concern is with the spatial aspects of residential differentiation at both the macro and micro scale. No one contemporary theory or concept approaches a comprehensive overview of residential differentiation as the field is vast, covering many related disciplines. Use is made of conceptual models in order to provide a framework for explaining the spatial structure of natural areas, with particular reference to apartment areas. In addition the micro scale of residential decision making is considered to give complimentary insight into the processes operating behind macro scale models. Finally, a broad survey of empirical studies dealing with apartment living provides a practical link from the theory to the real world problems of apartment dwelling.

2.1 Macro Patterns of Residential Differentiation.

The broader patterns of residential structure refer to the macro scale of spatial generalisation. There are essentially three schools of thought providing the relevant conceptual background to these models. These are the approaches put forward by the early urban ecologists whose work is substantiated by later geographic theorists such as Colby (1933) and certain land economists; the social area analysts; and the factorial ecologists.

2.11 The Urban Ecological Approach

Much of the macro conceptual framework is derived from the pioneering work of the classical human ecologists. In this respect the Chicago school of sociologists as exemplified by the works of Park, (1952), Burgess (1925), and Hoyt (1939) regard the city as a distinct ecological

environment, within which the competitive interaction of the population, as well as its adaptations to the environment could be studied.

Burgess (1925) described in detail the social and physical characteristics of natural areas which he postulated were distributed in concentric zones around a single central city core. (Figure 1). In response to ecological processes, city growth is regarded as taking place outwards, causing zones of increasing socio-economic status to develop as distances from the C.B.D. increases.

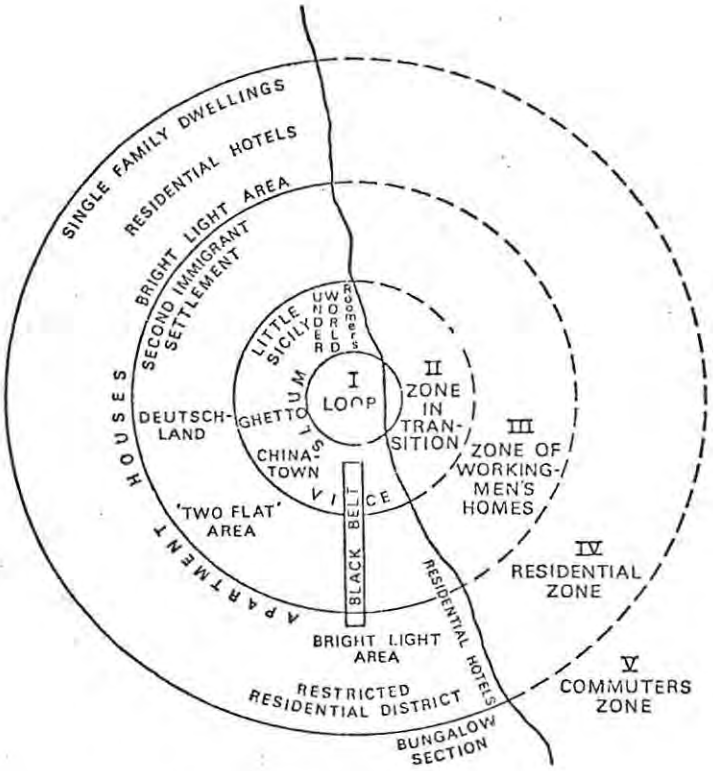


Figure 1. The Burgess Model Applied to Chicago

Source: Johnston (1971, p.75)

Although the concentric zone model is highly simplistic, Colby's hypotheses (1933) support the Burgess model by providing insights into the processes that operate to bring out the zonation. He postulates by stressing advantages of accessibility, that centripetal (attractive) forces retain central city functions. In addition, centrifugal or disruptive forces also act to support Burgess's postulate of increasing socio-economic status with distance from the city centre.

There are of course serious limitations in the concepts of urban development in the concentric zones. Such criticisms were initially generated by Quinn (1940), and are comprehensively reviewed by Carter (1972). In part this led to the development of Hoyt's (1939) sector model which postulates a spatial pattern of sectors of differing socio-economic status along radial communication lines from the city centre. The model is really a sectoral distribution of residential natural areas with certain characteristics. In a recent evaluation of his own model Hoyt (1964) discussed how these idealised patterns become distorted by growth factors, especially with the increased flexibility of location provided by widespread use of the motor car.

Hoyt's study (1939) is based on a sample of 142 United States cities in terms of socio-economic differentiation taking average block rental. Within high rent sectors, rents are found to grade downwards from the periphery to the city centre by a process called filtering. Filtering is therefore a change mechanism implying succession of occupancy of dwellings originally built for higher income families. With age and deterioration, a housing unit usually becomes less desirable to the original occupant, and is abandoned in favour of a newer unit. Thus the lower income households inhabit the older less adequate centrally located dwellings. A basic assumption of filtering is the assumption that housing space is a necessity in itself, but extra housing quality is a luxury, the consumption of which increases with income. The filtering process is reflected spatially in the movement of lower income groups into areas abandoned by groups of higher income, usually immediately adjacent to but farther from the city centre.

Simultaneously with developments outlined above the land economists indirectly contributed to the development of land use theory. Ratcliffe's (1949) model formulates the spatial processes applicable to the location of certain land use types in economic terms. The model states that rent

paying ability of different land use types will force the entrepreneur to extract maximum economic utility from a site. The land use pattern is seen as the adjustment that occurs through the competition of various land uses for different locations, (Figure 2). As apartment blocks are the most intensive form of residential land use, yielding high returns per unit area, their developers are therefore likely to be the most successful residential bidders for expensive land near the city centre or at local focal points.

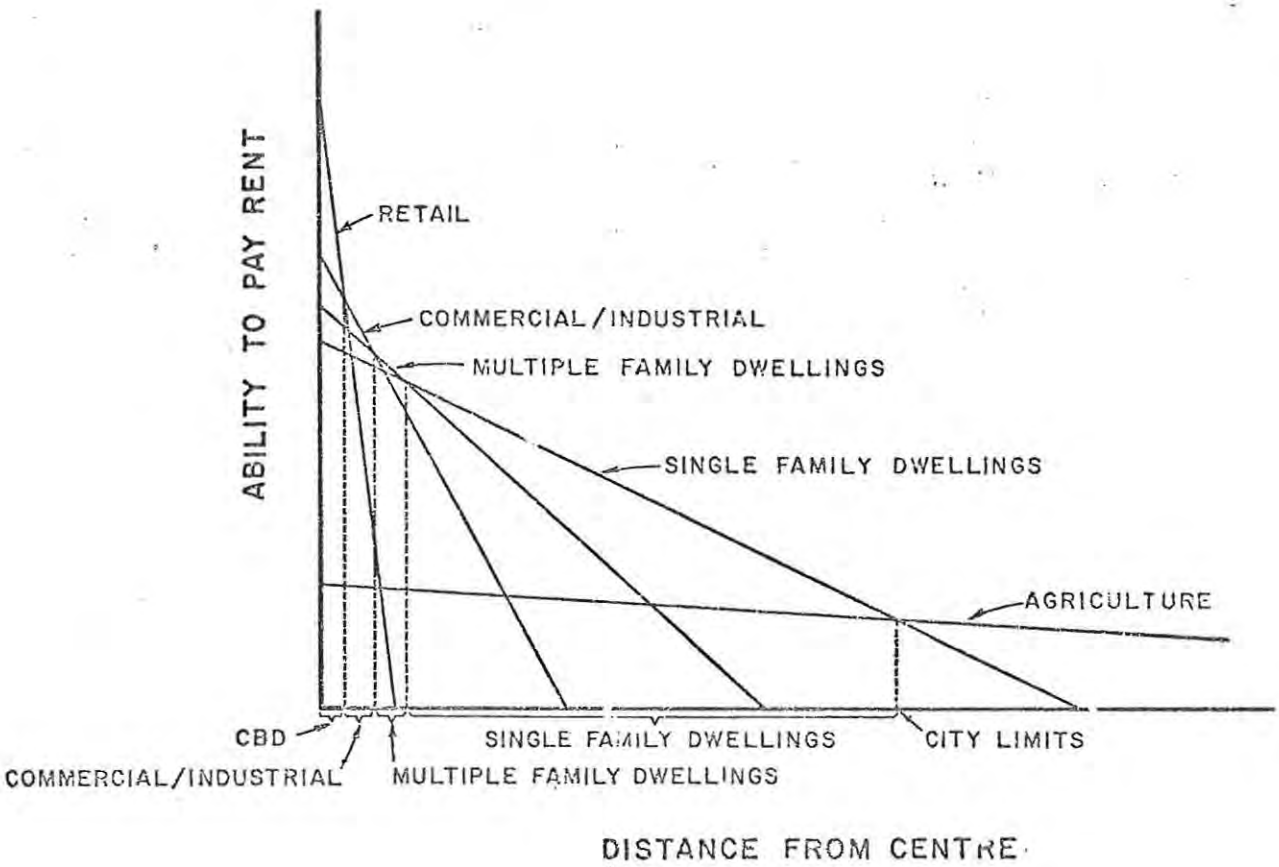


Figure 2. The Bid Rent Model

Source: Carter (1972, p.185)

The above hypotheses are considered by Chapin (1964 p.114) when he outlines the traditional list of ecological growth processes that give rise to urban form: concentration, centralisation, decentralisation, segregation, invasion and succession. In addition economic forces operate within the restraints imposed by zoning laws. The structure and form of the urban area may be regarded as the result of the interaction of these processes as land uses, functions institutions and population groups compete to fulfil or maximise their requirements. In brief, this constitutes the activity systems approach to processes behind differentiation.

The models outlined above, although based on the structure of North American cities, can in broad principle be applied to the white residential sector of a South African city despite its racial duality. The temporal perspective is also required to provide insights into the growth processes that are operative in apartment area development, which is essentially of a speculative nature, in which economic processes can be expected to play an important part. The existence of a central city core with radial lines of communication and even a coastal sector in East London can be compared to Chicago, where the Burgess model was first applied. The higher status residential areas as in Chicago, locate in the 'best' residential sites with coastal views and extend in a sectoral pattern from the C.B.D. It can be expected that East London apartment blocks will show similar distributional patterns.

The Natural Area Concept

In order to know more about the detailed characteristics of the urban residential system, especially those features related to the development of apartment areas, the concept of the natural area may be applied because this type of residential development has a distinct ecological nature and form in that it is high density and occupancy is on a rental basis. The natural area concept, derived from the work of the Chicago school, can provide a useful tool to study residential differentiation.

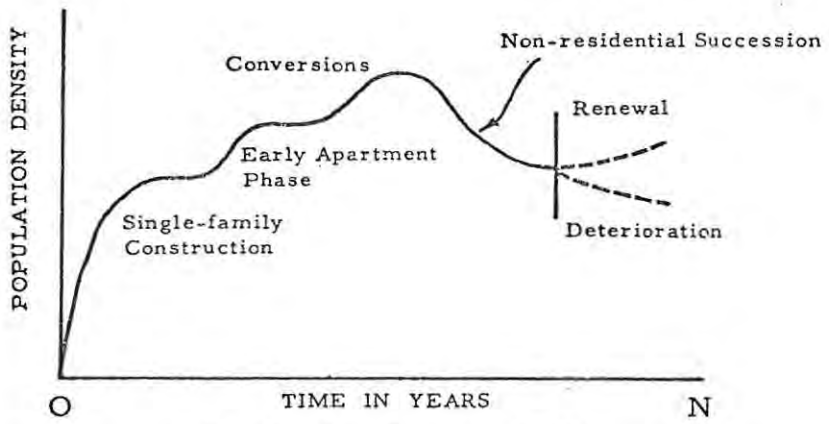
In this approach, the urban population is seen by the human ecologists as a mosaic of homogeneous social areas, or communities each characterised by a particular set of attributes, and each arranged in a particular pattern in geographic space. The concept is controversial and the ambiguities evident in the literature, especially with regard to terminology, have led to criticism. In addition, the work of Morris and Mogey (1965) suggests there has been a decreasing correspondence between social and physical/ morphological groupings in western urban society. To whatever extent this may be operative, the divorce between social behaviour and location should, however, not be exaggerated, especially in the South African context.

In 1964, Burgess defined the natural area as "a territorial unit, whose distinctive characteristics - physical, economic and cultural - are the result of the unplanned operation of ecological and social processes." (Timms, 1971, p.5). Essential dimensions of this definition lie in the stress on the ecological perspective, together with the evolutionary nature of the development. While natural areas can be intuitively defined by using natural boundaries such as rivers, railways and industrial belts, the most objective delineation is achieved by defining areas on the basis of a combination of selected variables. Change within natural areas is seen to occur through ecological processes of invasion and succession. The natural area concept thus becomes an analytical frame whereby relatively homogeneous subareas of similar characteristics can be considered.

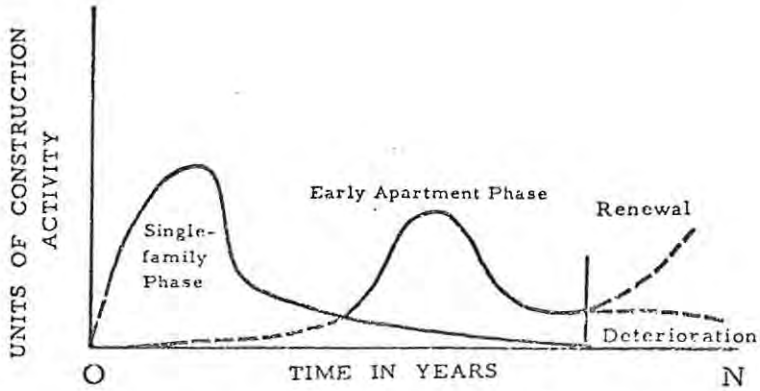
Theories of contemporary land economists provide further insight into the development of natural areas, by introducing the concept of morphological subareas. Implicit in the theories of land economists such as Ratcliffe (1949), and Hoover and Vernon (1962) is the concept of 'townscape typology' or 'morphological plan units' which are related to phases of urban growth. Smailes (1955) critically examined the approaches of urban morphology as such. The relationship between growth and morphology or urban form and function as it is constrained by the existing buildings is stressed. Normally these subareas are considered to have a

certain amount of morphological unity and their similar physical characteristics can be measured by analysis of construction material, type of roofing material, and type of architecture, for instance.

Hoover and Vernon (1962) modified the concept of cycles of structural change in natural areas to take into account two rings of residential growth, one marked by single family housing and the other by apartment development. The authors carry the analogy further as a refinement of the concentric zone concept, and postulate a series of evolutionary stages of natural areas. It is possible therefore to describe a five stage theory and measure the characteristics of each stage (Figure 3).



Population Density Cycle



Construction Cycle

Figure 3. Cycle of Structural Change

Source: Bourne (1967)

The different stages include firstly an initial period of single family construction, characterised by low density, general uniformity of

age and condition; secondly, a period of apartment block construction occurs representing a transitional stage, as population density increases, and new construction fills vacant land and replaces older single family housing. Thirdly a stage of downgrading and deterioration, with limited new construction, but increasing densities as widespread conversion of structures takes place. Fourthly, a thinning process occurs, in which densities begin to decline, as dwellings are abandoned or occupied by non-residential uses, and as household size decreases. Finally, a renewal stage takes place, involving replacement of obsolescent housing, both apartment blocks and single family dwellings, by high rise apartment blocks.

The tendency for a morphological area to move from one stage to the next can be demonstrated and the location and movement of various social and economic groups among morphological subareas in different stages of development can be identified. In this regard Birch (1971) follows Hoover and Verron's lead and defines stages in terms of residential types and population densities. Not all residential areas go through the complete cycle of structural change. Some areas skip certain stages, while in others, the cycle may be arrested by renewal before the full sequence is completed. Nevertheless, these ideas suggest a framework for understanding the changes conditioned by time and growth that occur in the structure of areas. These natural areas may remain stable for relatively long periods and shift quickly to another stage. Because the geographic pattern of ageing indicates that the oldest neighbourhoods are concentrated in the inner city suburbs, these central areas can be expected to have seen most cycles of change.

The contributions of the early urban ecologists provide valuable insights into the study of residential differentiation. The simplicity of the ecological approach despite severe criticism, may be effectively used to order the complexities of socio-economic structure in the present study of apartment blocks and their permanent residents.

2.12 The Social Area Approach

The conceptual gap between urban ecology and the work of the social area analysts is considerably reduced if considered in relation to the views on urbanisation of the sociologist Louis Wirth. Like Burgess, Wirth (1938) describes a massive shift from rural to urban society, but whereas Burgess viewed this change within the finite ecological bounds of the city, Wirth suggests a process of graded transition between the extremes of rural and urban. Accepting this viewpoint, the social area analysts see urban social organisation as reflecting trends in a broad parent society (Shevky and Williams, 1949).

Social area analysis provides a deductive approach by which linkages between social, physical and locational space in the city may be determined. The technique rests upon certain broad conceptual postulates concerning the changing character of modern industrial society. These postulates relate to the way in which urban populations are differentiated. On the basis of these changes, three factors are identified to study a particular social system at any time. The technique used was developed as a method of classifying census tracts according to three indexes: economic status, family life cycle status and ethnic status. Shevky and Williams (1949) first applied the technique to a study of Los Angeles and it was extended in 1955 by Shevky and Bell in a study of San Francisco. By means of these constructs it is possible to identify the social areas in the city, for those tracts which exhibit similar scores can be grouped into relatively uniform social areas.

In the present study, the family life cycle is employed as a general evaluative and classifying concept, although the phases cannot be rigidly identified in all cases, and households can be expected to omit certain stages (Johnston, 1971). Firstly, the fairly short pre-child period has been equated with the head of household under 23 years. The two member family household are likely to be at work most of the day and so demand for space is low relative

to later stages. At this early stage of the male's career his income is likely to be fairly low, and home purchase unlikely. Accessibility to the C.B.D. may be important and the household head may be dedicated to spending much leisure time away from home which is frequently in a cheap central city location. In the second or child-bearing stage household heads are usually aged between 23 and 33 years and the family size increases. Space demands also increase as the wife usually remains at home to raise her children. Accessibility becomes less important and the quality of the local environment crucial especially with regard to provision of private open space. The third or child-rearing phase, approximating to that of household head aged from 33 to 43 years, is when the family size generally stops increasing, children mature and the husband progresses in his career. Home ownership and stability become important features of family life, and frequently a suburban home may be purchased. The fourth child-launching stage frequently occurs between the ages of 43 to 53 years when children are progressing through their teens, and space demands build up again. Real income of household head is often at a maximum. The last stage is the post-child stage when the household head is over 53 years. Family size declines as children leave home. Smaller homes or a flat may be desired by many especially in the older housing stock near the central city, and this involves the process of residential filtering.

Social Area Analysis has been criticised by Hawley and Duncan (1957) mainly for not having a carefully formulated theoretical basis for explaining the typology and because the indexes were deductively selected. (Murdie, 1969). However, by interrelating the concepts of social space and combining them with the notions of classical ecologists, it is possible to provide a framework within which to identify the degree of urban differentiation. The constructs thus form the basis for a more integrated approach to the problem of recognising residential differentiation.

2.13 An Integrated Factorial Ecological Approach

It has been shown that the analysis and identification of social or ecological areas as described above, have derived primarily from the concentric and sector models and the social area analysts, but studies have lacked a comprehensive approach. In order to overcome this limitation, the development of factorial ecological studies is important and is outlined below to show the general principles that have emerged, and the direction of this conceptual contribution.

The term factorial ecology is of recent origin and has been used to describe those analyses of urban spatial structure discussed which employ factor analysis as a technique. Advanced computer technology has made possible multivariate processing of huge data matrices which are characteristic of factorial ecologies. In most instances, the diagnostic data are not chosen with the aim of replicating social area indexes, but rather to isolate those dimensions which could be expected to explain as much as possible of the socio-economic differentiation within urban areas. Data are analysed by census tracts which have a spatial location. The factor analysis technique produces the main dimensions of differentiation in decreasing order of significance. Each factor therefore is a dimension of social space, and factor scores can then be used to classify subareas according to status.

The multidimensional urban structure implicit in the earlier conceptual contributions thus is made explicit by the objective analytic power of factor analysis, and fundamental interrelationships within the residential system can be explained. The technique, despite its statistical limitations, has been used to great advantage in exploratory urban studies for cross cultural ecological comparisons.

Anderson and Egeland's (1961) analysis of the spatial variance of four U.S. cities showed that socio-economic status varied principally by sector; variables measuring the familial characteristics of the population varied by concentric zone, and those isolating a minority group clustered in

specific localities. This paper helped provide the conceptual link between the urban ecological approach and the social area analysts.

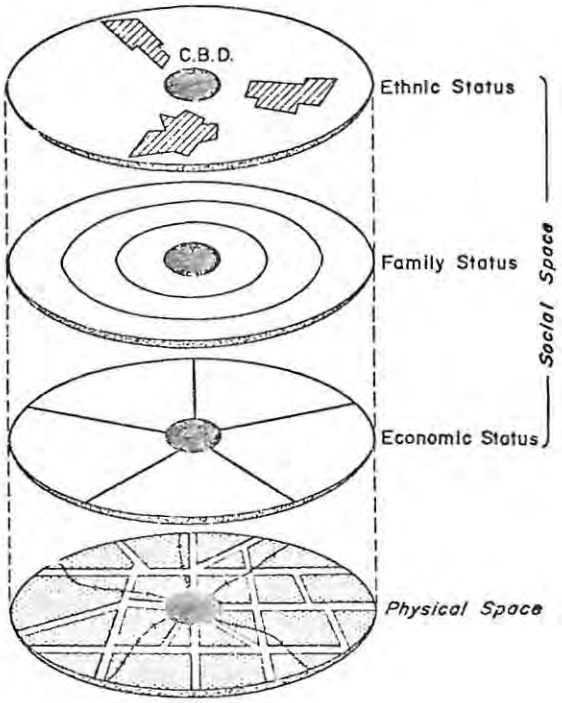


Figure 4. Spatial Model of Ecological Structure and Change

Source: Murdie (1969, p.8)

Further developments include Murdie's model (1969) which described a similar pattern of essential elements in the residential structure and change in a city (Figure 4). Berry and Rees (1968) (Rees, 1970 p.309) through the use of factorial studies, have developed a comprehensive model and confirmed that districts are recognised by socio-economic and family characteristics of their residents and the distribution patterns take the form of a combination of zones and sectors. Together these studies have shown that the model is generally valid for most large industrial cities within the developed nations of the world, and provide "independent, additive contributions to the total socio-economic structuring of city neighbourhoods" (Berry, 1971, p.309). On this basis therefore it would appear that the technique can be applied to a study of one aspect of residential differentiation in a South African city.

2.2 The Micro Approach to Residential Differentiation

The macro-scale of spatial generalisation outlined has taken the natural area, either explicitly or implicitly as the basic unit for analysis. Even this level of generalisation may hide important patterns of variation within the residential system. At the micro-scale therefore the approach covers many related behavioural disciplines and the individual household can be taken as the basic decision making unit responsible for the processes which give rise to the macro patterns. The micro approach thus compliments macro-scale patterns by linking the latter to basic processes. Insight into these processes can be gained by focussing the investigation on the locational behaviour of the individual household, and its response to environmental qualities which in turn, may cause residential mobility. Residential preferences of apartment residents and the stressors leading to intra-urban mobility therefore are pertinent to this study.

Apartment block construction is largely the result of speculative development, and is normally confined to particular zoned areas. The nature and variety of rented apartment accommodation offered, make the location decision pertinent to this study for it is clearly the product of the interaction of the individual demand with the housing supply. The latter, especially in the case of apartment block construction, involves a complex system of decision makers who include among others, builders, speculators, finance companies and estate agents. With rented accommodation in flats especially, it is impossible for tenants to make structural changes to the dwelling unit to satisfy their needs and expectations. For this reason, a study of stress experienced by apartment residents may help to establish the degree of permanency within the natural area.

The conceptual framework is based on Wolpert's adaptation of behavioural theory. In this regard, Brown and Moore (1970) developed the concept of place utility which measures an individual household's level of satisfaction with respect to a given location. Residential mobility is then seen as the adjustment process whereby one residence is substituted

for another of greater place utility to satisfy the needs of the household. The individual household is subject to continuous stimuli from the immediate environment e.g. the dwelling unit and neighbourhood characteristics, location in relation to urban space, viz. shopping centres, recreational facilities etc. Stimuli may constitute stressors caused by differences between the needs and expectations of a household and the qualities of its present location. Such stress may be reduced or maintained at a tolerable level by adjusting household needs or restructuring the environment relative to the household so that it satisfies the household's needs better. The former is the more probable approach to be followed by apartment dwellers, for the latter is not easily possible.

The model of Rees (1970) gives an essentially ecological framework which contains some progression from the residential decision of the individual household to aggregate spatial patterns. In essence the model attempts, comprehensively, to understand the residential location decision process. The model predicts that the individual household achieves a position in social space, which is defined by its socio-economic status and life cycle stage. This position is matched by accommodation of appropriate dimensions, quality and rent constraints, within an equivalent housing space of similar units. This housing space is then located within an equivalent community space broadly defined by socio-economic status and familial characteristics yet containing a mosaic of different subareas. Any one of these natural areas within the same broad zone of community space defined according to the particular household constraints which establish its neighbourhood characteristics, is thus fixed in physical space, and gives rise to the overall spatial patterns.

The residential decision making process is therefore the mechanism by which zones of natural areas are created as the city grows because the aggregative effect of movement by individual households produces geographical patterns of society within the city. Of course, constraints imposed by existing buildings have considerable influence on these patterns.

As a result it must be remembered that subareas tend to retain certain of their physical characteristics even though composition of housing demand may change significantly. In addition some neighbourhoods will change their characteristics to accommodate a change in the composition of the total community's demand. In each case though, neighbourhoods tend to make gradual transitions not abrupt changes (Smith, 1964).

The importance of the micro behavioural approach in its attempt to break down the macro residential process into its basic components is to form a better understanding of the macro spatial system. Herbert (1972, p.19) states that "the scale at which the geographical approach operates is general rather than individual, and is sometimes described as a meso-scale." This being so, the present research strives to make a contribution to the theory by using both macro and micro scales in a complimentary manner within the research programme.

2.3 Survey of Empirical Studies of Apartment Living

In general there is a paucity of geographical studies of apartment block location, or their residents' characteristics. Most of these studies are descriptive summaries of apartment growth or emerge from interest in the social-psychological aspects of high density living. From the previous section it is clear that only very recently have attempts been made to accommodate apartment area growth into the general theory of urban structure.

2.31 International Perspective

Apartment blocks only really became a significant component of the western residential structure in post World War II years. According to the Bank of Nova Scotia Report (1965) there was an apartment boom in Canadian cities for example, as a result of demand built up during the war years. Since the mid fifties, change has occurred, influenced by many forces including advances in technology and resulted in the location of high rise apartment blocks downtown and in the suburbs - a feature which helps to curb urban sprawl.

The reasons behind the apartment block boom include a change in demographic structure of metropolitan areas associated with an increase in non-family households, changes in family size and age structures (Neutze 1968). Economic considerations are also important in that the increased cost of land necessitates more intensive utilisation and rising incomes encourage single family living. In general apartment block development appears to have been affected by processes influencing residential building as a whole.

Apartment blocks in Canada have shown a sustained increase in number especially between 1963 and 1964 until they have overtaken the number of single detached units (Figure 5). Nader (1973) provides further

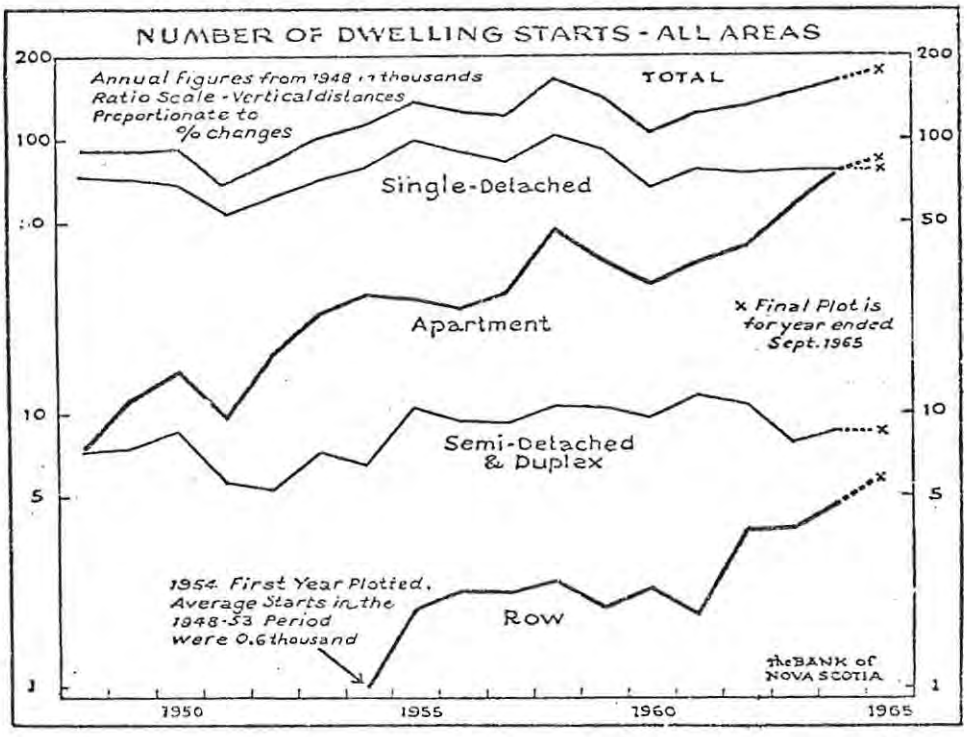


Figure 5. Canadian Apartment Boom 1950-1965

Source: Bank of Nova Scotia (1965)

documentation on the recent growth and apartment block distribution of the Canadian boom in the Prairie Metropolitan areas, while Bourne (1967) has made one of the first attempts to formulate a specific urban theory of apartment block location. His study of redevelopment in the city of Toronto established that apartment buildings formed 33% of the additions

to the housing stock during 1952-1962. He found that a general areal demand for apartment blocks could be related to the physical and socio-economic environment and to accessibility within the urban area. In addition specific site factors allocated redevelopment including apartment buildings among the areas of existing demand, according not only to land availability, but also to the ability to overcome zoning regulations and community resistance. Bourne's findings suggest that such redevelopment is not a necessary correlate of the age of a district's housing stock, and its proximity to the city centre. Instead, apartment development becomes concentrated into a few areas which reflect the channelling effects of zoning on the location of urban land uses, and the tendency for new construction to follow existing land use concentrations and previous directions of growth (Figure 6).

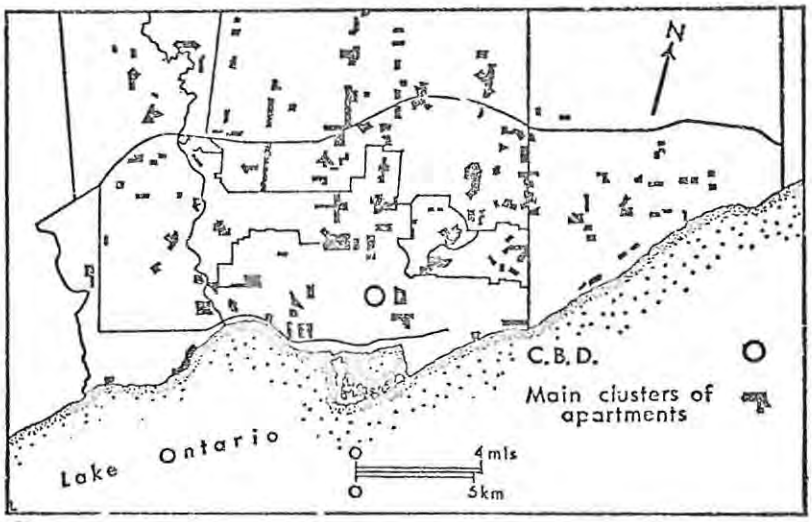


Figure 6. Apartment Blocks in Toronto 1970

Source: Herbert (1972, p.40)

In 1969 Bourne developed a more detailed outline of the processes involved in the spatial patterns of apartment location. He concluded that the decision to build apartment blocks would be affected by the distribution and characteristics of the total existing housing stock; the accessibility of different areas to various nodes of interest or employment centres such as the C.B.D.; the quality of the local building

stock and environmental characteristics which affect the developer's evaluation of location alternatives; the consumer's accessibility to alternative housing opportunities within the urban area, and also the immediate site characteristics which would determine the cost of land purchase.

Bourne (1973) up dated this analysis for the period 1962-71 in order to document any changing spatial controls on apartment construction. As a result he was able to include two additional factors that would affect the decision to erect apartment blocks. These were local demand (by particular ethnic groups or for specific ownership characteristics) and public control i.e. zoning. The latter aspect in particular he felt tended to increase the segregation of apartment areas from other urban environments and therefore he concluded that apartment areas had developed their own character or status not necessarily related to "the social or physical character of their contextual environment". (Bourne 1973, p.411).

In a Toronto study of apartment dwellers, Abu Lughod (1960) was concerned with discovering the characteristics of people who chose the city centre in preference to suburban living (Foote et al. 1960). The central city was defined as an area within ten minutes rapid transportation time from the C.B.D. Abu Lughod was also only concerned with apartment residents who had recently chosen to live in the area, which restricted her to newly constructed apartment blocks.

The findings show that over 32% were unattached individuals and another 38% were childless couples. The majority of those employed downtown were white collar workers, and almost half had incomes exceeding $15 000 annually. The main in-migrants from other parts of the city were older couples who moved from the suburbia. However, in general central city residents appeared to be committed to the good life.

Grossman's (1966) suburban area case study in Montgomery county,

United States was chiefly oriented towards a community planning for apartment blocks. This study demonstrated that apartment dwellers have fewer children of school age per dwelling unit than the single family residences and that personal mobility was a major factor in the apartment boom. Grossman's contribution lay in pointing out how little attention was being given to comprehensive planning of apartment location within its community context and heavily criticised existing zoning techniques in this regard.

Neutze's (1968) national study showed that during the previous decade, apartment building played a prominent part in the total construction in United States Metropolitan Areas and the largest proportion of apartment blocks were built in the suburbs. In contrast to Bourne's Canadian study, he found no evidence of clustering of apartment blocks. In only 16% of the spatial patterns was there a decline in the number of apartment blocks away from the city centre. Neutze suggested that the causes of this suburban apartment development lay in advanced transportation technology which has led to an expanded range of locational choices for residence together with changes in standards and aspirations of urban residents. To some extent this decreased the attractiveness of the central city for apartment building and increased the attraction of the suburban areas and workplaces. Furthermore the freeways helped prevent loss of accessibility to the city. Finally he suggests that the most important attractive feature of apartment living is not the high density nature but rather that flats can be rented.

The contemporary social-psychological interest in high density living is illustrated by Stevenson, Martin and O'Neill's Australian study of family life in flats (1967). The study is essentially sociological in orientation and can only be regarded as of geographical interest in that it helps to understand the factors causing the stressors in apartment life. British studies appear to be mainly sociological (White, 1953, Jephcott, 1971) or concentrate on architectural aspects of apartment buildings (Jensen, 1966).

2.32 South African Perspective.

South African case studies of apartment living too are primarily sociological in orientation but do give some indication of characteristics of apartment dwellers which are relevant to this study. Lever and Schlemmer's (1970) sociological investigation of apartment residents and single family residents in Hillbrow and parts of Berea in Johannesburg emphasised differences between central "flatland" and different types of suburban localities on the basis of the extent and quality of informal social friendships. The results showed only marginal differences between people living in areas of different socio-economic status, and between people living in different types of dwellings. The authors discounted ecological causes for this, suggesting that flats and poorer areas might, for practical reasons, attract larger proportions of people such as widows, who are likely to be socially less well integrated than is normal. When the analysis was limited to flats, their residents were found to have more frequent contacts with friends than people living in houses possibly due to greater opportunities for visiting associated with high density housing. On a general level, feelings of social isolation, although proportionately more prevalent among some people in "flatland" such as widows, only affected small minorities. In 1972, Lever and Wagner showed that high rates of residential mobility also exist in "flatland" where median length of stay was only 12,6 months.

Unterhalter (1972) who studied the characteristics and reactions of Johannesburg residents to apartment life, noted that small families (1,5 children) were typical, and an underrepresentation of children between 5 and 14 years of age was evident. She suggests this is because families live in flats while their children are of pre-school age and move to the suburbs as the children grow older. This conclusion is based on the fact that 73,6% of parents of children under the age of 4 years planned this move. The study therefore also considered the special problems of families with children in the flat, and highlighted the

considerable difficulty experienced by parents and the effect on their satisfaction with regard to apartment life. Only 6,6% of apartment dwellers thought there were no disadvantages to apartment living, and the rest complained of the restriction of space in the flat, the lack of outdoor space or the lack of privacy of parents. In addition, the problem of the curbing of children's activities was noted and in this connection balconies were regarded as too dangerous as child play areas. The lack of gardens surrounding the buildings and the inadequacy of parks in the flatland area were mentioned. Family satisfaction levels appeared to be undermined by child rearing under conditions of the apartment life style.

Residents in flatland were shown to have typical characteristics viz: incomes generally higher than the Johannesburg average; family heads in the three top occupational levels, (68,2%); underrepresentation of skilled and semi-skilled workers (8,6%) and English as the home language (74,3%), despite a high percentage of immigrant families (13%).

Kahn's dynamic study (1973) of the major apartment areas in Johannesburg between 1960 and 1970, made use of factor analysis, and placed considerable emphasis on the planning implications, particularly with regard to provision of social facilities and amenities. He showed that Johannesburg apartment blocks were distributed in a clustered pattern along major arterial systems and around major shopping nodes, and were both centalised in and around the city as well as in the process of decentralising into the suburbs. The clusters differed from each other in population characteristics and form of development. Kahn suggested that the basic processes and patterns of development led to zonal distinctions between the family oriented suburban apartment areas which catered for families in all stages of the life cycle, and the consumer oriented households close to the central city which were only attractive to those households of single persons in early adulthood, childless couples and the older smaller households which had completed the child launching stage. Generally therefore, Kahn found that the apartment areas of Johannesburg occurred

at specific locations, with the characteristics of their residences reflecting the ecological structure of the city as a whole. Kahn also demonstrated that the provision of social facilities and amenities showed serious deficiencies as they only partially reflected the requirements of the population.

In 1972, Du Toit carried out a survey of apartment blocks in Port Elizabeth, using a division of the Municipal Area into five suburban areas for ease of analysis. He dealt with the physical characteristics of apartment blocks, carried out a stratified sample survey of socio-economic characteristics of their residents and tried to assess their residential preferences. The major aim of the survey was to collect information that would be of value in planning of apartment areas.

The largest number of apartment dwellers were found in the North End/ Korsten/Algoa Park areas and not in the Mount Road/Central Area where the highest concentration of flats is found. The former area had the greatest number of pre-school and primary school children, whereas the largest number of high school children was found in the latter area. Overall results showed similar characteristics to those recognised in Johannesburg including the fact that residents were mainly English speaking, the median age of household was 35,6 years, and 70,1% of occupants were white collar workers.

The survey of apartment living has provided the basis from which this study can be developed. Direct comparisons of results obtained in East London can be made with the South African case studies described, to render findings more meaningful and thus extend knowledge of apartment living in South Africa. In addition, it is hoped to indicate future avenues of research into apartment living pertinent to the South African context. The conceptual background presented in this chapter, together with the survey of empirical studies of apartment living, provides a body of theoretical knowledge from which the present study can select relevant aspects to test or support under residential conditions prevailing in East London.

CHAPTER 3

THE EMPIRICAL PERSPECTIVE

It is important to place the present study in perspective within the broader national, regional and local settings so that hypotheses and aims can be framed in their true context. The empirical information should form a firm background, so that the findings of the present study can later be compared with other work on residential patterns in East London.

3.1 East London Regional Setting.

The city of East London, founded in 1847, is a port at the mouth of the Buffalo River, on the south-eastern seaboard of the Republic of South Africa. For the purposes of this study, East London is defined as the 142 square kilometres of Municipal Area, which excludes both the new suburbs across the Nahoon River, and the Berlin Flats industrial area (located 42 kms from East London) which together comprise the metropolitan area. According to the 1970 Census there are 118 298 people living in the Municipal Area of whom 44,7% (52 980) are white, 11,4% (13 211) are coloured, 1,6% (1 994) are Asian, and 42,3% (50 113) are Bantu. East London therefore ranks eleventh in South Africa by size of white population and thirteenth in terms of total population.

Except for a temporary halt at the time of the depression following the Anglo Boer War at the turn of the century, the population of East London has grown steadily (Figure 7). The early years saw the rapid growth of the town as a port, encouraged by the opening of the Kimberley diamond fields. Since then, both total and white population especially have grown at a reduced pace. Industrial development would appear to hold the key to the patterns of East London's population growth. Whether the development of Border industries around the city currently taking place will accelerate this growth, remains to be seen. However it is possible that white industrialists and other migrants with their families may be attracted to the city in the near future in response to a positive industrialisation policy. Housing, especially in the form of rented

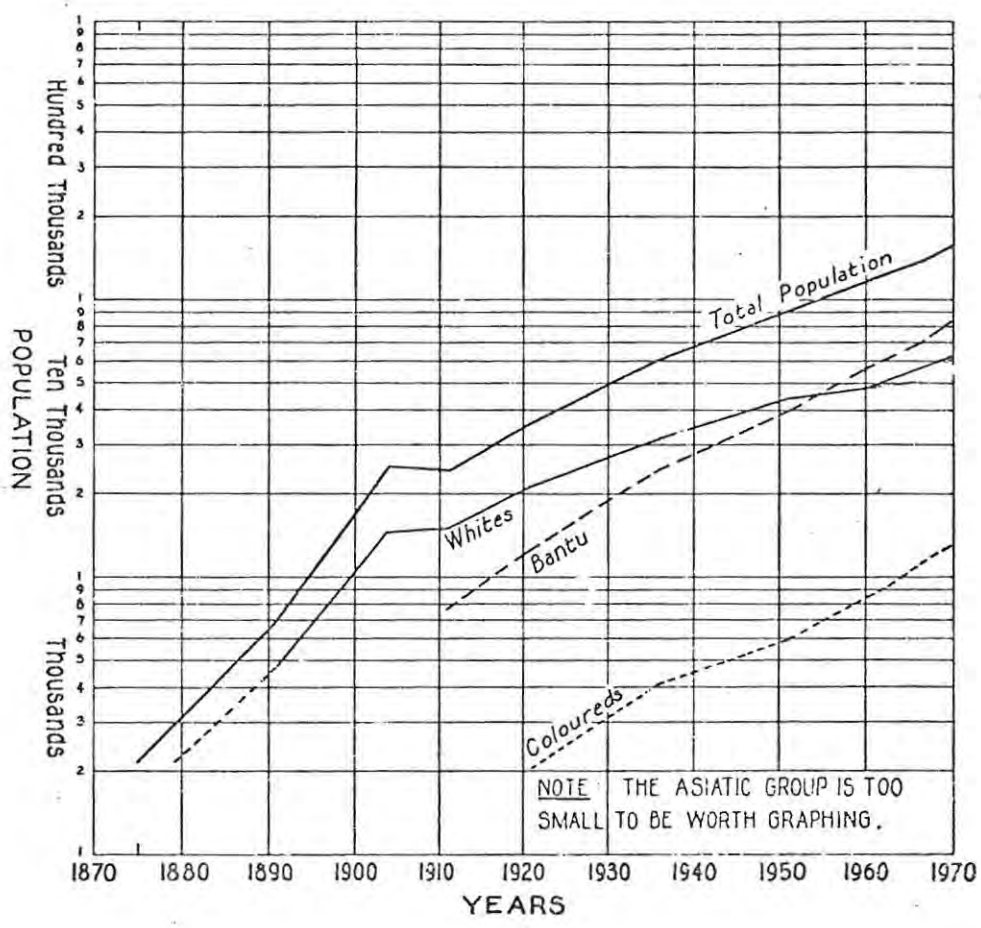


Figure 7. Population Growth: East London Municipal Area 1875-1970.
Source: Adapted from Watts (1970, p. 56).

accommodation needs to be provided for the immediate residential requirements of such people.

In terms of the South African city system, East London ranks in the third level of the metropolitan hierarchy (Davies and Cook, 1968) (Table 4). However within the national space economy, East London is part of the peripheral economic space, weakly integrated with the Witwatersrand core, probably because of the city's marginal location with respect to the three major urban cores around which the national space economy is chiefly organised. East London acts as the service/commercial/finance centre for the Border region, and as gateway to the Transkei and Ciskei Border Development Areas which are economically backward. This hinterland has no important natural resources and is poor agriculturally. Nevertheless,

in its capacity as entrepot port, the city has assumed the central transport, storage, communications and manufacturing functions of the region. This is reflected in the 1970 occupational structure for East London whites (Table 1). However white per capita incomes (Table 2), when compared with other metropolitan areas, are low, and in 1970 only 13,4% earned over R4 000 p.a. This characteristic may be related among other factors to the low level of economic development in the region as a whole. East London whites were somewhat better educated than the South African average at the time of the 1960 Census (Watts, 1970) and today

Table 1. East London Whites: Occupational and Industrial Breakdown.

Occupations	Percentage	Industries	Percentage
Clerical	32,6	Commerce	22,9
Production/Transport	28,0	Transport	22,2
Professional	12,8	Service	21,2
Salesworkers	12.6	Manufacturing	16,0
Service	6,7	Finance	9,3
Administrative	4,8	Construction	6,3
Not classifiable	2,0	Electricity	1,3
Farm/Forestry	0,5	Agriculture	0,6
		Mining	0,2

Source: Population Census (1970)

Reports no. 02-01-05

02-01-04

Table 2. East London: White Incomes.

Rands	Percentage	Rank	1960 Per Capita Income (Rands)	
- 400	10,0	1	Johannesburg	978,3
400-799	10,4	2	Durban	873,6
800-1 199	12,5	3	Cape Town	803,8
1 200-1 599	12,9	4	Port Elizabeth	736,0
1 600-1 999	9,0	5	Germiston	716,2
2 000-2 499	10,6	6	Pretoria	715,8
2 500-2 999	8,4	7	East London	697,2
3 000-3 999	12,5	8	Bloemfontein	669,6
4 000-5 999	7,8			
6 000-9 999	4,3			
10 000 +	1,3			
?	0,3			

Source: Population Census (1970), Watts (1970)

Report no. 02-01-06

more than one third of the white adults are estimated to have passed matric or higher, and some 11% have university training. It is not surprising therefore that the median age of whites is as high as 27 years (Watts 1970) and that the 25-34 year age group is underrepresented possibly because young people are leaving to find job opportunities elsewhere (Watts, 1970).

Two other measures of economic health substantiate the relatively low level of economic development which characterises East London. By value of rates collected, the city ranked sixth in 1965 among the metropolitan areas, and eleventh by value of building plans passed, the absolute amount of which was less than any other metropolitan area. The latter index is a crude measure of progress of building in the city because not all building plans passed result in completed buildings, and because prices are inflated over time. Nevertheless, the general trend, (Figure 8)

despite fluctuations, has been for an annual rise, suggesting a fairly steady increase and the growth rate over the 61 year period averages 2,75% which is close to the 2,67% mean for the total population growth rate over the same period. (Watts, 1970).

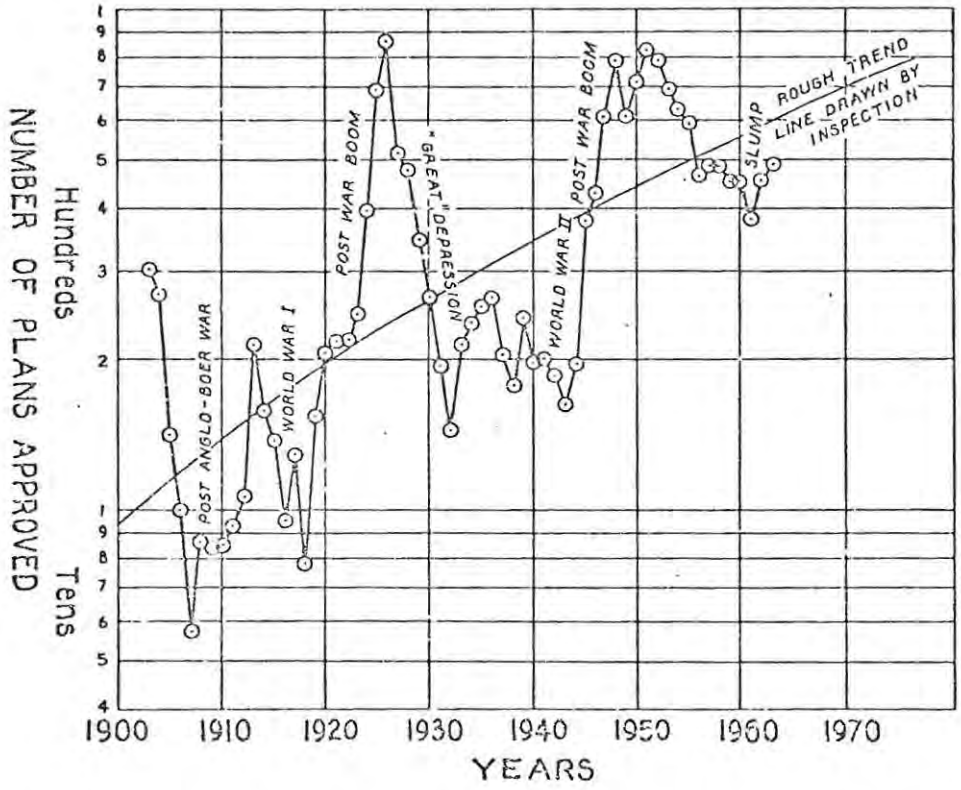


Figure 8. Number of Building Plans Passed: East London 1903-1963.
Source: Watts (1970, p. 61).

3.2 Evolution of Apartment Areas

The low but steadily rising economic level is reflected in the residential sector. Building appears to have taken two forms - that of outer, sprawling residential expansion especially across the Nahoon river outside the Municipal area, and inner increasing density related to intensification of residential uses (Figure 9). Apartment areas can be defined on the basis of the number of apartment blocks, because the study deals with all blocks in the city. For convenience, it was decided to divide the apartment blocks into four broad spatial groups, namely, Central, Quigney, Southernwood/Belgravia and the scattered apartment areas. (Figure 10).

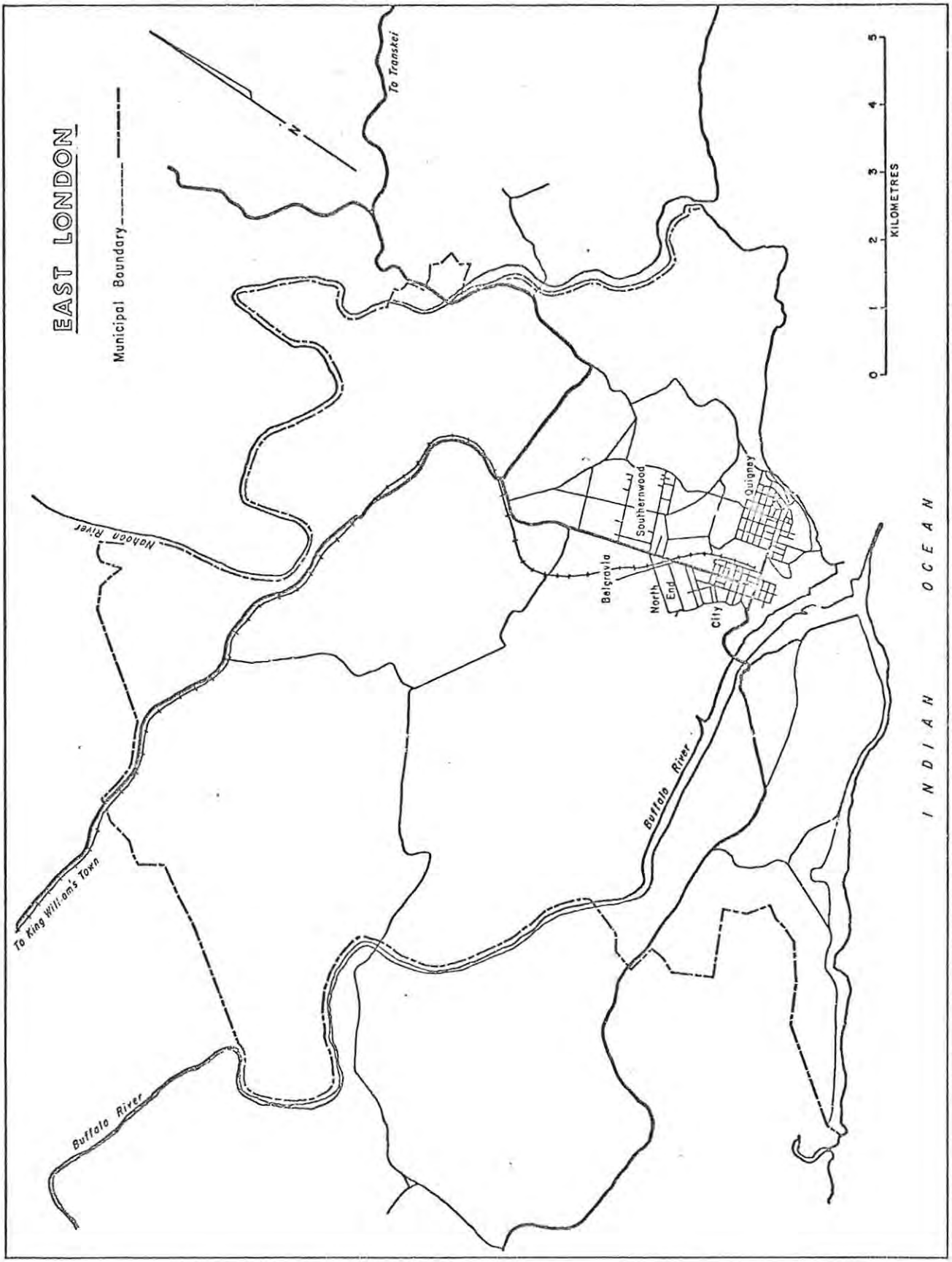


Figure 9. East London: Municipal Area

This increased intensity is a post World War I phenomenon but very little information is available on the detailed development of multifamily residences in the city. The earliest record of the East London Rent Board regarding lodging houses and flats appears in the East London and Frontier Red Book in 1923. The first plan (No: 4769) for a block of flats was approved in August 1923 for a building in Brighton Street in Quigney (Figure 12). The provision of a water borne sewerage scheme for East London evidently opened up the way for the erection of blocks of flats at this time. The first block in Elton street, Southernwood (building plan no. 8114) was approved in November 1928 (Figure 11). In the early days of the Town Planning Scheme, the Quigney was permitted a maximum coverage of 75% for blocks of flats and a height of 80 feet or six storeys whichever was the lesser. This was the equivalent of a maximum bulk of 4,5. The corresponding details for the Southernwood area, including Belgravia, were maximum coverage of 66,6% and a height of 40 feet or three storeys equivalent to a bulk of 2,0. The first records of blocks of flats appear in the 1926 Census when they were included under residential chambers and apartments, i.e. single rooms (Table 3A).

Southernwood and Belgravia were formerly high class residential areas, characterised by large, old, rambling single family houses, many of which are still standing, on large erfs. On the evidence of one old boarding house still in central Southernwood it is suggested that increasing density was related first to house subdivision and the development of boarding houses before apartment blocks were built in this area. Today some of these large old houses have been converted into flats, some with a modern apartment block adjacent to the old house, especially in Belgravia. North End is even older than Southernwood and together with Quigney no doubt showed similar residential development of increasing density. Quigney especially has long been associated with recreation.

It is now possible to consider the growth of apartment blocks in the city over time. Although there has been a much greater increase in the absolute number of houses than flats built from 1926 to 1970 (8 000 houses versus 3 200 flats) the average annual exponential growth rate for flats between

Table 3. East London: Apartment Growth.

Table 3A. Increase in dwelling units 1926-1970.

Year	Houses	Percentage Exponential Growth rate per annum	Flats	Percentage Exponential Growth rate per annum
1926	3 714		83	
		.03		.06
1936	5 253		428	
		.02		.09
1941	5 996		676	
		.01		.07
1946	6 497		959	
		.02		.01
1970	11 695		3 339	

Source: Raw data from: Dwelling, Part 9, Fourth Census (1926); Special Report No: 185 (1946): Sixth Census Vol. 8 (1936): Census and Statistics (1941) Report on Dwellings; Statistical News Release No: 40 (1970).

Table 3B. Number of Flats.

Rooms	1964	1965	1967	1970
One	255	270	290	330
Two	419	433	476	479
Three	938	959	1 029	1 092
Four	401	422	429	464
Five +	78	81	108	98
Total	2 091	2 165	2 332	2 463

Source: Statistics of flats (1970) Reports No: 11-04-01
11-04-02
11-04-03

Table 3C. Number of Apartment Blocks erected 1966-1973

Year	Apartment Blocks		Houses	
	No.	Value in Rands	No.	Value in Rands
1966	8	484 000	126	893 000
1967	11	379 000	132	974 000
1968	17	889 000	177	1 296 000
1969	15	1 274 000	194	1 928 000
1970	4	532 000	168	1 842 000
1971	6	491 000	199	2 235 000
1972	2	88 000	235	2 751 000
1973	5	464 000	265	2 996 000

Source: Bulletin of Statistics
Vol: 3 No: 1 and 2 (1969)
Vol: 7 No: 4 (1973)
Vol: 8 No: 2 (1974)

1921-1926 was twice as rapid as that for houses (Table 3A). This growth pattern is expected with the heritage of single family housing predominant in the city, but does indicate the growing acceptance of the apartment life style over time. It further suggests that flats were immediately acceptable as a form of residential living, although numerically building of multifamily dwellings was overshadowed by single family housing. From 1936-1946 this annual growth rate of flats increased even more rapidly while that of houses decreased again suggesting that the demand for flats was greater than that for houses. However, after 1946, the average exponential growth rate for both houses and flats became very similar indicating possibly that the backlog of multifamily dwelling had been met, and the comparable growth rate probably reflects the rate of household formation.

Table 3B gives a general indication of the absolute increase in different types of flats but is not directly comparable with Table 3A because the 1970 totals do not correspond. Essentially there has been no change in the relative proportions of different sizes of flats over six years suggesting a condition of equilibrium exists between the number of flats in each size group. Therefore the figures which show a varying increase in number of bachelor (1,4%) and five roomed flats (0,2%) and a very slight decrease of about 1% in most other sizes of flats, reflect the adjustment of the apartment sector of the residential system each time the overall ratio is changed in response to local demand. The Table suggests that there is a regular demand for one roomed and three roomed flats, as the number of each shows a steady increase. Du Toit's (1972) study shows that three and four living rooms per flat are structurally cheaper to erect. Between 1965-1967 there was a marked increase in the number of two roomed flats which presumably met the demand for this type of flat, as only three more were built by 1970. The backlog in four roomed flats was made up between 1967 and 1970 when significantly, five-roomed flats actually declined by ten, suggesting demolition of blocks

with large flats or conversion of existing large flats. A possible reason would be that the demand for this type of very large flat has probably been filled.

An indication of the value of completed apartment blocks is available (Table 3C) but unfortunately interpretation is hindered as no figures recording actual number of flats in each block are given. From 1969-1971 when only one, three or four roomed flats were being built (Table 3B), the average value per block was at its highest (1966/67 = R49 082; 1969/71 = R99 922). The apartment blocks may have been large, but they also may have included flats of the luxury type. Since then, the average value of blocks built has been lower (1972/3 = R68 400) despite increased building costs, suggesting possibly that the flats may be for the lower or middle income groups.

A broad perspective is gained from total rateable site valuations of the apartment sector (excluding complexes of flats and shops) which yielded a proportion of 4,7% (R1,8m) of the total municipal rateable site valuations in East London (Municipality, 1974). The proportion for apartment buildings of the total was 9,3%(R14,3m) yielding a total combined apartment site and building valuation of 8,4% of all rateable properties (1974).

The increase in flats has not been scattered throughout the Municipality, for town planning regulations require apartment blocks to be built within general residential zones or above businesses within a limited area zoned for general or special business. Since 1973, group and cluster housing (medium and low density general residential use) has been incorporated into the East London Town Planning Scheme, a feature which may affect the number and type of apartment buildings erected in future. Minimum size of site for apartment blocks is 793 square metres in Southernwood/Belgravia (with a fixed bulk factor of 0,55) and 1,000 square metres for those built in general residential zones in townships approved after 26th April 1966. Height however is unrestricted. Certain additional regulations are imposed on apartment block construction in Southernwood/Belgravia and

Quigney. In both these suburbs, street building lines must be half the height of the building from ground level to wall plate with a minimum of 4,5 metres and a maximum of 9,1 metres. In addition special bulk factor regulations, concerning the ratio of building to land area, controls apartment block density in these two clusters. In the special Beach zone of the Quigney where there is a local height restriction of 25 metres or six storeys, apartment blocks are not permitted to be built without prior consent of both the Council and Administrator.

The effect of zoning in general has been to channel apartment growth within certain areas. However the zoning and associated regulations are sufficiently flexible to allow the operation of free market forces and ecological forces within the zoned areas.

3.3 Characteristics of Apartment Dwellers.

Watts (1970) found that 15% of East London's white population lived in flats, a figure which correlates closely with the national average of 16% or 115 971 South Africans who live in flats within multistorey buildings. Nevertheless East London has more flats than would be expected from the number of households in the city and in 1970 ranked seventh by total number of apartment blocks in South Africa (Table 4). These blocks are much smaller in size on average than is the case in other metropolitan centres (Table 4). Average rentals too, are lower for each size of flat (except those with one room) than in any other metropolitan area (Table 5), and a high proportion 6,1% are rented furnished (Table 5). Such low rentals may be related to the low per capita incomes of East London residents while the proportionately higher rental for one roomed flats, suggests that present demand for this size of flat is greater than supply.

Familial characteristics of East London apartment dwellers show the underrepresentation of younger persons under 25 years, and the much higher proportion (60,2%) over 35 years when compared with all East

Table 4. Metropolitan Centres: Apartment Blocks.

Order of Urban Place*	Metropolitan Centre	1964	1965	1967	1970	Average No. of Flats per block	Average Number of Rooms per Flat
1	Witwatersrand	2 749	2 953	3 104	3 711	16,5	2,3
	a) Johannesburg	2 128	2 275	2 365	2 728	19,8	2,2
	b) Rest of Rand	621	678	739	983	13,3	2,5
2	Cape Town	1 806	1 879	1 958	2 195	15,5	2,7
2	Durban	1 218	1 281	1 368	1 452	19,7	2,3
2	Pretoria	543	586	683	809	25,7	2,2
3	Port Elizabeth	422	471	541	592	15,6	2,8
3	Bloemfontein	176	201	215	241	16,7	2,3
3	Pietermaritzburg	116	117	133	152	15,8	2,6
3	East London	230	244	254	258	9,5	2,8
3	Kimberley	17	18	27	30	13,4	2,4
		7 277	7 750	8 283	9 440		

Source: * Davies and Cook (1968) Statistics of Flats Reports no:
11-04-01 (1952-1965)
11-04-02 (1967-1969)
11-04-03 (1970)

Table 5. Metropolitan Centres: Terms of Occupancy.

Metropolitan Area	Percentage rented		Percentage occupation		Percentage	1 Room	2 Rooms	3 Rooms	Combined
	Unfurnished	Furnished	Caretaker	Other terms	Unoccupied	R	R Average	R Rentals	R
Witwatersrand	92,5	4,7	1,1	1,0	0,7	36,12	51,17	67,09	51,46
Cape Town	84,0	5,5	0,1	10,3	0,2	35,31	45,79	55,97	45,69
Durban	82,0	4,4	0,4	12,6	0,6	37,70	51,49	63,44	50,87
Pretoria	93,8	0,9	0,6	4,6	0,0	35,94	47,34	62,32	48,53
Port Elizabeth	96,4	0,6	0,5	2,1	0,2	37,43	46,47	59,55	47,81
Bloemfontein	97,5	0,7	0,4	0,9	0,5	30,09	44,48	58,57	44,38
Pietermaritzburg	91,1	2,0	0,7	6,1	0,1	28,14	40,37	51,21	39,90
East London	91,6	6,1	0,2	1,5	0,5	32,03	35,35	45,02	37,46
Kimberley	89,0	0,4	1,1	8,8	0,7	32,57	46,24	49,09	42,63
Weighted Average	89,7	3,8	0,7	5,2	0,6				

Source: Statistics of Flats (1970 Report No: 11-04-03.

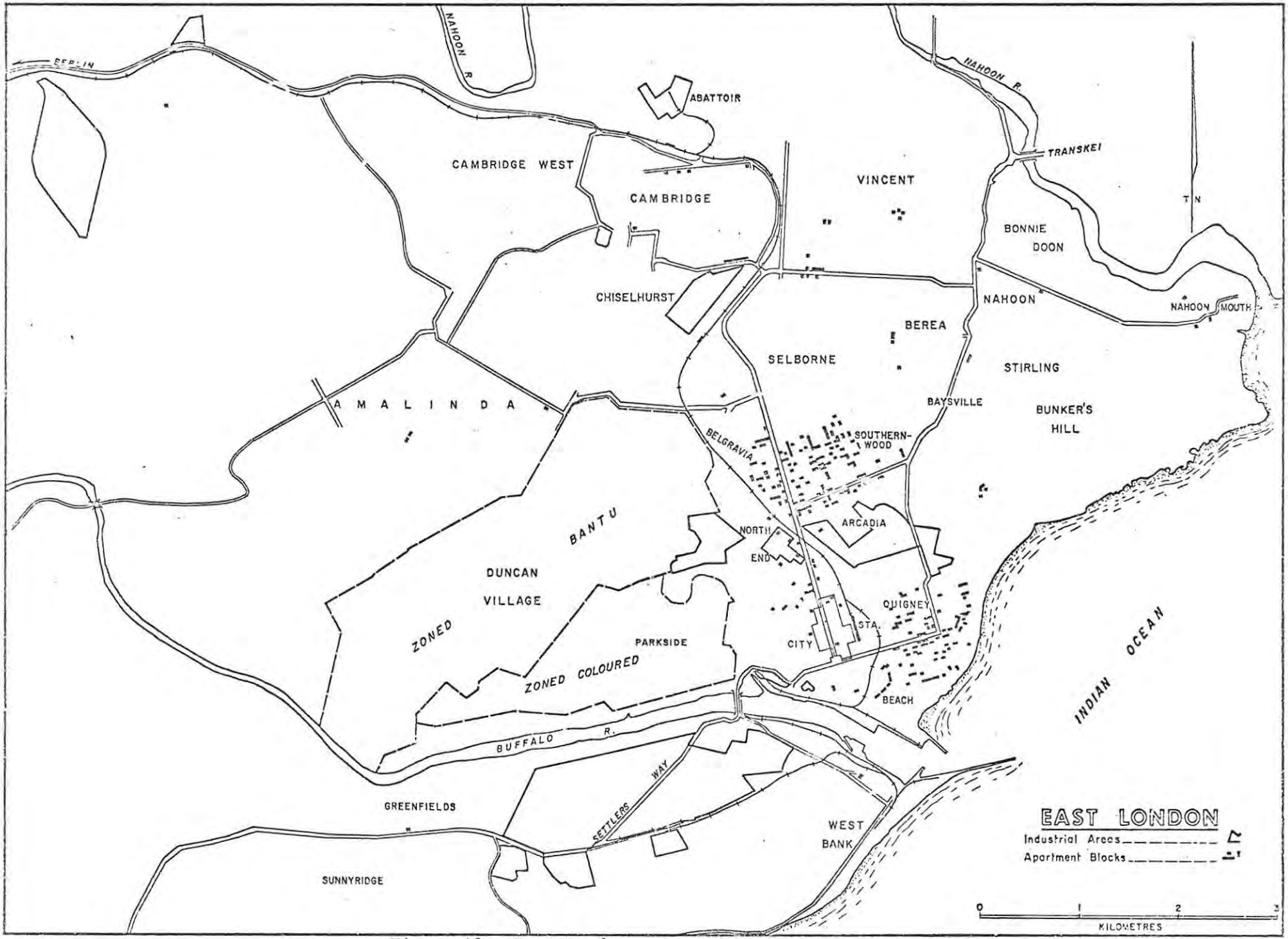


Figure 10. East London: Apartment Block Location

London residents (Table 6). There are also significantly more widowed, divorced, single, and unrelated people sharing flats, than in the city as a whole (Table 6).

Table 6. East London: Social and Familial Characteristics

Age in Years	Percentage		Marital Status	Percentage	
	East London	Apartment Dwellers		East London	Apartment Dwellers
- 25	45,8	13,3	Married	90,7	87
25-29	6,2	17,5	Widowed	5,8	7,4
30-34	6,2	9,0	Single	0,9	1,2
35-44	10,6	12,7	Divorced	1,9	3,2
45-54	11,0	14,2	Sharing	0,7	1,2
55-64	10,4	17,1			
65 +	9,8	16,2			

Source: Population Census (1970)

Reports no: 02-03-02

02-01-01

02-01-04

3.4 Apartment Area Distribution Patterns.

The general pattern of residential distribution of flats by suburb within the Municipal Area, and the relationship to industrial and zoned areas is reflected in Table 7 and Figure 10. As expected the apartment blocks are strongly clustered and there is a gradual decrease in the proportion of flats to total dwellings outward from the city centre. In very broad terms, it is possible to apply the models of residential differentiation to the location of apartment blocks in East London.

In the first place, there is a single central core, delimited by Cook (1971). This is dominated by the main commercial ribbon, Oxford street. The C.B.D. is immature, and linear shaped, without a hard core. Although storage is the main first floor use, residential uses especially flats

Table 7. East London: Population and Residential Distribution.

Suburb	Total White Population	Total households	Total Dwellings	Number of flats	% Flats of Total Dwellings
Southernwood	5 641	1 483	1 672	1 175	70
City	1 570	386	433	280	65
Belgravia	2 120	392	474	304	64
Beach	2 592	592	572	363	63
Quigney	5 457	1 106	1 159	600	52
Chiselhurst	1 034	282	276	73	26
Nahoon Mouth	715	179	186	35	19
Baysville	1 464	325	340	60	18
Arcadia	265	85	84	12	14
North End	1 268	887	703	74	11
Berea	1 323	356	389	34	9
Stirling	972	265	267	24	9
Nahoon	1 373	356	360	21	6
Vincent	5 574	1 445	1 471	83	6
West Bank	1 961	463	440	15	3
Bonnie Doon	1 230	316	320	10	3
Bunker's Hill	435	106	103	3	3
Sunnyridge	1 464	353	350	6	2
Selborne	1 463	351	375	8	2
Cambridge	6 112	1 491	1,467	35	2
Greenfields	1 034	251	247	2	1
Other suburbs	8 418	2 082	2,004	31	1,5
Total	53 485	15 656	15 276	3 339	22

Source: Population Census (1970), Statistical News Release No. 40 and 29.

predominate at higher levels forming the only type of use in some of the taller blocks. Of all the 433 dwellings in the C.B.D. 65% are flats, (280 flats), located in medium and high rise blocks.

Adjacent to the core is a deteriorated zone which includes the suburbs of North End, physically an extension of the C.B.D., and Arcadia, both light industrial areas. North End, an area of mixed race and land uses,

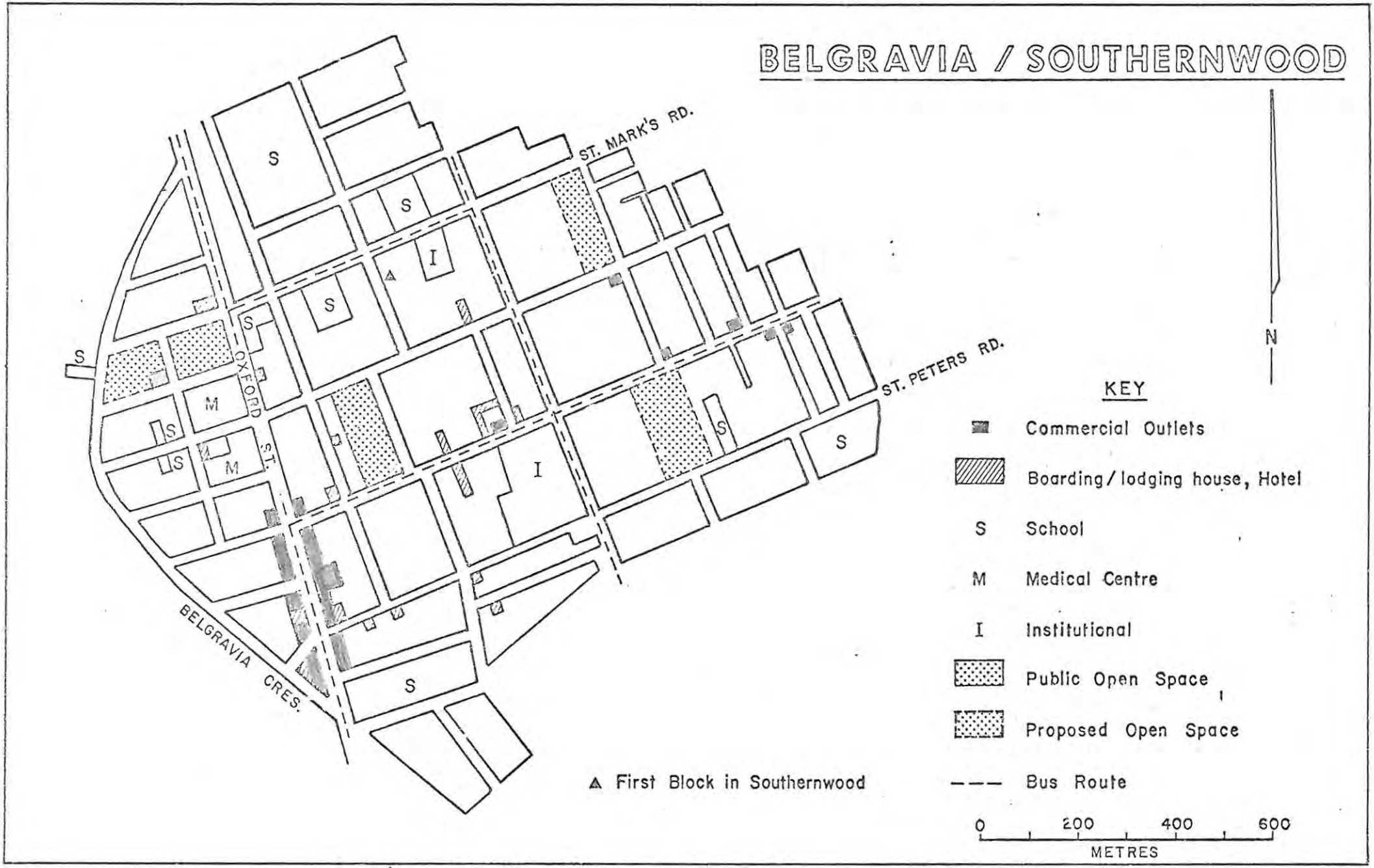


Figure 11. Southernwood/Belgravia: Selected Land Use

has only 11% (74)flats out of 703 dwellings most of which are deteriorated. The region's character is set by the fact that the important route, Braeside Road, gives access to non-white and low income white townships in the northwest, and it has been declared a renewal area by the Department of Community Development on the recommendation of the Municipality. Arcadia has more light industry than North End and a limited residential function (12 of 84 dwellings are flats).

Beyond this deteriorated zone are two spatially compact apartment clusters in what may be regarded as East London's inner residential area. These are the Southernwood/Belgravia cluster, to the north of the C.B.D. where 51,3% of all flats in East London are found, and the Quigney/Beach cluster, located to the south-east of the C.B.D., which has 28,8% of the flats. High demand for residential land in these areas close to the C.B.D. has probably encouraged the intensive land utilisation which has given rise to these clusters of high density settlement.

The Southernwood/Belgravia cluster is located north of the C.B.D. to which it has immediate access via Oxford Street (Figure 11). The entire area slopes towards the east and south-east, with natural boundaries formed by the railway on the west; the waterworks barrier and institutional land uses to the north; the steeper gradient to the east, and the institutional and open space barriers and steep gradient (Thorburn Terrace) to the south. Southernwood and Belgravia flats respectively constitute 70% (1 175 flats) and 64% (304 flats) of the total residential units in each suburb. To a certain extent the Oxford street artery, with the medical centre and shops further south, separates Southernwood from Belgravia. Neither of these suburbs have many other shopping outlets. The only provision of open space in Southernwood is St George's Park, while there is a maintained park in Belgravia between St Mark's and St Luke's Road (Figure 11).

The Quigney/Beach apartment cluster forms a single unit (Figure 12) and is naturally bounded by the sea to the east; by the cemetery and railway reserve to the north and west; and by a steep gradient, Signal Hill, and

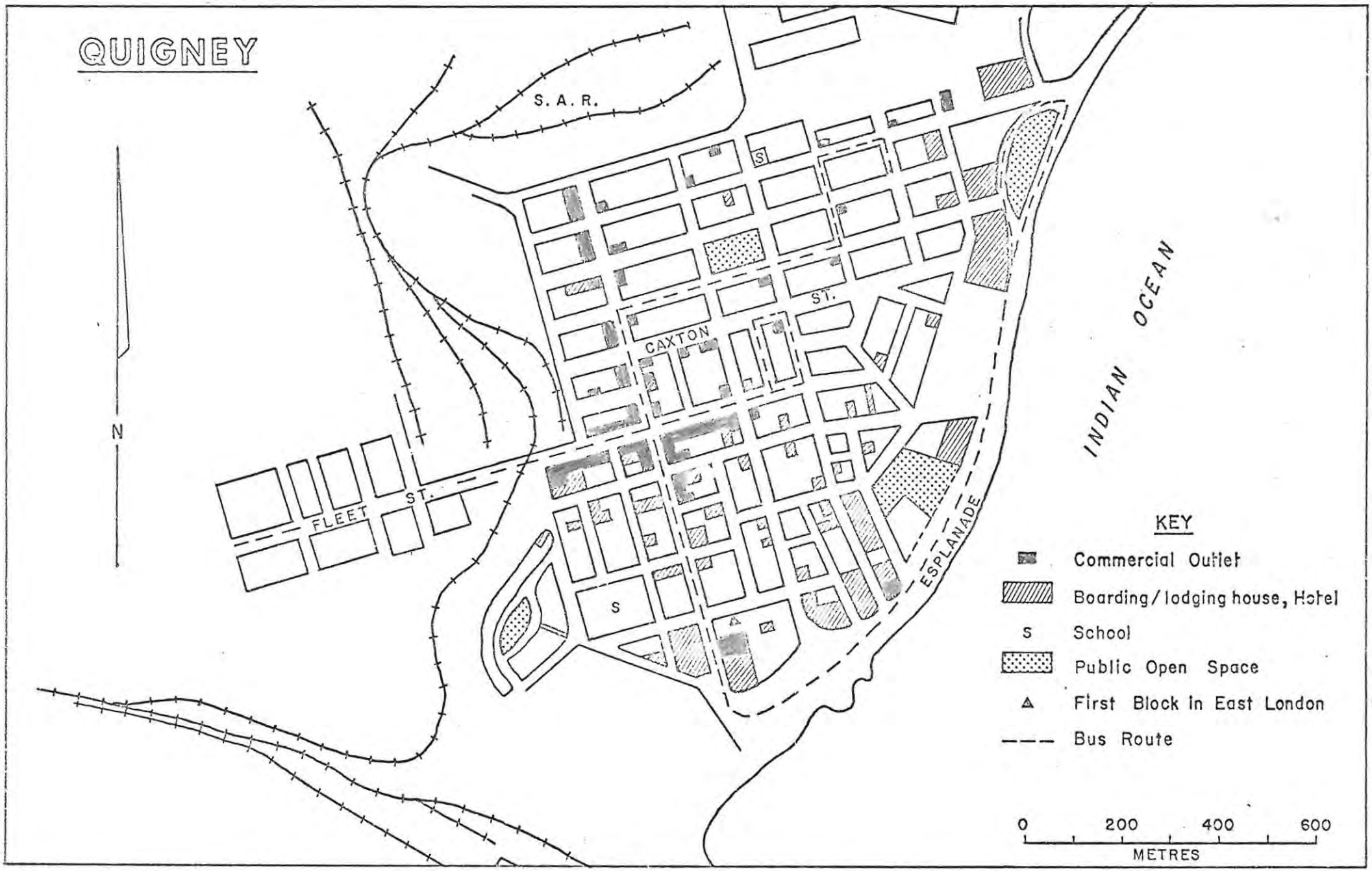


Figure 12. Quigney: Selected Land Use

the harbour to the south. Only one street, Fleet Street, provides access to the C.B.D. The land sloping towards the sea gives an excellent coastal aspect, and has encouraged the development of hotels, boarding or lodging houses and apartment blocks, rather than single family dwellings. In fact, 52% (60 flats) of the Quigney and 63% (363 flats) of the total Beach dwellings are apartment blocks. Two modern apartment blocks facing the beachfront cater for visitors as they provide temporary accommodation only. The apartment blocks become more sparsely scattered towards the north of the cluster away from the view sites. The beach and esplanade provide the most open space in the suburb, while there is a small amount of poorly maintained park at King Edward's Square in Quigney North. Shops are located at the Fleet Street shopping node.

The remaining 12,5% of East London's blocks are clustered yet their location is scattered throughout the outer residential zones of the Municipal Area. These patterns reflect building responses to various residential demand forces and include apartment blocks located to provide low cost housing for industrial workers close to their work. For example in Chiselhurst which contains light industrial establishments, 26% (73 flats) of the total dwellings are flats. Apartment blocks in Baysville and Nahoon Mouth suburbs in which flats make up 18% (60 flats) and 19% (35 flats) of the total dwellings respectively, show a residential response to the speculative advantage of a scenic location and at the same time meeting the maximum demand for housing with attractive views. Apartment blocks are also sited in relation to local convenience shopping nodes in many cases, and thus their location directly reflects the zoning regulations. In the case of the remaining suburbs similar patterns exist but the proportion of flats to the total dwellings is in each case below 9% (Table 7).

3.5 Research Theme.

It is clear that in general terms, the pattern of residential distribution of flats by suburb within the Municipal area appears to conform

to the macro models of residential differentiation. These patterns would seem to have emerged as a response to general residential growth and development in East London. The apartment component of the total residential system appears to exhibit particular characteristics which warrant further investigation. On the basis of both the above general characteristics of flats in East London and other previously detailed studies of apartment living in South African Metropolitan Areas it becomes possible to apply the theoretical concepts to the study area and outline the hypotheses around which the investigation is framed.

It is apparent that the spatial distribution of apartment blocks in East London is clustered and that these clusters are arranged either according to distance zones from the centre, as suggested by Burgess (1925) or in distinct sectors, according to Hoyt (1939) or in some combination of both, as Berry (1971) felt was most likely. This has been a development over time, so that within the zoning constraints, ecological and economic processes will have operated allowing distinct characteristics to emerge.

In the first place therefore, it may be hypothesised that distinctive morphological characteristics of the type found by Smailes (1960) among many others and shown to exist in Port Elizabeth by Du Toit (1972) occur in East London apartment sector . Thus, flats in the C.B.D. are expected to be located on upper floor levels with street access, in both high rise and older walk up blocks. Apartment blocks in the inner residential zone should be largely low rise, small, old and in deteriorated condition. Furthermore, apartment blocks in the outer residential zones will be either low or high rise wich modern flats.

Secondly, it may be postulated that certain familial characteristics will typify apartment residents in different localities (Kahn, 1973, Unterhalter 1972, Abu Lughod, 1960). Thus the C.B.D. apartment dwellers are married/unmarried adults of the pre-child period who probably have been attracted by cultural and social facilities and proximity to work. In addition the older adults in the post-child period will no doubt also be represented in order to benefit from proximity to central business uses

(Kahn, 1973). Further, apartment residents in the inner residential zone will differ from C.B.D. residents and include both older married residents with small children only or older single adults. The apartment residents in the outer suburban zones are the family oriented households in all stages of the life cycle (Kahn, 1973). It also may be expected that the economic status of residents would vary in different areas (Unterhalter, Du Toit, 1972). C.B.D. apartment incomes are low, while medium to high incomes characterise residents in the outer suburban zones.

Finally, it may be hypothesised that ecological natural areas of similar types of residents living in similar morphological environments may occur within the major apartment clusters. This could be expected from Bourne's study of apartment blocks in Toronto (1967-73) and Kahn's study (1973) of Johannesburg apartment areas which showed an ecological distribution.

The formulation of hypotheses makes it possible to define the precise aims of the study and to provide clear directions to the research programme. This study aims at locating apartment blocks, plotting both their distribution according to morphological characteristics and the socio-economic characteristics of their permanent white residents. More specifically the investigation attempts to establish whether the distribution of the above characteristics conforms to the theory of natural areas. Thus the study attempts to assess comprehensively the interrelationships between socio-economic characteristics of residents and the physical form and location of natural apartment areas. In this respect, an attempt is made to examine the processes which operate to give rise to the growth of natural areas. An additional important aim is to examine the satisfaction levels of residents in apartment households within each natural area or apartment cluster in order to identify stressors which may lead to residential mobility and thus affect the nature of the natural area. Further in this regard it is hoped to gain insight into housing preferences

and requirements of apartment residents and thus provide a basis for future residential planning in apartment areas.

CHAPTER 4

METHODOLOGICAL FRAMEWORK

An entire developmental sequence of the research programme gives a clear insight into the problems encountered, and the evaluation of techniques used to overcome them. It is necessary to detail the formulation of research objectives, especially because the present study is of an exploratory nature. These objectives relate to acquiring basic information, collecting the sample data and analysing the data to define subareas.

4.1 Acquiring basic information.

It was necessary to map the exact location of all apartment blocks. By using the fairly comprehensive list of apartment block names in Braby's East London Directory 1973/74, valuation maps, a list of apartment blocks compiled by the Valuations Department of the Municipality, and the January 1974 land use survey map drawn by the Town Planning Section, it was possible to attain this objective. The detailed land use map permitted the recording of other essential land uses associated with the apartment blocks. It was found that 87,3% of all apartment blocks were distributed in three distinct clusters and only 12,5% were scattered throughout the built up area. Such local concentrations were expected as a result of zoning regulations laid down by the Town Planning Department. Establishment of the physical nature of each of the three major apartment clusters from the characteristics of each individual block was necessary, in order to ascertain whether morphological areas could be recognised. Data pertaining to the detailed physical characteristics of apartment blocks were extracted from municipal valuations and records files and a field survey (Appendix A).

In general, few problems in data collection were encountered. There were minor inconsistencies or inaccuracies in some files which could be updated. Age of most apartment blocks had been estimated by municipal valuators, but as this information was missing for the newer apartment blocks some field estimates were made. Although rental data were available from

East London estate agents, a large proportion of rentals were administered by companies or personally by private apartment block owners who were impossible to trace. The East London Rent Board refused to divulge rentals of rent controlled apartment blocks or even block identity. In the sample survey, tenants were asked whether the block fell under rent control. As respondents did not always know, sample findings may be underrepresented. All apartment blocks built before June 1966 fall under rent control. Due to the difficulty in determining roofing material because of building height, roof types were checked with the valuation files. When building lines fronted directly onto the street, condition of yard was not recorded as the space at the back of the block was regarded as insufficient for relaxation, recreation or gardening. Servants quarters on the premises of new and rent controlled apartment blocks are not permitted without special permission and thus it was impossible to estimate the degree of occupancy of existing servants quarters. The latter were sometimes used as store rooms by tenants, or were left vacant.

After mapping the location of all apartment blocks, an attempt was made to group by inspection those blocks in close proximity to each other because the theory suggests differentiation on the basis of similar types of morphological features recognisable in those buildings in close proximity to each other. It was impossible to recognise smaller strongly cohesive spatial units or subareas within the major apartment clusters on the basis of block proximity alone.

In order to establish whether it was possible to delimit morphological subareas of similar physical character all the morphological details pertaining to every apartment block in East London were tabulated and the most important morphological characteristics were mapped within the major clusters. While some spatial patterns were evident, in most cases morphological subareas were not clearly recognisable due to the large range of variation or alternatively the high degree of similarity within each apartment cluster. It was therefore decided to use Davies' (1965)

technique of cluster analysis on each of the three apartment clusters to delimit the major concentration of apartment blocks and provide a framework for more detailed morphological and socio-economic analysis. This was carried out by using apartment building areas and number of flats respectively as indexes.

The centre of gravity of each cluster was found by the standard method of drawing two axes to contain the distribution and by finding the mean of all distances from each lot to each axis. In addition, distance values were weighted by total building area, by multiplying each measurement by the building area in the block, and then dividing the totals by the total building area in each cluster. Thus the weighted centre of gravity takes areal extent into account as well as locational pattern.

Each lot distance may be expressed as a percentage of the distance of all lots from the weighted centre of gravity and the building area expressed as a percentage of the total building area under consideration. In this way, increasing distance can be associated with decreasing building area. Lots to be regarded as forming the cluster were identified by a factor of inclusion (F) for any one unit, thus:

$$F = \frac{A}{D} \text{ where:}$$

A = area of a single areal unit expressed as a percentage of all areal units in the distribution, and

D = distance of a single areal unit expressed as a percentage of total distances of all areal units in the distribution from the weighted centre of gravity.

In the case where F is large, it indicates an areal unit with a large building area within a short distance of the centre of gravity and where it is small, it implies a unit of smaller area some distance from the centre. On the basis that clusters fade out the further one proceeds from their respective centres of gravity it is possible, by ranking areal units according to their F values to choose in an objective manner which units

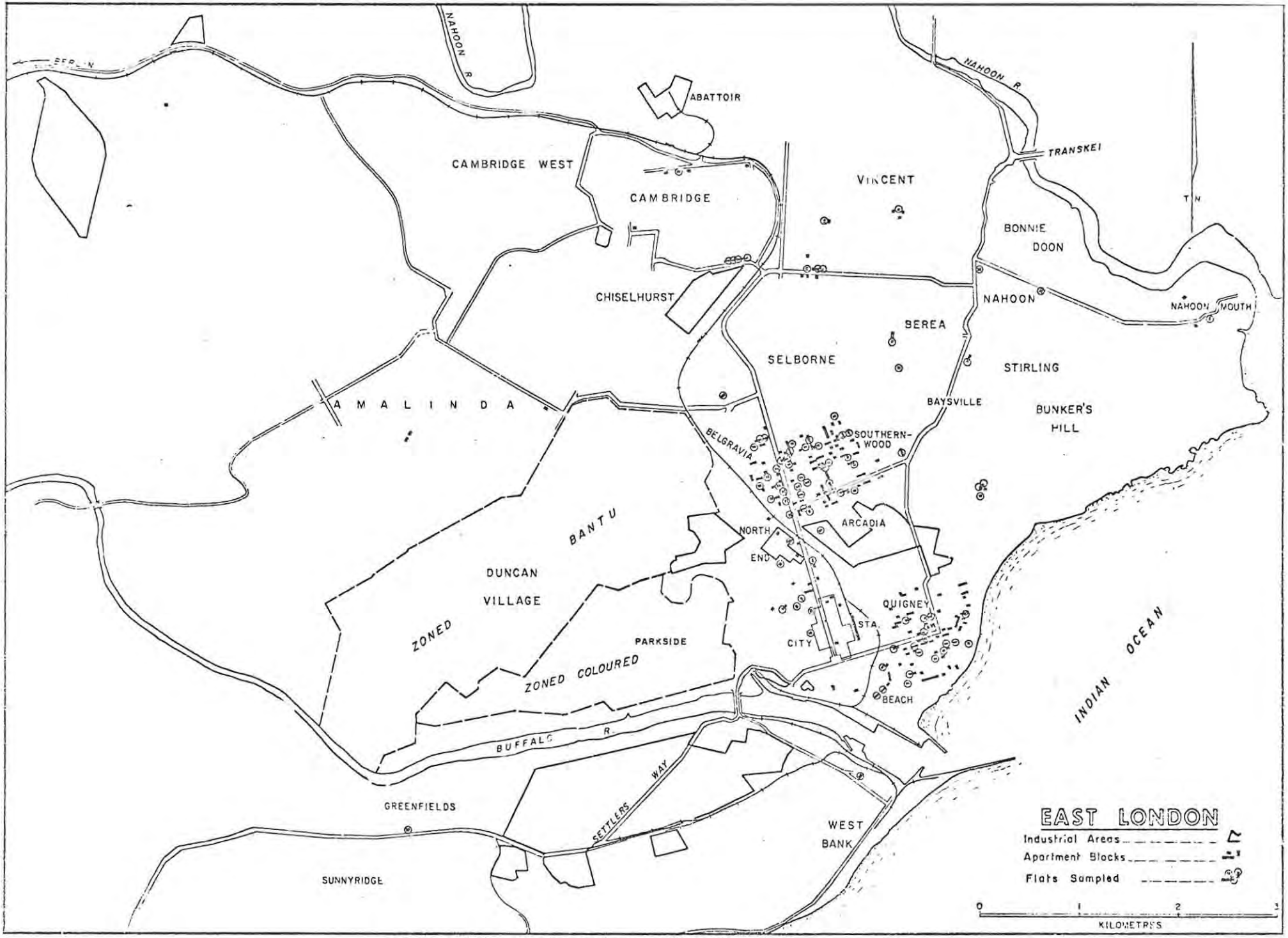


Figure 13. East London: Flats Sampled

constitute part of a single cluster. In theory the cluster boundary can be chosen to include any area and as there is no statistical break in ranked F values, the highest scoring third of the apartment blocks were selected and mapped to define the cluster core. Calculation of the proportion of total building area incorporated by this boundary is 47% in Central and 55% in Southernwood/Belgravia and Quigney clusters as compared with the commonly used 50% boundary line.

4.2 Acquiring Sample Data

In order to carry out a questionnaire survey of permanent apartment dwellers an appropriate sample design had to be selected. Stratification by subareal patterns of similar physical characteristics was impossible due to the lack of sufficiently marked morphological areas, as outlined above. Therefore, a disproportionate random sample was chosen to provide the best representation within apartment clusters and especially among the scattered apartment blocks where considerable variation in status from one small cluster to another was suspected. This sample gave a satisfactory spatial distribution of respondents (Figure 13). Sample size, influenced by population size, was dictated largely by practicality. An upper limit of about one hundred interviews seemed realistic for a single research worker to handle and process in the time avaialble. A 3,5% sample of flats was therefore drawn (Table 8). Such a study is too small to support a large enough pilot sample to yield useful estimates of the variance (Kish, 1965) and therefore the present study should be regarded primarily as exploratory in nature, and may in fact itself act as a pilot survey, should a more detailed investigation prove necessary.

Table 8. Sample Design.

	Apartment blocks	Flats	Proportion of total	Number of Interviews	% of Flats sampled
Central cluster	25	247	7,2	12	10
Quigney cluster	91	987	28,8	32	26,7
Southernwood/Belgravia cluster	150	1 762	51,3	50	41,6
Scattered Group	53	430	12,5	26	21,7
Total	319	3 432	100	120	100

A questionnaire for distribution to a sample of permanent apartment residents (Appendix B) was drawn up to determine:

(a) the physical character of dwelling units in order to supplement the morphological characteristics of subareas (Ratcliffe, 1949) and to serve as economic indicators of status;

(b) the socio-economic characteristics of apartment dwellers. This includes information concerning the demographic, familial, social and economic characteristics of the household head;

(c) other indirect measures of socio-economic status such as number of servants, and cars;

(d) housing requirements of apartment dwellers as reflected in the type of future housing they desired;

(e) the present level of tenant's satisfaction with the individual flat, the neighbourhood, or its accessibility; and

(f) the residential mobility of residents, to be estimated from their length of stay in the flat.

The questionnaire was kept short and simple but the type of data required and its availability of necessity gave it a mixed nature as it was measured on nominal, ordinal and interval scales. The questionnaire survey was conducted by personal interviews with household heads between 1st and 13th June 1974.

If respondents were absent after two visits at different times of the day, respondents in the adjacent flat were interviewed, selecting first the flat to the right and then to the left of the originally selected flat. Respondents were very co-operative after identification of the survey with the University. When enquiring about residential preferences, even those respondents who did not want to move were asked if they had any feelings of dissatisfaction with their residence, so that stressors could be identified.

4.3 Analysis of Data.

The questionnaires were grouped and tabulated ready for processing

with the primary aim of establishing the degree of correlation (if any) between the physical characteristics within the major clusters with the socio-economic characteristics of their residents, and thus recognising the existence of natural areas. The complexity of spatial patterns of apartment blocks and the characteristics of residents prompted the use of objective multi-variate statistical analyses to delimit such natural areas within the major clusters.

Factor analysis is the generic name for multivariate techniques that have been used in urban research to describe similar basic social and economic patterns of variation within cities. The techniques reduce data to simplified descriptive indicators (factors) which may be used to delineate distinct clusters of interrelated data. The component factor approach was chosen as the most suitable for this study because it can account for the maximum degree of variation contained by the data. In addition, as a special case of factor analysis, it is more powerful and does not require the assumption that the variables chosen are random variables.

As the factor model could not accept more variables than spatial units, thirty six variables were carefully selected from the available data (Appendix C). These included seventeen measuring morphological characteristics; nineteen describing socio-economic variation of apartment residents, and one measuring block distance from the P.L.V.I. Clear, unambiguous variables which were not covariant were chosen and converted to ratio form or expressed as averages.

Construction of the data matrix requires a small standard areal unit by which to group the data. The clustered and widely scattered spatial distribution of apartment blocks made it impossible to use a regular grid. Accordingly, an arbitrary grid was superimposed in two stages on a dot distribution map. Firstly, by taking four blocks of flats per group, eighty spatial units emerged. However, the frequency of zeros due to the combination of sample and population variables would have seriously distorted the factor patterns. Therefore, it was necessary to further

aggregate the spatial units to forty, each containing eight apartment blocks. Data for each unit were punched, and execution of the component analysis was based on a computer programme contained in Veldman (1967, p.222-225). The computational sequence may be briefly outlined.

Firstly, the data matrix of the thirty six variables, describing forty spatial units, was converted to a standard score matrix, Z. Based on this Z matrix a correlation matrix R, was calculated. The correlation coefficients, which express the degree of relationship between each variable and every other variable, were calculated by using Pearson's product moment method. The intercorrelation matrix was then factored, yielding the factor loading matrix of thirty six variables by ten factors. Each factor, thus represents patterns of variation fundamental to the thirty six variables and the loading expresses the degree of involvement of a variable in a particular factor, i.e. it measures the degree of association between the original inputs and each factor.

The program was run, taking advantage of the option to rotate the factor loading matrix to a simpler solution, using Kaiser's varimax rotation criterion. This simplified structure (Rummel 1970) means that the number of high loadings on each factor is maximised while the number of factors on which any one variable loads strongly is reduced to a minimum. In this way, by explaining the variation of a variable in terms of as few factors as possible, the method gives the simplest explanation of reality possible. A factor score matrix, S, was also extracted for both the unrotated and rotated factor loading matrix. Factor scores index the relative involvement of every areal unit on each of the factors, and this matrix is the basic tool in the interpretation of the results, as it enables the patterns to be mapped.

Examination of both the rotated and unrotated factor loading matrices showed that only the unrotated principal components loadings were meaningful. The results of the principal components analysis showed that ten factors were required to account for 79,2% of the total variance. Table 9 indicates the percentage contribution of all factors to the total variation.

The first four factors only account for 50,6% of the total variance, while each of the remaining dimensions all fall below 7%.

Table 9. Factor Variance.

I	II	III	IV	V	VI	VII	VIII	IX	X
17,7	14,0	11,0	7,9	6,6	5,3	4,9	4,2	3,8	3,4
50,6%				28,2%					
79,2% of total variation									

Since in practice, the first few factors are usually the most significant, they can be taken to represent the major patterns within the data. The large number of factors and the relatively small percentage of variance accounted for by the first factor (17,7%) indicates that diagnostic power of the factors is low and highly dependent on data input. This is further substantiated by the fact that further simplification of the matrix by rotation was not meaningful. It appears that the unrotated factors recognised are the only realistic ones, given the data input and that the technique was successful as a grouping technique at one level only. The results were therefore disappointing for it was found that only Factor I yielded significant results that could be interpreted realistically. The large amount of variation evident in the patterns of physical characteristics and the impossibility of grouping apartment blocks by proximity have no doubt helped to increase the variance. It appears that the data do not possess sufficiently strong trends to distinguish clearly defined natural areas. However the technique has been useful in recognising one factor grouping and thus providing a basis by which incipient natural areas could be recognised within the apartment clusters.

The analytic solution for the first factor is socio-economic status. The approach used in interpreting the factor loadings follows a procedure adopted by Rees (Berry, 1970) where only loadings greater than +0,400

and greater than -0,400 have been included (Table 10). Five loadings describe socio-economic character of residents while the other fourteen loadings describe the physical character of apartment blocks. Thus the technique has reduced the number of variables and the factor loading matrix shows the relationship between morphological and socio-economic variables.

Table 10. Socio-economic status factor loadings.

Low Status	Coefficients $\geq +0,40$
Average age of block	+ 0,76
% flats with rental below R50	+ 0,68
% married residents	+ 0,65
% flats 1-2 living rooms	+ 0,56
% blocks of poor/bad exterior	+ 0,55
% blocks 1-4 garages	+ 0,45
% head of household achieved Std 6-8	+ 0,45
% head of household parking on street/site	+ 0,43
% head of household income under R200	+ 0,42
% blocks above shops/factories	+ 0,41

High Status	Coefficients $\leq -0,40$
% blocks good/very good exterior	- 0,68
% flats rental over R80	- 0,55
Average total building area	- 0,54
% blocks with over 8 garages	- 0,54
% flats with 4-5 living rooms	- 0,52
% concrete/slate/tile roofing	- 0,50
Average distance from P.L.V.I.	- 0,47
% head of household income over R600	- 0,40
% head of household achieved matric/post matric	0,40

The grouping of all factor scores into High, Medium and Low socio-economic status was based on the existence of two significant breakpoints found by use of the Tarrant method. This method substantiates a visual delimitation of socio-economic class from the ranked factor scores, permitting the percentage loss of accuracy at each stage of the generalisation to be calculated. The technique eliminates some of the

intuitive assessment associated with defining breaks in size distributions thereby making them more natural. Three relatively homogeneous groups are distinguished (Table 11). The grouped factor scores for Factor I were

Table 11. Grouped factor scores.

Group	Percentage generalisation needed to combine groups	Within group generalisation	Number of blocks per group
I Low		20%	56
	69,2%		
II Medium		7,4%	152
	30,8%		
III High		9,1%	111

then mapped, to reveal some interesting patterns.

The formulation of research objectives serves to clarify the order, and methods used to achieve the study aims and hypotheses; to justify the use of certain techniques, to explain how they operate and how successful they were. This is important to guide any future research that may be conducted in the study area, or similar research carried out elsewhere. The empirical focus of the present study is now described in detail.

CHAPTER 5

PERSPECTIVE ON APARTMENT AREA CHARACTERISTICS

The results of investigating the data for morphological characteristics of all apartment blocks in East London provide a useful comparative basis with which to incorporate results into the existing body of general research on high density living in South Africa. Present findings make possible a comparative extension of the knowledge of East London apartment blocks already available from census and other studies. For the first time it is possible to establish the detailed spatial patterns of apartment block characteristics within the major clusters, to make general contrasts between different clusters and on the broader scale to place the study in its national perspective. In addition sample data regarding the socio-economic characteristics of apartment residents on both the micro and macro scale may be related to generalised census data and other studies to determine patterns that exist within the apartment sector of the residential system. In this regard the fact that Du Toit's study of Port Elizabeth covered all apartment blocks in a comprehensive manner and that Port Elizabeth is the next largest metropolitan area to East London with residents having similar socio-economic characteristics makes direct comparison between the studies possible.

5.1 City Wide Patterns.

The perspective deals with the characteristics of all apartment blocks and their sampled residents in East London, and therefore Tables 12 and 14 should be consulted throughout this chapter.

5.12 Apartment Blocks

The majority of East London apartment blocks are small, 42% containing between 1-6 flats and 35% 7-12 flats and 59% are company owned (Table 12). This low rise character is common to both Port Elizabeth and East London where the majority (90%) of apartment blocks are two or three floors in height. This feature is related to zoning and building regulations and

Table 12. Apartment Area Characteristics

A. All Apartment Blocks

	East London n = 319	Central n = 25		Quigney n = 91		Southernwood/ Belgravia n = 150		Scattered Group n = 53	
Area: (Square metres)									
Site:									
Average	1 020	709		832		1 458		1 080	
Median	855	607		607		1 254		951	
Building:									
Average	1 171	1 061		1 177		1 484		962	
Median	907	800		831		1 175		822	
Valuation: (Rands)									
Site:									
Average	9 676	20 593		5 548		8 012		4 550	
Building:									
Average	53 328	50 775		52 022		66 282		44 231	
Age: (Years)									
Average	25	33		28		23,6		16	
	%	%	Proportion of E.L. Total	%	Proportion of E.L. Total	%	Proportion of E.L. Total	%	Proportion of E.L. Total
Valuation: (Rands)									
Site: 0-5 000	39	28	6	66	48	14	17	68	29
5-10 000	38	12	4	24	18	53	65	28	13
Over 10 000	23	60	20	10	12	33	65	4	3
Building: 0-35 000	36	48	10	48	38	27	35	36	17
35-70 000	40	36	7	33	23	41	48	53	22
Over 70 000	24	16	5	19	23	32	64	11	8
Size:									
Floors:									
Two	45	40	7	43	27	33	35	83	31
Three	45	40	7	37	24	59	73	17	6
Four +	10	20	14	20	51	8	35	0	0
Flats:									
1-6	42	48	9	46	32	38	43	41	16
7-12	35	24	6	30	24	33	45	53	25
13-18	11	16	11	12	30	13	56	2	3
19-24	7	12	14	5	24	8	57	2	5
25 +	5	0	0	7	33	8	61	2	6
Age: (Years)									
0-15	28	4	1	12	12	30	51	60	36
16-30	38	36	7	44	33	39	47	31	13
Over 30	34	60	14	44	37	31	44	9	5
Condition of building:									
Very good/good	50	36	5	27	17	56	53	76	25
Fair 29	29	28	7	40	39	26	42	20	12
Poor/very bad	21	36	13	33	44	18	40	4	3
Associated land use:									
Servant's quarters	25	0	0	16	19	40	74	11	7
Garages	72	20	2	63	25	87	57	68	16
Above businesses	18	72	31	18	28	7	17	26	24
Open space (yard)	67	24	3	46	20	89	62	63	15

in part also may be explained by the fact that modern legislation requires lifts to be included in blocks over three floors thus disproportionately increasing building costs. Nevertheless only 5% of East London apartment blocks are found to have lifts. Southernwood/Belgravia has 63% of all the city three storeyed apartment blocks as well as by far the largest proportion of those blocks with more than 13 flats. The highest blocks in East London are 9 storeys of which one is presently located in Southernwood/Belgravia and one in Quigney. The latter cluster near the beach front has 51% of the city's four storey and higher blocks, yet in contrast Port Elizabeth's tallest apartment blocks of eleven and fourteen floors respectively are located in the Rink Street regional shopping centre. Another effect of zoning regulations has been to maintain the residential character of the apartment blocks in Quigney and Southernwood/Belgravia while concentrating 31% and 24% of all apartment blocks associated with business establishments respectively in the central area and among the scattered blocks.

As only 12% of Port Elizabeth apartment blocks are of pre-World War II construction yet 34% in East London fall into this category approximately and as an additional 38% are between 16 - 30 years of age, it is suggested that East London has a longer heritage of apartment living relative to Port Elizabeth, and may have developed distinct morphological characteristics within each apartment area. The age distribution patterns reflect the growth of apartment areas within the city for the central and Quigney clusters as such have a noticeably high proportion of older blocks, while the scattered apartment blocks are predominantly new. The lower proportion of new blocks in the central cluster especially suggests that little residential development is taking place - presumably alternative suburban sites are preferred.

Although 64% of all East London apartment blocks are constructed of plastered brick, and iron (39%) and asbestos roofs (37%) are most common, 50% of blocks are classified as being kept in good to very good condition

especially among the newer scattered apartment blocks with their predominately (44%) tiled roofs. The larger proportion of the poor (15%) and very bad condition (6%) apartment blocks are recorded in Quigney (44% and 45% respectively). The combination of the above characteristics means that not unexpectedly building valuations are found to be low with 76% classified below R70 000 and with a disproportionate amount (64%) of the higher valuations concentrated in Southernwood/Belgravia. The highest median total rateable valuations in East London are also found in Southernwood/Belgravia (R59 155).

Median lot size in which East London apartment blocks are built is also small (1 855 sq. metres) especially in the older Central and Quigney areas where median lot size is only 607 sq. metres. Demand for this land is reflected in the high (60%) proportion of site valuations over R10 000 recorded within the central area while a lack of demand is more evident in Quigney where 66% of all values below R5 000 are recorded. Intensive use of sites means that 33% of the apartment blocks were found to have no open space in front of the building and this characteristic, as expected, is particularly marked in the Central and Quigney clusters. Despite the lot size 72% of East London apartment blocks have been built with garages, and flats are therefore better provided with parking facilities than those in Port Elizabeth where only 55,7% had garages. The sample survey showed that 64% of East London apartment households had their own garages, and in addition 5% were able to hire other garages. Also in East London 25% of the apartment blocks had servants quarters (mostly found in Southernwood/Belgravia) as against 5% in Port Elizabeth. However the sample survey revealed that although 62% made use of outside help only 3% of apartment block households actually used their servants' quarters. This suggests a high rate of vacancy of existing servants' quarters and the possibility of their being put to alternative uses such as store rooms. Shops too are easily accessible to some apartment dwellers, for 18% of East London and 12% of Port Elizabeth apartment blocks are located above businesses (Du Toit, 1972).

Table 13. Permanency of apartment residents.

	PERCENTAGE								
	East London n = 120	Central n = 12		Quigney n = 33		Southernwood/ Belgravia n = 50		Scattered group n = 26	
		%	Proportion of E.L. Total	%	Proportion of E.L. Total	%	Proportion of E.L. Total	%	Proportion of E.L. Total
Duration of residence: in East London:									
(Years) Under 1	6	0	0	8	30	8	53	7	17
1-2	6	0	0	12	41	10	55	2	4
3-4	6	7	11	3	16	6	47	10	26
5-6	6	7	13	0	0	6	60	9	27
Over 6	76	86	9	77	30	70	45	72	16
in Flat:									
Under 1	29	14	3	23	22	30	48	50	27
1-2	10	0	0	20	42	14	49	8	9
3-4	16	7	4	22	42	9	27	25	27
5-6	9	0	0	15	41	9	41	11	18
Over 6	36	79	20	20	19	38	58	6	3
Accommodation: Previous:									
Flat	32	41	10	26	24	32	50	30	16
House	46	52	9	40	25	47	49	46	16
Boarding house/ Hotel	12	7	4	24	53	12	41	3	2
First time on own	10	0	0	10	27	9	40	21	33
Desired:									
Flat	17	31	15	8	13	23	64	8	8
House	21	17	5	13	16	27	57	28	22
Reaction to apartment life: Initial:									
Like	55	51	7	53	26	62	51	55	16
Dislike	31	25	6	40	39	22	35	37	20
Indifferent	14	24	15	7	15	16	60	8	10
Present:									
Like	80	83	8	85	31	75	45	77	16
Dislike	12	10	5	10	21	18	64	8	10
Indifferent	8	7	8	5	16	7	42	15	34

5.13 Flats and Apartment Households

The general characteristics of households based on the sample of all flats in East London (Table 14) are confirmed by the census data, and the information provides some indications of residential patterns and further data for comparison with other studies in South Africa. Furthermore it is possible to establish the overall permanency of apartment residents and therefore the degree to which their responses may be regarded as a reasonable indicator of the apartment area characteristics.

According to Watts (1970) there was a substantial turnover of white adults taking place in East London because 40% had lived in the town for less than ten years (Table 13). Yet Watts found in his 1964 sample that 78% of residents had lived in the city more than five years which compares with the present finding that 76% of apartment dwellers had lived in the city over six years. In addition only 12% of apartment dwellers had lived in the city under two years. During this period 46% of them had lived in houses before living in their present flat and 32% had lived in another flat. Of those residents having previously lived in a boarding house or similar abode 53% are now living in Quigney. These findings suggest that people are attracted to high density residential accommodation.

The initial reaction of 55% of apartment dwellers to apartment life was favourable and 80% of respondents indicate that their present reactions are even more favourable, suggesting an increasing acceptance of the apartment life style (Table 13). This feature is particularly significant when it is noted that 45% of apartment dwellers had lived in their flat over five years. Residential stability is further confirmed by the fact that 65% of apartment dwellers did not want to move. Where future change of residence was desired by the remainder slightly more persons (21%) desired to move to a house than a flat (17%).

In Southernwood/Belgravia, 47% residents had remained in their flat 5 years but 30% had been resident for under a year. The median period

Table 14 Sample Characteristics of Flats and Residents.

	PERCENTAGE								
	East London n = 120	Central n = 12		Quigney n = 32		Southernwood/ Belgravia n = 50		Scattered group n = 26	
		%	Proportion of E.L. Total	%	Proportion of E.L. Total	%	Proportion of E.L. Total	%	Proportion of E.L. Total
1. Flat:									
Number of living rooms:									
One	12	8	7	34	79	4	14	0	0
Two	15	25	17	19	33	14	39	8	11
Three	44	67	15	34	21	44	42	46	22
Four	26	0	0	13	13	32	52	42	35
Five	3	0	0	0	0	6	75	4	25
Balcony:									
None	23	8	4	44	52	20	37	8	7
Open	71	75	11	47	17	74	44	92	28
Closed	6	17	25	9	38	6	37	0	0
Rental: (Rands)									
Under 30	9	17	20	22	70	0	0	4	10
30-39	11	0	0	22	54	12	46	0	0
40-49	22	83	38	19	23	16	31	8	8
50-59	13	0	0	19	38	16	50	8	12
60-69	12	0	0	3	7	16	57	19	36
70-79	11	0	0	3	8	12	46	23	46
80-89	9	0	0	3	9	9	36	23	55
Over 90	13	0	0	9	19	19	56	15	25
Permanent residents:									
One	27	17	6	38	38	26	40	19	16
Two	46	42	9	41	24	48	43	50	24
Three	13	25	19	6	12	16	50	12	19
Four	9	8	9	6	18	10	46	12	27
Over four	5	8	17	9	50	0	0	7	33
2. Head of Household:									
Marital Status:									
Married	57	42	7	50	24	58	43	69	26
Single	12	8	7	13	29	18	64	0	0
Separated/divorced	3	8	25	6	50	0	0	4	25
Widowed	28	42	15	31	29	24	35	27	21
Age: (Years)									
Less than 23	3	9	25	3	25	0	0	8	50
23-33	23	0	0	21	25	26	46	30	29
33-43	8	25	30	0	0	8	4[illegible]	12	30
43-53	18	16	10	23	33	16	38	16	19
53 +	48	50	10	53	30	50	44	34	16
Education:									
Standard 6	28	42	15	44	43	20	30	16	12
Standard 8	31	42	13	19	16	32	42	43	29
Matric	41	16	4	37	25	48	49	41	22
Occupation:									
Professional/ Administrative	12	0	0	9	20	18	60	12	20
Clerical/Salesworker	18	25	14	12	18	18	41	22	27
Craftsmen/Transport	9	0	0	13	40	8	40	8	20
Service	20	42	21	6	8	20	42	27	29
Retired	41	33	8	60	39	36	37	31	16
Income: (Rands)									
Under 100	8	17	20	13	40	6	30	4	10
100-199	24	25	10	38	42	22	38	12	10
200-299	16	42	26	16	26	12	32	11	16
300-399	25	8	3	19	20	26	43	38	34
400-499	13	8	7	3	7	16	53	19	33
500-599	8	0	0	8	30	8	40	12	30
600 +	6	0	0	3	14	10	72	4	14

of occupancy for the Central/Mount Road cluster in Port Elizabeth was 44,8% residents spending more than three years in the same flat, which, like Southernwood/Belgravia, indicates a relatively stable population of apartment dwellers (Du Toit 1972).

As far as the accommodation is concerned three living rooms were found in 44% of the East London flats surveyed compared with 53% for Port Elizabeth where the average apartment household size is 3,02 persons. As 46% of East London sampled flats comprise two residents, household densities in both cities are probably very similar. As expected from the census data, larger four roomed flats are more common in the East London survey (26%) than Port Elizabeth (20%) while bachelor and two roomed flats occur in identical proportion in both cities (27%). East London bachelor flats are mostly located in Quigney (79%) while the large four and five roomed flats are primarily found in Southernwood/Belgravia (52% and 75% respectively). Although 71% of all sampled flats had an open balcony 52% of those with no balcony are in Quigney.

The average monthly rental for flats in Port Elizabeth is R61,5 whereas 55% of the sampled East London rentals are below R60,00, a finding which supports the property survey average of R58,80 and median rental of R50,00 (Daily Dispatch, 1974). The 1970 census data (Table 5, page 39) confirms that Port Elizabeth rentals are slightly higher than East London. In addition, the sample survey showed that 8% of East London flats are rented furnished, which is 2% higher than the 1970 census (Table 5, page 39).

The sample survey showed that sharehold company owned flats in East London were only evident in Southernwood flats (4%).
The authorities in the South African property market have introduced a system of sectional titles whereby flats can be bought, and this system has not yet been introduced in East London, but should prove successful as it will encourage more permanency and better building maintenance.

Once again clear patterns emerge for the lowest monthly rentals (78% of those R20 - 29 and 54% of those between R30 - 39 are found in

Quigney, respectively), in marked contrast to the higher Port Elizabeth rentals paid for beachfront apartment blocks. The 33% of East London's rentals in the higher categories over R70,00, although represented in Southernwood/Belgravia, are found to a disproportionate extent among the scattered apartment blocks.

The proportionate distribution of home language among sampled apartment dwellers is also found to be identical with that of the city as a whole suggesting that neither language group has a specific preference for apartment living, as 76% East London residents are English speaking (Watts, 1970).

While Abu Lughod (1960) found that 32% of Toronto central apartment dwellers were single and 38% childless, the corresponding figures in the East London Central cluster were 8% and 58% respectively. Abu Lughod found that the majority of central apartment dwellers were white collar workers, whereas the majority are blue collar (42% service workers) in the East London Central cluster.

Only 27% of East London apartment households were found to have children as against the Du Toit calculated ratio of school children to pre-school children (1:0, 74) living in Port Elizabeth flats. However within the East London sample of residents with children the ratio between school children and pre-school children was 1:1,5. This may be related to the fact that 23% of East London apartment household heads can be classified as in the child bearing stage of the life cycle (23-33 years).

Although only 3% of the East London sample of heads of household are separated or divorced this group is concentrated in Quigney (50%) while 64% of the city's 12% single households are found to live in Southernwood/ Belgravia. In addition, 48% of the sample household heads are elderly and in the post child period, and therefore the high proportion (41%) of retired persons is not unexpected, and neither is the fact that 32% had an income of under R200 per month nor that 28% have no car (52% of these sampled residents live in Quigney).

Proportionately more East London apartment heads of household with the lowest educational attainments (28% with a standard six only) are found in Quigney (43% of all city respondents) whereas 49% of the more educated residents with a matric certificate live in Southernwood/Belgravia (city apartment average 41%). Du Toit found the head of household average income in Port Elizabeth was R287,74, while of East London household heads, 48% earned under R300 per month. These figures would suggest a slightly lower income structure generally for East London apartment dwellers, as would be expected from the low average wages prevailing in the city. However the occupational structure of apartment heads of household basically reflects socio-economic patterns within the census data for East London as a whole (Table 1, page 30) and therefore the contrast (only 52,1% white collar workers) with Dut Toit's finding for Port Elizabeth (70,1% white collar workers) is not unexpected.

The above survey has confirmed findings of earlier studies and highlighted differences between apartment areas in East London and elsewhere in the Republic. Detailed information for each apartment area in addition has indicated that gross differences between them are evident. Such overall differences might be expected because of the historical development of each apartment area. Tables 12 and 14 are referred to in the following section and should therefore be consulted.

5.2 Apartment Area Patterns

Where apartment areas are highly concentrated the detailed patterns within each cluster could be expected to show local variations if the theory of morphological areas applies to the study area. Eleven selected morphological characteristics therefore were mapped within the three major apartment clusters to show whether spatial patterns existed and if the presence of morphological subareas could be recognised. In addition, data pertaining to the flats themselves and the socio-economic character of their residents, drawn from the sample of the whole cluster,

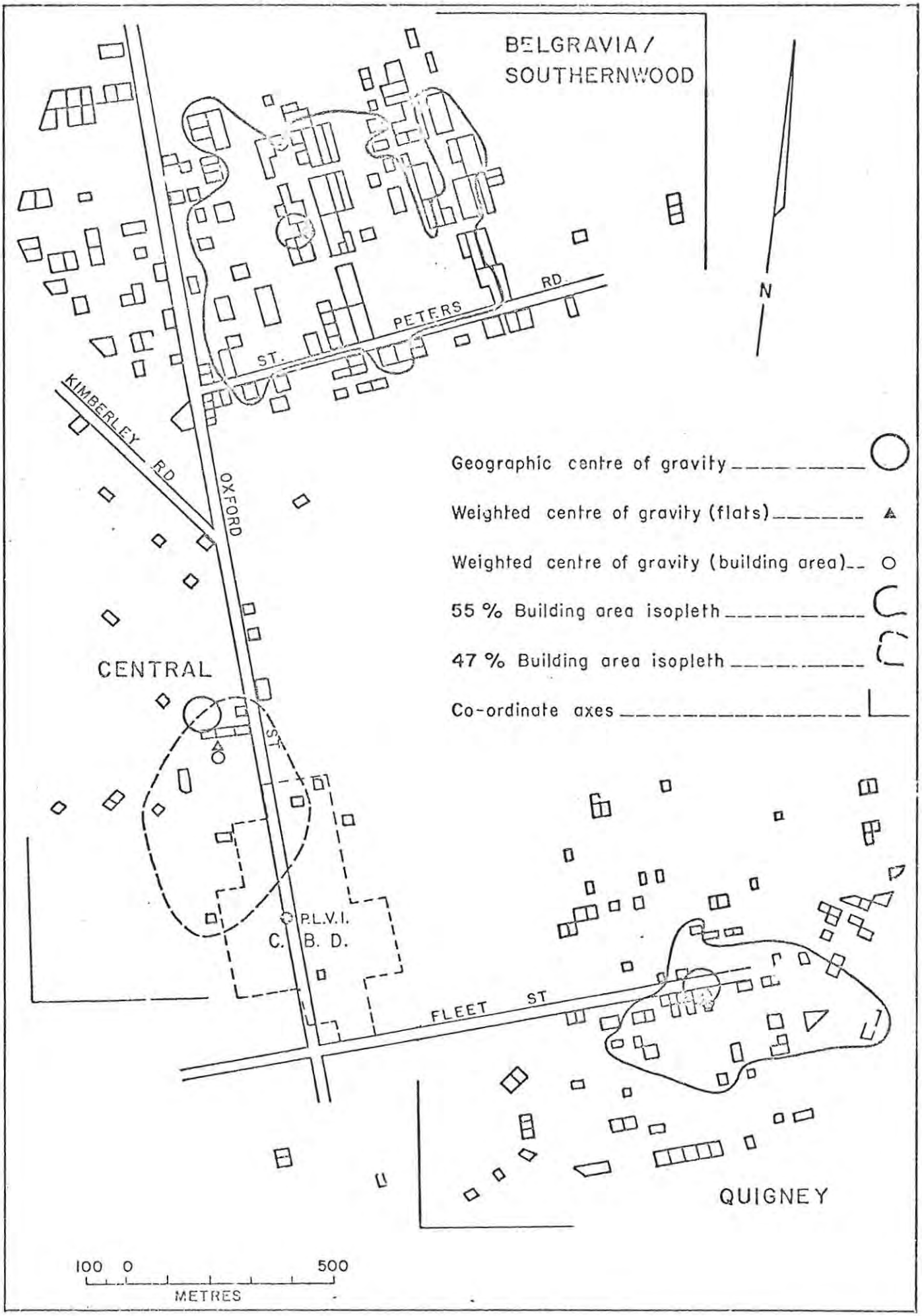


Figure 14: Apartment Clusters: Core Characteristics

could then be expected to indicate whether any morphological area characteristics were reflected in this regard too. Thus it would be possible to recognise natural areas within apartment clusters and so provide a framework for a future detailed study of apartment dwellers. Inspection revealed however that no distinct spatial patterns of characteristics were evident as the variation of physical characteristics within each cluster was such that similarities were not sufficiently marked to create easily recognisable morphological areas. The clusters are therefore considered as a whole but with the idea in mind that the distinguishing characteristics of any cluster would be most marked in the vicinity of its centre of gravity. Davies' technique of cluster analysis was applied to locate this point and to delineate the concentration of apartment blocks on a two dimensional basis of location and volume of building area. The 47% building area isopleth in the central cluster and 55% building area isopleth in the other two major clusters respectively separates cluster cores from the peripheries (Figure 14) and each of the mapped physical characteristics is considered within this frame to find the degree to which the cores epitomise the character of the cluster as a whole.

5.21 The Central Cluster

The central cluster comprises twenty five apartment blocks and 247 flats primarily located north north-west of the CBD and only one apartment block is found south of the P.L.V.I. Interpolation of the 47% building area isopleth has the effect of excluding the North End apartment blocks to give a core/periphery division with a fairly strong morphological basis. The roughly circular core containing nine apartment blocks incorporates the three blocks in the north-west corner of the CBD and contains 47% (117 flats) of the flats in the cluster. The geographic centre of gravity is located on the northern edge of the core but the two weighted centres of gravity lie further south because of the effect of the four larger apartment blocks in the core which has 28% of the blocks with more than 12 flats.

Morphological characteristics of the central cluster can be compared and contrasted with other apartment clusters and East London as a whole (Table 12). While land areas are smaller (709 square metres) on average than in the other apartment clusters (and therefore 76% of blocks are without a yard compared with the 33% East London average), site valuations are higher than any other cluster (60% are over R10 000 whereas only 23% of East London's apartment site valuations are over R10 000). It is not surprising therefore that 64% are company owned, a figure higher than in other clusters and 72% of apartment blocks are above businesses, a proportion four times greater than the East London apartment average.

The median ratio of building to land area of 1:0,7 reflects the greater building intensity due to smaller sites and 75% of blocks only have one entrance. The blocks with four or more floors (20%) are twice as common as in Southernwood/Belgravia and apartment block areas in general (19%). In addition the central cluster has more blocks with 13 - 18 flats and 19 - 24 flats (16% and 12%) respectively than would be expected for its size. Over twice (80%) as many blocks as in other clusters are built without garages in contrast to 28% for East London apartment blocks as a whole. Parking in 75% of cases is on the street. The median building area of 800 square metres is comparable to Quigney and the scattered blocks, but nearly one and a half times smaller than the Southernwood/ Belgravia median building area of 1 175 sq. metres. Building valuations are mainly in the lowest bracket (48% under R35 000 which is higher than that of Southernwood/Belgravia, the scattered blocks, and the general average of 36%). The ratio of building to site valuations (1:0,4) is therefore also higher than elsewhere. There are actually more company owned blocks (64%) than in the other clusters and East London as a whole (59%).

Certain morphological characteristics are in greater proportion than would be expected for the cluster size. The cluster contains 20% of the East London site valuations over R10 000, 14% of the blocks

with 19 - 24 flats, 22% with no garages, 14% with four or more floors, 14% with a yard in very bad condition, 20% of the very bad building exteriors, 31% of blocks above businesses and 14% of the blocks over 30 years old (60% within the cluster itself). Together these indicate that a generally deteriorated pattern of morphological characteristics has emerged.

The central cluster morphological characteristics are epitomised in the core where two blocks out of the three with 18 flats are located as well as eight of the nine site valuations over R10 000. In addition all except one block are associated with businesses, three out of five blocks have four or more floors, none have yards, and of the nine blocks seven are aged between 16 - 30 years, and six have good building exteriors. In the periphery, ten out of sixteen apartment blocks have 1 - 6 flats, nine are two storeyed, and of poor/very bad building exterior, four have poor/very bad yards, and thirteen are over 30 years old.

The sample data for household heads living in the central cluster as a whole, also show that distinctive characteristics are recognisable, for certain socio-economic characteristics are in a greater proportion than would be expected for the cluster size (Table 14). There are proportionately more of East London's separated/divorced persons (25%), widows (15%) and more pre-child adults (25%) possibly attracted by proximity to the CBD. More of the city's adults in the child rearing stage (30%) with more school children (36%), than other clusters who may live in the larger proportion (19%) of flats with three residents are located here. In addition more residents in the cluster only have a standard six certificate (15%) and therefore earn lower salaries (42% under R200 and 42% between R200 - 299 per month).

Surprisingly 67% of flats have three living rooms, a greater proportion than any other cluster (average 44%) and 25% of households comprise three permanent residents (average 13%), more without children

(58%) more with children (42%) and 42% widowed, which is significantly higher than any other cluster, and East London as a whole. 25% household heads are in the child rearing life cycle stage. The number of people living alone(17%) is lower than the other clusters and the average (27%). These facts contradict Kahn's (1973) findings in Johannesburg and Abu Lughod's Toronto study which show the presence of "consumer oriented" households, close to the central city which has attracted households of single persons in early adulthood.

The standard of education is generally lower than all the other clusters as only 16% have a matric, compared to the 41% apartment average. Expectedly, more clerical (17%) and sales workers (8%) live in the cluster than in other clusters (average 13% and 5%) because of proximity to central businesses. Service workers are much more common than in the other clusters and over twice the East London average (20%). Incomes below R100 (17%) and between R100 ard R300 are far more common than other clusters. Rentals in 83% of cases fall in the R40 - 49 category, over four times as many as any other cluster and the average (22%). There are also over twice as many (17%) rentals in the R20 - 29 category than the East London average of 8%. Thus the generally low quality morphological and low status socio-economic residential levels within the central clusterare characteristic, and a clear morphological core/ periphery contrast is evident.

5.22 The Quigney Cluster.

The Quigney cluster comprises ninety one apartment blocks of 987 flats covering an almost square area of approximately 840 metres which averages only 140 feet above sea level. The cluster itself is located in the beachfront/recreational area, and is more compact than the central cluster. The core with 26 apartment blocks trends east to west. The two centres of gravity coincide with the geographic centre of the cluster (Figure 14) and all lie in the north-west sector of the core where the

densest concentration of blocks is found.

The very distinctive morphological characteristics of the cluster are related to the median land areas (607 square metres) which like the central area are the smallest of all clusters but 66% of them have low site valuations of under R5 000, (Table 12). This explains why 54% of blocks have no yards, including the 18% of the blocks located above shops, and where yards do exist 22% are in a poor to very bad condition. In addition it explains why 20% of the blocks have four or more floors (city average 10%). Nevertheless 46% of the blocks are small with 1 - 6 flats, and so more blocks (47%) are privately owned than elsewhere. Possibly the beach front location is responsible for the fact that there are more blocks (40%) in a fair condition than other clusters, (city average 29%). In addition, 19% of Quigney flats are rented furnished, 77% of roofs are made of asbestos or concrete and 16% have a storage/utility room, all figures recorded being higher than in other clusters. Proportionately therefore the cluster contains more than would be expected for its size of the 48% of East London's low site valuations under R5 000, 43% of the city's poor and 45% of the very bad building exteriors, 47% of all blocks without yards and poor yards (41%) and 61% of all blocks with concrete roofing, confirming the above patterns.

Certain of these morphological characteristics are contrasted in the core area, where overall a slightly higher quality character is evident. For example 13 out of 17 buildings valued over R70 000, 12 out of 20 apartment blocks with concrete roofs, 9 out of the 11 blocks with over 18 flats and 9 out of the 16 blocks above shops are located here. In addition, 22 out of the 24 blocks in the core are company owned.

In the periphery different lower quality morphological characteristics are evident. This is evident because 39 out of the 43 small blocks with 1 - 6 flats, 33 out of the 39 two floor blocks, 32 out of the 40 oldest blocks over 30 years, 38 of the 44 blocks valued below R35 000, and

therefore 39 out of 42 privately owned blocks are all located here. In addition there is a small concentration of buildings with yards located in the south - western cluster extremity, and the periphery has 19 of the 29 buildings with poor to very bad exteriors.

The samples of households in Quigney also show up distinctive characteristics (Table 14). The percentages refer to the proportion of the sample which is concentrated in Quigney, and which is greater than expected for the cluster size. These include 79% of all bachelor flats, 38% residents living alone, 52% of all flats without balconies, 78% of those with low rentals between R20 - 29 and 54% of those between R30 - 39. In addition 50% of all separated/divorced household heads, 43% of all those with a standard six and 40% earning incomes under R100, as well as 42% of those earning R100 - 199 live in Quigney.

The detailed breakdown within the Quigney cluster confirms above patterns and shows that 34% of flats are respectively bachelor flats and flats with three living rooms and 79% of households are small with one or two persons, both figures higher than other clusters or the city averages of 12% and 73% respectively. The lower morphological status is also reflected in that 44% of Quigney rentals are between R20 and R40 which proportion is far greater than other clusters. The social structure of Quigney is indicated by 31% residents being widowed and 60% retired, high proportions when compared with other clusters (city average, 41%). Lower economic status is reflected in that 44% of persons left school after standard 6, and that 13% of household heads are employed as craftsmen, a distribution probably related to the nearness of the cluster to the railway and harbour.

An analysis of the retail structure of Quigney (Figure 12) shows the predominance of convenience outlets (36%) in relation to services (21%) and demand outlets (28%) to serve the chief demands of lower income people. The lower order nature of Quigney retailing is also confirmed by the high proportion of general services, (17%) and the presence of wholesale and

a few light industrial establishments. The 13% everyday and 15% special demand, service and convenience outlets are mainly concentrated in the Fleet Street shopping area, but the wholesale (8%), odd light industrial establishments (2%) and corner convenience outlets (often general dealers) are located in the central northern portion of the cluster. Some of the Fleet street demand outlets are geared to the tourist attractions of the area.

The generally low morphological quality of Quigney apartment blocks evident in the analysis, is reflected on a general level in the sample data. Nevertheless certain marked contrasts are found at both the morphological and socio-economic level within the cluster indicating a distinct core/periphery division.

5.23 The Southernwood/Belgravia cluster.

The Southernwood/Belgravia cluster comprises 150 apartment blocks (1 762 flats) or 51,3% of East London's flats. In size it may be compared with the Port Elizabeth Mount Road/Central area cluster which contains 42,6% of all flats. The compact Southernwood/Belgravia cluster is rectangular measuring approximately 720 metres by 1 140 metres. The geographic centre of gravity coincides with both weighted centres of gravity, and lies roughly in the centre of both the cluster and its core area (Figure 14). The western boundary of the core corresponds essentially to the Oxford Street artery which effectively disrupts complete morphological unity of the entire cluster. The core, comprising 52 blocks, occupies a considerably larger area than the other cluster cores, and is made up of three north/south bands of apartment blocks separated by areas of predominantly single family dwellings.

Morphological characteristics of the Southernwood/Belgravia cluster show certain distinctive features (Table 12). While site area is the largest of all the clusters (median : 1 254 square metres), 53% of site valuations which fall into the medium and 33% over R10 000 ranges are higher than the East London average. This explains why Southernwood/

Belgravia has the highest concentration of three storey blocks (59%, average 45%), the most flats with two entrances (44%) and most of the blocks (29%) with over 12 flats and over 12 garages (14%). In fact, 87% of residents sampled in Southernwood/Belgravia had a garage. Median building area is therefore higher than other clusters and 32% of building valuations are over R70 000 (average 24%). Together these features are probably responsible for the fact that 49% of blocks have good building exteriors and as 89% blocks have a yard, 44% are kept in a fair and 25% in good to very good condition.

The morphological characteristics which occur in a greater proportion than would be expected for the cluster size, are building valuations over R70 000 (64%), medium to high site valuations (65% respectively) blocks with over 25 flats (61%) and over 12 garages (72%). Furthermore blocks with three floors (63%), with very good building exteriors (84%) or yards (80%) iron roofs (65%) are more common proportionately and support the above patterns. In addition only 17% of blocks are located above businesses.

Certain of these morphological characteristics are epitomised in the core area where the high quality character is evident as 30 out of the 47 blocks with building valuations over R70 000, 28 out of 48 with site valuations over R10 000 and 17 out of 22 blocks with over 18 flats are located. In the periphery, distinctly different morphological characteristics emerge for this is the location of the 40 blocks with building valuations under R35 000, and 20 out of 21 of the site valuations under R5 000. Not unexpectedly therefore 47 out of the 57 privately owned blocks, 44 of the 57 smallest blocks with 1 - 6 flats, 37 out of the 49 low rise two storey blocks, 33 apartment blocks out of the 47 over 30 years old, are found in the periphery.

The sample of household heads also shows distinctive characteristics when compared with other clusters (Table 14). Southernwood/Belgravia contains a greater proportion than would be expected of single people (64%)

and so 18% of the cluster's household heads fall into this category (average 12%). Southernwood/Belgravia has 32% of all larger flats with four living rooms, and 44% with three living rooms. Therefore the higher monthly rentals (56% over R60, East London average, 45%) is not unexpected.

The proportion of child bearing adults within the cluster and those with pre-school children (26% and 16% respectively) is slightly higher than the city average of 23% and 14% respectively) but 66% of the household heads are over 43 years, which suggests that the median age is higher than that of the Mount Road/Central area residents (39,3 years). In addition 78% respondents had no children, more so than other clusters. The higher status of the cluster is suggested by the 48% residents having an educational attainment of at least matric and 80% having a car. This may be explained by the concentration of 18% (average, 12%) professional and administrative workers in Southernwood/ Belgravia.

An analysis of the retail structure in the southern part of Southernwood (Figure 11) shows that shops are essentially oriented towards serving a higher status apartment population living mainly in Southern Southernwood. The proportion of service (31%, especially professional service outlets, 18%) and demand outlets (28%) is high,particularly the special demand function (25%) mainly housed in the Oxford Shopping Centre. The highest proportion of professional service outlets is explained by proximity to the medical centre. Of the outlets located along Oxford Street, 5% are automobile establishments, selling cars, and many of the 29% convenience outlets were of a higher order, and including such establishments as steakhouses.

The analysis has therefore shown that the Southernwood/Belgravia cluster has a transitional character between Quigney and the scattered apartment blocks, but resembles the latter more closely.

5.24 The Scattered Apartment Areas.

The scattered apartment blocks are considered as a single group for their nature, although their distribution is locally clustered and each is too small to have developed markedly different characteristics. The scattered group comprises fifty three blocks (430 flats) or 12,5% of all East London flats. The recent nature of the scattered apartment development is indicated by the fact that 36% of all blocks (or 60% of those in the area) are under 15 years old. Among the morphological characteristics found in greater proportion than would be expected (Table 12) are the 25% of all the city blocks in a good/very good condition as well as 34% of those with good condition of yard. Thus a better quality morphological environment is evident.

Sites, whose median is 951 square metres, are the second largest after Southernwood/Belgravia, yet because of distance from the CBD, these areas contain 29% of the cheapest sites in East London (68% of all sites here are valued at under R5 000). Consequently 68% of blocks have garages, 92% balconies and 6[illegible]% yards, 40% of which are in good to very good condition, a figure higher than the apartment block average of 21%. Building regulations are reflected in the fact that the 26% of blocks are above businesses which is higher than the East London apartment block average of 18%. In addition 31% of the city's two storeyed blocks are in scattered locations (83% within the area) and 25% of all these are in the 7 - 12 flat category size. Overall, however, 94% of the scattered blocks are small and have less than 12 flats. As a result the ratio of building to land area is 1:1,15 which reflects the lowest intensity of apartment block use in the city compared with other clusters, and building valuations in 53% of cases fall in the medium R35 - 70 000 range.

The sample socio-economic characteristics of scattered apartment area residents show distinctive trends and there are more of East London's flats with four living rooms (35%), more households with five residents

(40%), and flats with rentals between R60 - 90 per month, all of which are in greater proportion than would be expected for the size of area (Table 14).

Kahn's study (1973) showed that the Johannesburg suburban apartment areas were family oriented, catering for families in all stages of the life cycle. The same trend is evident in the scattered blocks in East London. More households proportionately are in the pre-child (50%), child bearing (29%) and child rearing stages (38%) of the life cycle than would be expected. Furthermore, proportionately 29% of households with pre-school and 75% with children at boarding school or university also indicates the high commitment to family life. These characteristics are of course reflected in the structure of the area itself where 69% of residents are married, (greater than in other apartment areas and the overall average of 57%), 19% have pre-school children living in the flat, and 30% are classified as in the child-bearing stage of the life cycle as opposed to the East London apartment block average of 23%. It is also significant that the age structure is lower for residents in the post-child category and only 31% household heads are retired, as opposed to the city apartment average 41%.

The higher economic status of residents in the scattered apartment blocks is reflected by 92% of respondents owning a car and 41% of residents with a matric certificate. Persons in service occupations (27%) are only better represented in the central cluster, but are more numerous in the scattered apartment blocks than the average (20%). In addition 50% of all East London apartment sales workers live in this area and are in a greater proportion than other clusters (average 5%). The higher incomes from R300 - 600 per month are better represented than expected (69%). It is obvious therefore that the scattered apartment areas have distinct morphological characteristics and that typical residential traits can be identified in the residents living in the flats.

The particular problem of the spatial analysis is clearly evident for the degree of variation within each major cluster is too great for clear cut morphological patterns to have emerged, although there is evidence, especially in the central cluster, that the core does epitomise the characteristics of the cluster as a whole. Similar variation in socio-economic characteristics of the sampled households no doubt also exists and this areal subdivision by inspection of patterns is unrealistic. In order to establish whether relationships do exist between morphological characteristics of apartment blocks and those socio-economic attributes of their residents the technique of factor analysis is used to analyse each cluster to establish whether 'real' natural areas can be recognised.

CHAPTER 6

NATURAL AREAS WITHIN APARTMENT AREAS

Before examining the occurrence of natural areas within the apartment areas, it is important to consider more closely, the significance of the factor scores obtained by the factor analysis. The first four factors account for merely 50,6% of the total variance. Consideration of the factors involved indicates that interpretation is not meaningful, except in the case of Factor I. Even so a low percentage of the overall variance (17,7%) is accounted for by Factor I, but can be explained partially by the lack of clear definition of morphological subareas as indicated in Chapter 5, coupled with the problems of grid delimitation mentioned in Chapter 4. Together these factors suggest that the apartment clusters have not yet reached the stage of development by which marked differentiation into natural areas has taken place. Despite this fact an attempt has been made to see whether spatial patterns would be revealed when the factor scores for Factor I were plotted. After ranking the factor scores two clear and significant breakpoints could be distinguished dividing the loadings into high, medium, and low status. When the scores were mapped distinct differences were found to exist within and between the clusters. These spatial patterns suggest that incipient natural areas can be distinguished and that ecological processes have brought about changes in the apartment component of the residential system. The characteristics of these natural areas cannot be expected to be sharply differentiated but the results of the analysis point to the existence of particular combinations in morphological character of the apartment blocks and the socio-economic character of their residents which are arranged in distinct spatial patterns.

6.1 Apartment Natural Areas: Macro Patterns.

An attempt may be made to establish at the descriptive level only, whether the morphological/socio-economic status within apartment clusters can be explained in accordance with the macro models outlined in

Chapter 2. It must be remembered that the discussion is based on the low Factor I scores only and refers to broad overall patterns within one sector of the residential system. The findings outlined are merely tentative suggestions and require to be confirmed or rejected by further more detailed analysis of all aspects of the residential system.

In the first place a central city core approximating the C.B.D. boundary (Figure 15) emerges as medium status. This division largely confirms the delimitation of a morphological core area previously defined by cluster analysis and which it overlaps to a large degree (Figure 15). It also supports the earlier postulate that socio-economic differentiation of apartment households would occur within the central cluster. The central area of East London is rather unattractive physically and the general paucity of cultural amenities may partly explain the difference between the actual East London apartment dwellers and the consumerism characteristic. Consumerism refers to residents in pursuit of the 'good life'.

Immediately adjacent to this, the lowest status natural areas of apartment blocks in East London form a broadly concentric sweep around the C.B.D. to include North End, the western edge of Quigney and continue south across the West Bank (Figure 15). The North End low status natural area corresponds very closely to the morphological periphery defined by cluster analysis (Figure 15). This low status zone is broken into spatially distinct sectors primarily because of topographic features and institutional land uses. The zone includes apartment blocks some of which are deteriorated low rise buildings, and many of the buildings are ready for renewal (Hoover and Vernon, 1962). In fact the Municipality has intervened in the natural process, for urban renewal plans are in progress at North End and are proposed for Quigney. The mixed pattern of land use and quality of residence associated with this zone of apartment blocks suggests the probable existence of a zone in transition around the C.B.D. The apartment blocks are well located

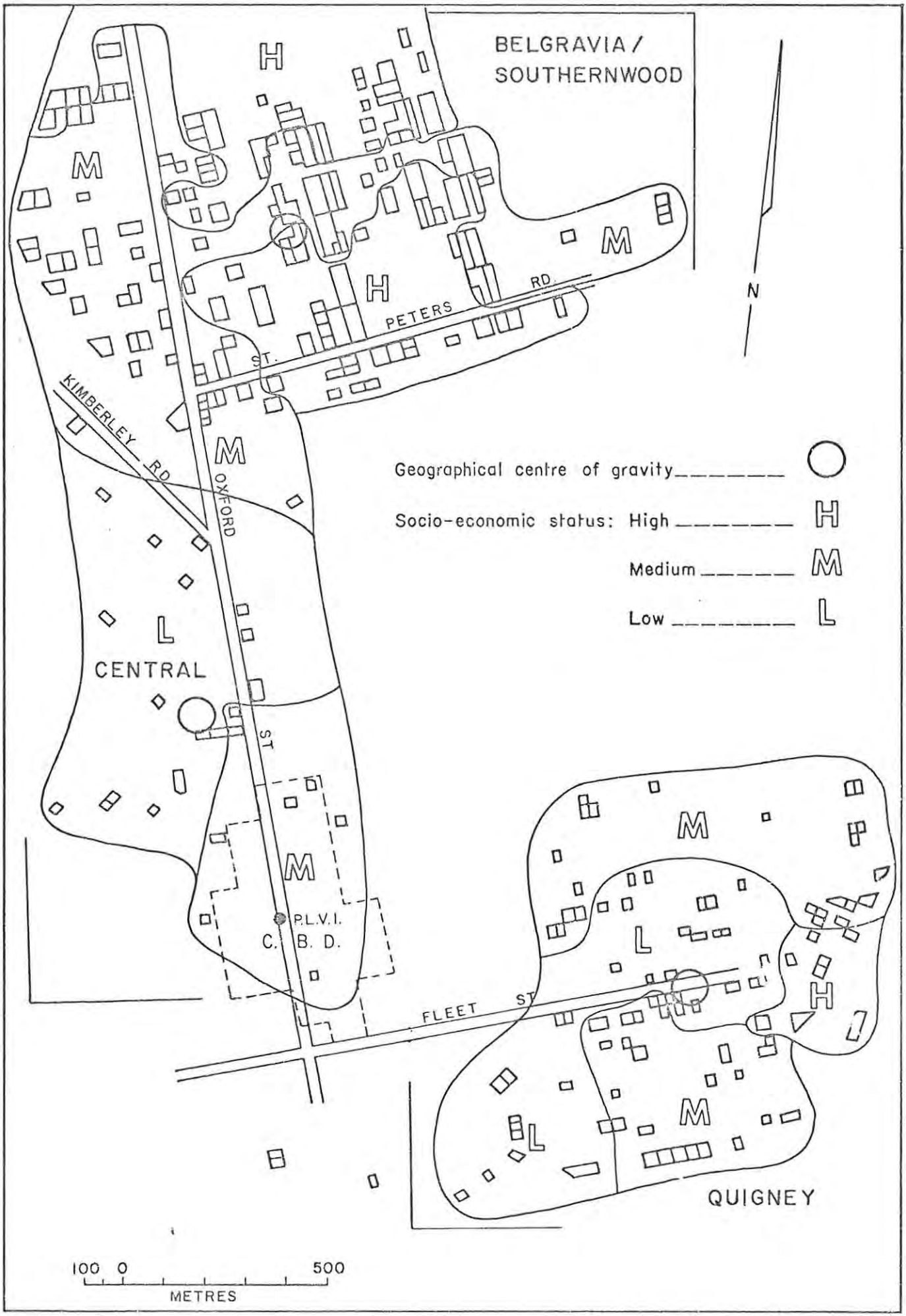


Figure 15: Apartment Clusters: Natural Areas

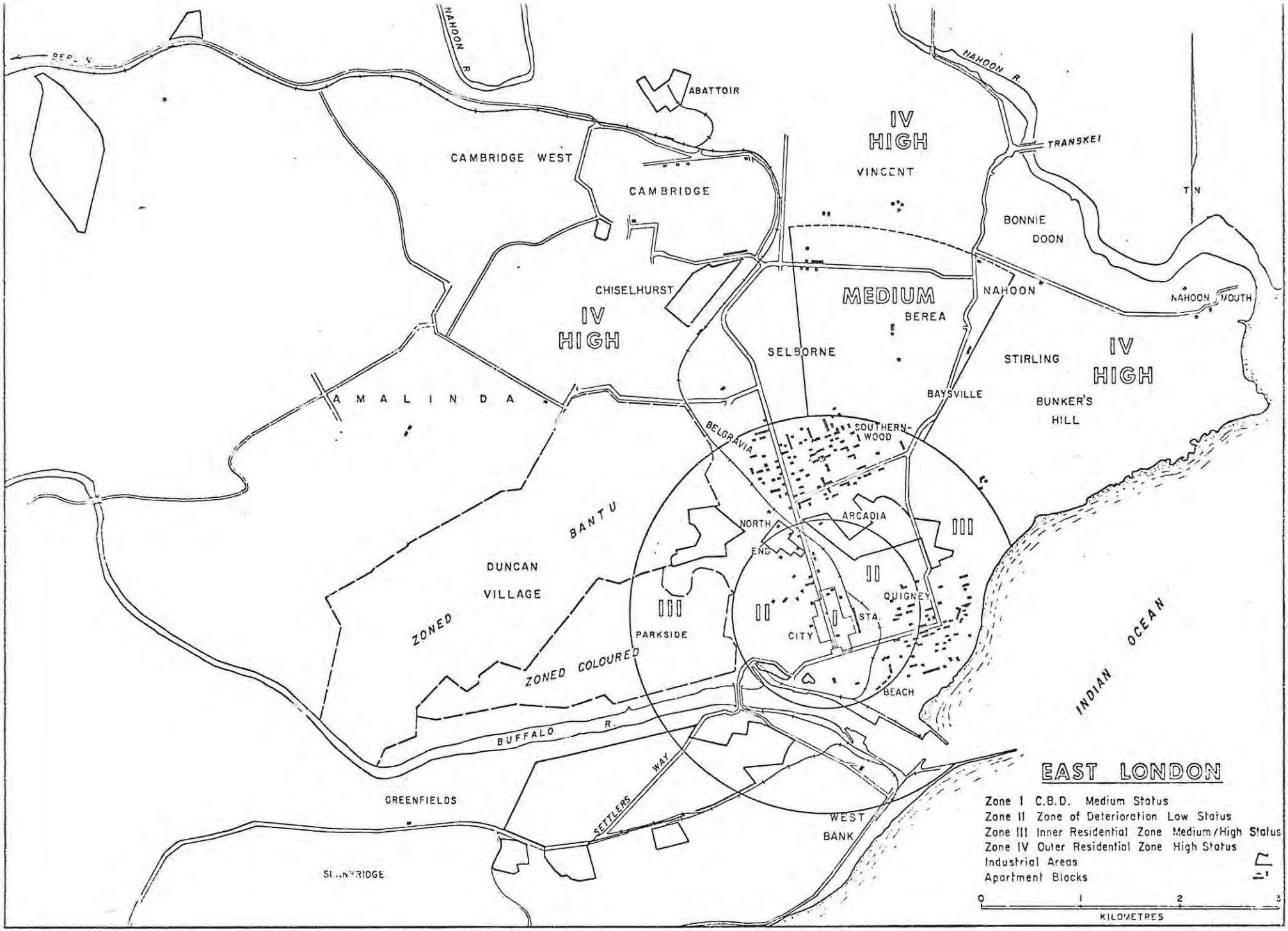


Figure 16: East London: Apartment Natural Areas

with respect to central work places and bus transport routes and are well suited to meet the demands of lower income people.

Beyond this apparently deteriorated zone which includes low status apartment blocks, is what may be termed East London's inner residential area (Figure 16). In accordance with the macro models, the natural areas within the inner residential zone as a group appear to be sectorally clustered into the contrasting status areas of Southernwood and Eastern Quigney. The differential pattern of natural areas of medium, but primarily high status, concentrates within the Southernwood/Belgravia apartment cluster, and the remaining medium status northern and southern fringes of Quigney seem to confirm Berry's (1971) postulates.

The spatially dispersed nature of the small local clusters of the apartment blocks in the outer residential areas include the medium status Vincent/Berea/Stirling sector separating two high status apartment sectors. The distance factor together with the attraction of shopping outlets and scenic views, has played the major part in the location of these apartment blocks. (Figure 16).

The spatial distribution of socio-economic status of apartment clusters in East London suggests that residential patterns in the city correspond in very broad terms to the spatially integrated model of zonal and sectoral attributes (Berry, 1971). The existence of natural areas in apartment clusters implies that ecological and economic processes as postulated by the theoreticians are operating within the apartment residential sector. As a result, it may be expected that the trends will be reinforced with time.

6.2 Apartment Natural Areas: Micro Patterns.

If residential processes are operating on an overall scale, then the detailed characteristics within each cluster may give an indication of the actual processes as they take place. For this reason, the tentatively recognised natural areas within each cluster are considered

Table 15. Natural Area Characteristics: Central Cluster.

Factor Analysis Variable	Status	
	Medium	Low
	CBD N=8 n=5	North End N=16 n=7
Age: (Years)		
Average	26	36
Median	25	37
Building Area: (square metres)		
Average	1 493	828
Median	1 591	694
	Percentage	
Block above businesses:	100	63
Concrete/slate/tile roof:	12	0
Good/very good block exterior:	75	19
Poor/very bad block exterior:	0	50
Blocks with 1-6 garages:	0	25
Parking on site/street:	100	62
Flats with 1-2 living rooms:	40	29
Flats with rental below R50:	100	100
Married residents:	20	57
Income under R200:	80	14
Residents with matric:	20	14
Residents with standard 6 or 8:	80	86

in the hope that it will be possible to establish what differences do exist and to highlight those that may serve to indicate the processes that operate as the natural areas evolve. Tables 15 to 18 are used throughout the following section and should therefore be consulted.

6.21 The Central Cluster.

Within the central cluster the medium status CBD natural area may be separated from the low status North End natural area and the two afford interesting contrasts. Table 15 highlights the differences between them. Effects of economic forces are reflected in the fact that although median land areas are similar in both natural areas viz. (607 sq. metres) median ratio of building to land area is 1:0,38 and 1:0,87 respectively, while in addition the median ratio of building to site valuation is 1:0,56 and 1:0,19. Thus the higher land values near the Peak Land Value Intersection have given rise to more intensive use also reflected in morphological characteristics with a concentration of the largest blocks, 50% with four or more storeys, 63% with more than 12 flats. In addition all blocks are located above businesses, and 88% are company owned. Except in the case of 25% of the CBD blocks, all apartment blocks are of the walk-up variety with one entrance only. Significantly more (20%) of the CBD flats sampled are bachelor and 40% are one or two roomed. Whereas in the low status North End are found smaller blocks, 63% of which have between 1 - 6 flats, and 56% have only two storeys. Significantly too, the 37 year median age of blocks in North End is twelve years more than is the case in the C.B.D. The considerably lower value of land is further reflected in the fact that the only garages are found in North End where 25% of apartment blocks have some garaging, they contain the only yards in the central cluster, which surround 31% of apartment blocks. North End blocks are more cheaply constructed, rented out more cheaply, and also not surprisingly are in poorer condition (50% classified as poor to very bad).

Table 16. Natural Area Characteristics: Quigney.

Factor Analysis Variable	Status		
	Medium	Low	High
	North/South	South/West	East/Central
	N = 48 n = 9	N = 35 n = 16	N = 8 n = 6
Age: (Years)			
Average	26	34	19
Median	23	32	19
Building Area: (square metres)			
Average	1 161	905	2 424
Median	933	629	1 256
	Percentage		
Block above businesses:	16	17	0
Concrete/Slate/tile roof:	33	10	63
Very good/good block exterior:	31	15	50
Poor/very bad block exterior:	34	32	25
Blocks with 1-6 garages:	40	61	38
Blocks with over 8 garages:	17	13	50
Parking on street/site:	55	22	0
Flats with 1-2 living rooms:	45	57	34
Flats with 4-5 living rooms:	30	0	0
Flats with rental below R50:	55	82	50
Flats with rental over R80:	7	10	33
Married residents:	56	57	16
Income under R200:	51	48	49
Income over R600:	0	0	17
Residents with matric:	45	40	34
Residents with standard 6-8:	55	50	66

The sample of residents from the central cluster indicates that socio-economic differences exist between the natural areas and in general tend to support the theory that ecological processes are operating to establish natural areas within the central cluster. In the first place, 60% of CBD residents are over 53 years and these include retired persons (60%) as well as widows (60%) and separated/divorced persons (20%) all of whom could be expected to predominate in a medium status natural area. Further support of medium status lies in the fact that 80% of household heads earn less than R200 per month and are presumably attracted to the CBD where they can enjoy a low rental (100% sampled paid less than R50 per month) together with the advantage of a central location. However the remaining 20% earn high monthly incomes of between R400 and R499 perhaps suggesting a trend towards improvement of the status within central business apartment areas. In the low status North End 57% of household heads are married, 86% have a low level of education and 58% are employed in service occupations. The flats, although larger than those in the CBD (71% are three roomed flats) house two or more residents in 86% of the cases sampled.

The CBD medium status natural area appears to be in Hoover and Vernon's stable stage of downgrading with very little new construction taking place. In the older deteriorated zone North End is in the stage renewal being carried out by the Department of Community Development.

6.22 The Quigney Cluster.

The Quigney Cluster comprises a south/west low status area partly surrounded by an arc of medium status which grades to higher status in the east/central portion. The morphological core overlaps with all three natural areas whose characteristics appear in Table 16.

The distinctly high status nature of the east/central area is most marked and shows clearly the effect of economic processes on the morphological character of the natural area. The highest average site

valuations correspond to those sites with the best sea views. On average sites are significantly larger than elsewhere in the cluster, and although building areas are also high, the ratio of building to site valuation (1:0,05) as well as building to site area 1:0,5 is low. Nevertheless median age of building is 19 years and 63% of the largest Quigney apartment blocks over 12 flats are in this area, 88% provide garaging, and 37% of the blocks are four storeys or more, with the exterior in good/very good condition in 50% of the cases and 63% also have high quality concrete/slate/tile roofing. The high status is also reflected in the occurrence of penthouses which comprise 13% of all blocks in the natural area, the fact that 33% of the flats have a shower in addition to a bath, 66% have three or more living rooms and as a result of these factors 33% of the rentals recorded were over R100 (the highest category in the survey). This had led to a process of social filtering reflected in the fact that all sampled household heads were over forty years, 84% were either widowed, divorced or single, and 83% were retired, yet 51% earned over R300 per month. In addition two thirds of the sample residents lived alone in their flats, although two thirds of the flats sampled had three living rooms, suggesting a very low living density. Together these features suggest a concentration of the more well off residents in those buildings with the advantage of modernity and attractive sea views.

By contrast, the south west low status area which lies nearest to the P.L.V.I. of the C.B.D. has the lowest building valuation of the area (median : R27 000) and 17 of the blocks are above businesses. Median site (607 sq. metres) and building areas (629 sq. metres) are significantly smaller than elsewhere in Quigney and the ratio of building to site area is high (1:0,96). Nevertheless the smallest Quigney apartment blocks (86% with under 12 flats) are in the south west area, and only 2% have four or more storeys, 53% of the apartment exteriors are in fair condition and 90% of the blocks have iron/asbestos roofing. The low morphological

quality is also reflected in the fact that 46% of the rentals are under R40, although 57% have one or two living rooms. Of heads of household 57% are married, 53% of them are older than 53 years and 53% retired. In addition 71% earn under R300 per month, not unexpectedly with 25% blue collar workers (mostly craftsmen) and 46% having left school after standard 6. Together these features suggest a concentration of lower status married residents (possibly pensioners) living in poorer quality buildings.

The medium status natural areas have evolved around the edges of the low status area and are largely transitional in character between low and high status areas. Average site size is small (710 sq. metres) but average valuations (R6 863) are high especially in the south where they reflect proximity to the attractive beachfront. Land is used intensively and therefore the median ratio of building to site area is fairly high (1:0,7) and so 58% of apartment blocks have no yards and 25% of the blocks which have four or more floors are especially concentrated in the more developed southern medium status area close to hotel zone. The 16% of blocks above businesses are located near Fleet street. The largest proportion of flats (37%) are one roomed though the blocks also contain the largest flats in Quigney and 30% of those sampled had four rooms. The medium morphological quality is reflected in that 44% of blocks are well constructed of face brick, 48% of rentals are below R40 per month and 86% are less than R60 per month. Living densities are low as 76% of flats house one to two residents only, but although 53% of household heads are in the post-child period, there are fewer pensioners than elsewhere in Quigney. 16% of the younger household heads under 23 years and the 14% single residents have moved into the area probably attracted by the beach and other recreational facilities. Economic status of residents is not high particularly in the north western area where some of the railway pensioners reside and 24% are employed in service occupations, 38% earn low salaries between R100 and R200.

Table 17. Natural Area Characteristics: Southernwood/Belgravia.

Factor Analysis Variable	Status	
	High	Medium
	North/South N = 70 n = 24	Belgravia N = 80 n = 27
Age: (Years)		
Average	21	26
Median	20	24
Building Area: (square metres)		
Average	1 720	1 177
Median	1 358	1 033
	Percentage	
Block above businesses:	2	13
Concrete/slate/tile roof:	24	15
Very good/good/block exterior:	62	49
Poor/very bad block exterior:	22	17
Block with 1-6 garages:	37	51
Block with over 8 garages:	57	33
Parking on site/street:	8	44
Flats with 1-2 living rooms:	3	29
Flats with 4-5 living rooms:	55	26
Flats with rental below R50:	4	48
Flats with rental over R80:	47	12
Married residents:	58	59
Income under R200:	7	44
Income over R600:	17	7
Residents with matric:	55	45
Residents with standard 6-8:	45	55

The Quigney low and medium status natural apartment area appears to be in Hoover and Vernon's third stage of downgrading and apartment deterioration, with very little new construction taking place. The small household size of these apartment dwellers is actually a characteristic of the thinning process, but there is as yet no evidence of vacancies of flats to support the idea of rapidly declining densities. The existence of the high status natural area in the stage of apartment construction suggests that the whole apartment area is poised for redevelopment. Stimulated by the tourist function the growth of holiday apartment blocks will no doubt increase and municipal renewal schemes are planned. It is anticipated therefore that the character of Quigney will change and possibly overtake Southernwood as East London's major high status apartment area.

6.23 The Southernwood/Belgravia Cluster.

The Southernwood cluster has a medium status natural area in the south west with an easterly extension that forms a corridor to bisect the high status area. The morphological core corresponds to the high status area (Figure 14), but is cut through by the central corridor of medium status.

Although land values differ very slightly between the medium and high status natural areas, the latter has the larger stands, higher building valuations, a slightly lower intensity of use (median ratio of building to site area 1:1,1 to 1:0,94 respectively) (Table 17) for all high status blocks are surrounded by private open space. The morphological differences lie chiefly in the fact that the high status areas are essentially quieter peripheral residential areas. For example only 2% of blocks in the high status but 13% in the medium status area are located above businesses. In the high status area apartment blocks have a median age of 20 years and are larger with 33% having more than 12 flats, 75% are three or more storeys high and 3% have penthouses while 24% have concrete or tile roofing. As a result it is not unexpected that 71% of blocks are company owned. In the high status area, a larger proportion

(57%) of the apartment blocks are in a good condition as are 27% of yards. The flats themselves are generally larger for 55% have four or more living rooms and are not overcrowded as 55% of flats surveyed have only two permanent residents; 8% have an extra bath or shower and almost all (92%) have open balconies. Inevitably rentals are higher and 61% cost over R70 per month. An additional indication of the status lies in the fact that 4% of the flats have been purchased on a shareholder company basis. Economic filtering of residents has taken place for the sample showed that 89% of household heads have incomes over R300 per month, 88% own a car, (92% of these garage it in an apartment block garage) 37% are white collar workers and 55% have a matric certificate. In 75% of the cases residents are without children for they are either young i.e. 33% below 33 years, or in the post child period i.e. 43% are over 53 years.

The south-western medium status natural area corresponds to the suburb of Belgravia and is aligned along the west of the Oxford street arterial which separates it from the high status areas. This division confirms previous morphological analyses which separated the Belgravia periphery from the core. The medium status area however extends as an easterly central corridor along the important routeway of St George's Road, thus bisecting the high status area and the morphological core. The morphological character is of a lower quality than the high status area for with smaller median site areas (975 sq. metres) but similar value, land is intensively used (1:0,94 building to land area) and therefore 20% of blocks are without a yard. The pressure of space is also reflected in that 13% of blocks are above Oxford street businesses. The average age of buildings is 26 years and as 75% of blocks have fewer than 12 flats and are two storey buildings in 40% of cases, a larger proportion (45%) than in the high status area, are privately owned. Nevertheless, building exteriors are chiefly in a good (43%) to fair (34%) condition. The flats themselves are small for 29% have one or two rooms and 45% have three rooms and 30% are without balconies. But as monthly rentals are

Table 18. Natural Area Characteristics: Scattered Group.

Factor Analysis Variable.	Status		
	High	Medium	Low
	Baysville/ Cambridge N = 31 n = 16	Vincent/Berea N = 16 n = 8	South N = 5 n = 2
Age: (Years)			
Average	11	18	29
Median	10	18	21
Building Area: (square metres)			
Average	1 322	710	688
Median	1 301	734	791
	Percentage		
Block above businesses:	13	38	20
Concrete/slate/tile roof:	66	6	0
Very good/good block exterior:	60	69	20
Poor/very bad building exterior:	0	6	60
Blocks with 1-6 garages:	46	44	0
Blocks with over 8 garages:	38	25	9
Flats with 1-2 living rooms:	5	12	50
Flats with 4-5 living rooms:	59	13	50
Flats with rental below R50:	0	25	100
Flats with rental over R80:	65	0	0
Married residents:	77	62	50
Income under R200:	10	12	50
Income over R600:	0	0	0
Residents with matric:	40	51	0
Residents with standard 6-8:	60	49	100

also lower (77% being under R70), living densities are not high and 77% of surveyed flats have one or two residents only. The medium morphological status is reflected in lower status heads of household, 55% of whom are persons in the post-child period, 41% are retired, and 25% have a lower level of education, having left school at standard six. Medium economic status is reflected in the 78% who earn less than R400 monthly, that only 63% afford a car, which in 44% of cases has to be parked on the open site, as 67% of blocks have none or less than 6 garages. Overall, the Southernwood/Belgravia cluster is dominated by the higher status natural areas except along the routeway. However the distinct difference with the Belgravia natural area suggests ecological processes are probably operating to perpetuate its medium status, and two distinct natural areas separated by the Oxford Street arterial will ultimately emerge.

The Southernwood/Belgravia natural areas appear to be within the stage of apartment construction representing a transitional stage where population density is increasing and new construction fills the vacant land or replaces older apartment blocks and single family housing. The change is especially evident in the Belgravia medium status area.

6.24 The Scattered Apartment Areas.

The small clusters of scattered apartment blocks have been shown to have a different overall character from that evident in the clusters. Distance and sectoral characteristics have emerged with the low status area chiefly on the West Bank of the river, and two high status sectors separated by the Vincent/Berea medium status natural area.

The five low status blocks correspond to that area closest to the CBD as the crow flies although travelling time to West Bank extends the distance from the P.L.V.I. to a level equivalent to that of the other scattered apartment blocks (Table 18). It is an area of older settlement with high average age of blocks (29 years). The morphological character reflects the age and unsatisfactory position in lower site values (median R1 530) and cheaper blocks (median R22 500), with 100% having less than

12 flats to give a low building to site value of 1:0,06. Sites are small, and ratio of building to site area is relatively high (1:0,7) so 91% of the blocks have no yards, the same percentage have no garages, and cheaper construction and roofing materials viz. iron or asbestos have been used in all cases. Under these conditions it is not surprising that 60% are in poor to very bad condition with 20% due for demolition. The sample showed rentals are low, for all flats cost under R30 per month although the sample includes both two and five roomed flats. As a result there is a high proportion of widows (50%) and older persons, (50% over 53 years and retired). These people have little money as 50% earn under R100 per month, and have a low standard of education (50% have a standard 6 only). The generally unattractive nature of the area is reflected by the fact that none of the households sampled had children.

The medium status area at Vincent/Berea comprises 16 blocks and is linked by good bus services via Devereux Avenue to the Union Avenue extension of Oxford Street providing a direct link to the CBD and east to the coastal residential suburbs. Apartment blocks are all two storey, 75% do not have a yard, and are associated with businesses in 38% of cases. All blocks have fewer than 12 flats and exteriors are in good condition in 69% of the cases. Together these facts explain why rentals are of a medium level with 88% of flats costing between R40-70 per month. The flats themselves commonly have three living rooms (75%) and one to two permanent residents in 63% of cases. Thus living densities are not high. The medium status is also reflected in the social and economic character of residents, 38% of whom are in the post-child period, over 53 years and 38% in the child bearing stages of the life cycle. A probably unsuitable environment for child rearing is borne out by the fact that 25% of household heads have pre-school children and the only other children are away at boarding school. The medium economic and social status is reflected in occupational structure for 50% of those sampled are clerical and salesworkers largely employed in shops below or in the C.B.D. earning medium to high incomes viz. 63% earn over R300 per month.

Overall, the high status scattered natural areas are significantly different from the medium and low status areas in terms of high building valuation which in turn reflect good to very good building exteriors (60%) condition of yards (56%), and higher quality roofing materials used in 60% of cases. This explains why 77% of blocks are company owned. Sites and building areas are significantly larger than elsewhere and 14% of blocks have over 12 flats. This together with the newness of blocks (median age : 10 years) explains the high rentals which in 90% of cases are over R70. The flats are large for 59% have four living rooms to the same proportion of two permanent residents, suggesting very low living densities. The better, less dense morphological environment has attracted higher socio-economic residents. Married residents (77%) in all stages of the life cycle, especially post-child residents (35%) are characteristic. Higher economic status is reflected in 85% of incomes over R300 per month and social status in the 13% employed in professional and administrative posts.

The eastern Baysville/Nahoon area is smaller (8 blocks) than the western Cambridge/Chiselhurst area (23 blocks). The former area is attractively situated with coastal views and has become a prestige apartment area. The highest building (R75 880) and site (R3 685) medians in Baysville are explained by the potential of the area for residential development with scenic views. All the larger blocks are located here and small households of two per flat in 66% of cases are typically in the post child period (50%) possibly including wealthier retired residents (50%). In contrast, the Cambridge/Chiselhurst area has 26% of the blocks associated with businesses and 40% of household heads in the child-bearing family oriented life cycle stage.

The high and medium status natural areas appear to be in Hoover and Vernon's stage of apartment construction where population density is increasing and new apartment blocks are being built. The low status area however, is in the renewal stage.

The detailed differentiation of natural ecological areas within the apartment clusters in East London has indicated in most cases that the characteristics of the natural areas are fairly clear cut and are reflected in the morphological character of the blocks, and the social and economic status of their residents. The core/periphery subdivision in the Central and Southernwood/Belgravia clusters supports to a large degree the natural area boundaries (Figure 14). This suggests that morphological differentiation has been associated with socio-economic differentiation resulting in natural area development. The main features have been outlined but the small sample size coupled with the wide in group variance caused largely through the grid system used, has made it unrealistic to use statistical tests on the data. The above discussion however has indicated that ecological and economic processes are operative and through time the natural areas can well be expected to become firmly established and more clearly defined to the casual viewer. In addition it is suggested that every effort should be made to plan with these trends in mind so as to encourage development of the apartment natural areas and integrate the functioning of the whole residential system.

CHAPTER 7

FINDINGS AND RECOMMENDATIONS

The previous chapter has established the detailed characteristics of natural areas within the major apartment clusters. It is now possible to use this information and consider needs of residents from a planning viewpoint. By examining their residential stability and satisfaction levels on a general and more specific level, it may be possible to pinpoint those aspects which should be taken into account when new residential developments are planned. In this regard, then, the applicability of the natural areas concept can be assessed and the relative contribution of this study evaluated.

7.1 Planning Recommendations.

General findings regarding the overall satisfaction levels of apartment dwellers provide recommendations pertaining to the apartment component of the residential sector as a whole. Furthermore assessing the detailed implications of the tenant's views on the advantages and disadvantages of apartment living in each natural area will suggest planning applicable to East London in particular. These features are summarised in Tables 19 and 20 which are referred to throughout this section.

7.12 Overall Recommendations

Discussions with estate agents seemed to suggest that there is no present shortage of any particular rental category of flat in the city. However respondents indicated otherwise, as 23% cited low rentals as a factor affecting their choice of flat (Table 19). In Quigney 30% of residents and in Southernwood/Belgravia 25% of them indicated that low rentals were especially important. It appears that, as in Port Elizabeth, while there may be no overall shortage of flats there is in fact a great demand for low rental flats. Furthermore the monthly income structure in the apartment sector indicates that 48% earn under R300 and only 14% over R500 per month. This large proportion of low to low-medium incomes

Table 19. Preferences and Stressors of Apartment Residents.

	PERCENTAGE							
	East London n = 120	Central n = 12		Quigney n = 32		Southernwood/ Belgravia n = 50		Scattered group n = 26	
		%	Proportion of E.L. Total	%	Proportion of E.L. Total	%	Proportion of E.L. Total	%	Proportion of E.L. Total
1 Reason for choice of flat:									
Accessibility:									
Near amenities	26	40	18	21	23	22	41	20	18
Near work	12	18	18	6	15	12	46	10	21
Near schools	1	0	0	2	33	1	34	2	33
Neighbourhood:									
Adequate shopping facilities	2	4	23	1	23	1	23	3	31
Socially pleasant	10	0	0	12	25	15	52	12	23
View	2	0	0	0	39	0	0	7	61
Dwelling unit:									
Appropriate size	20	13	6	19	24	21	42	26	28
Low rental	23	24	11	30	33	25	45	11	11
Adequate facilities	4	1	3	5	27	3	27	9	43
2 Proportion dissatisfied:	35	48	12	25	23	30	45	37	20
3 Reason for dissatisfaction:									
Accessibility:									
Too far from amenities	3	0	0	0	0	0	0	12	100
Too far from work	2	0	0	5	100	0	0	0	0
Neighbourhood:									
Inadequate shopping facilities	3	0	0	4	33	0	0	6	67
Socially unpleasant	5	16	63	0	0	3	37	0	0
Noisy	30	28	12	29	21	31	42	32	25
Dwelling unit:									
Too small	16	25	22	16	24	13	38	10	16
Too big	1	0	0	6	75	0	0	1	25
Too expensive	3	0	0	0	0	7	70	5	30
Inadequate facilities	9	19	31	6	16	9	53	0	0
Bad maintenance	23	12	6	27	23	35	55	17	16

makes it clear that economic high density housing if well planned, could meet the major area of demand that exists in the apartment sector at least. Present high building and maintenance costs inhibit the building of a large number of suitable flats of this type as indicated by the higher rental ranges especially evident among the new scattered blocks. Therefore the East London Municipality has planned three medium density apartment complexes with a total of 574 flats. One in Cambridge is presently under construction, one near the industrial area adjacent to North End and one in the southern portion of Southernwood are in the planning stage. These schemes will be financed by the National Housing Commission and be located in an attractive landscaped environment suitably provided with recreational facilities. Thus the demand is in part being met, though the planned location of the blocks may offset their low rental advantages, by necessitating higher transport costs.

An important factor which in some cases initiates residential mobility, is bad apartment maintanance as indicated by 23% of city apartment dwellers especially those in Southernwood/Belgravia where the figure reaches 35% and Quigney where it is 27%. The low level of repair in these areas has been noted among the morphological characteristics of these apartment clusters where it is frequently associated with older buildings. Nevertheless builders should take into account the problem of rising damp in new buildings as well, for this problem is the most serious cause of dissatisfaction among tenants. Problems of poor repair may to some extent be associated with the disadvantages of rent control in that certain speculative developers feel they cannot gain a proper return from their investment. The rent board, which values the apartment property and sets rentals, has no fixed standard of valuation. Consequently if controlled rents are too low, owners do not improve apartment blocks, which soon deteriorate further and this results in demands of certain tenants for still lower rentals and greater mobility of others. Removal of this particular type of control at the same time as providing additional low rental flats would perhaps lead

to greater stability within the apartment system when normal ecological and economic processes could operate.

Where rental is less important, as for example among residents of the scattered blocks, it is found that 26% of residents are attracted by appropriate size of flat. At the same time in 10% of cases, the smaller size of flat was regarded as a significant stressor especially in the Central and Quigney areas where the proportion citing this factor was 25% and 16% respectively. In addition 19% in the central area found facilities provided in the flat very inadequate. This finding suggests that planning should take into account the demand for a particular size of flat, as indicated by average household size in each apartment area. The planning problem lies in coupling this aspect with that of adequate provision of appropriate rental groups and the location of new blocks in areas where demand is highest.

In this latter respect, accessibility is considered important by 39% of apartment dwellers, especially in the central cluster where 40% of households were attracted by proximity to amenities and 18% by proximity to work. This suggests an important feature in locating new blocks should be accessibility - a conclusion supported by the fact that in the scattered apartment group distance from amenities was regarded as irksome by 12% of respondents. Planning new apartment blocks therefore should continue to take advantage of central location, while those blocks to be located in scattered suburban location should wherever possible be near to shopping centres and at points with good transport linkages with the rest of the city.

After dwelling unit stressors, neighbourhood stressors are second in importance (38%) as potential initiators of residential mobility and were noted by 44% of those in the Central cluster. In this regard, neighbourhood noise formed a significant stressor in 28% of cases. Planning problems therefore involve how to locate apartment blocks in accessible positions while reducing noise factors. An attempt to locate blocks away from, but accessible to, major traffic routes and near but not above retail

outlets, may help in this regard.

Finally a number of respondents indicated that they had difficulty in searching for flats and possibly more co-operation and co-ordination between estate agents in the city would improve the situation. This problem could perhaps be solved by establishing a central register in which vacant flats would be recorded and to which those seeking a flat could refer directly.

If the above recommendations are acted upon, an integrated approach to planned developments in apartment areas should be adopted as the whole apartment component functions as a single entity within the total residential system. On the basis of the overall proportion of city apartment dwellers wanting to move, one can suggest the areas where stressors are greatest. Therefore priorities can be recognised and the order in which apartment areas should be redeveloped may be listed. It appears that dissatisfaction is highest in the inner deteriorated zone, where the proportion of sampled residents who wish to move is 57% in North End, 50% in the low status West Bank scattered blocks and 44% in the low status area of Quigney. The dissatisfaction is further reflected in a fairly high residential turnover, as 43% remained under four years, 100% under a year, and 52% under four years in each area respectively. In each case though, residents have been attracted by proximity to C.B.D. and work place, and the situation is highly suitable in economic terms for high density residence. In order to capitalise on these advantages therefore, comprehensive renewal is essential to change living conditions within each of the natural areas to introduce a socially balanced population which in turn will lead to residential stability. Thereafter the focus should move to the inner residential zone especially Southernwood/Belgravia where 48% of all potentially mobile city residents spending under a year in East London apartment blocks are found. But at the same time, all new apartment block development should take into account the further more detailed recommendations.

Table 20. Preferences and Stressors within Natural Areas

	PERCENTAGE									
	Central n = 12		Quigney n = 32			Southernwood/ Belgravia n = 50		Scattered Group n = 26		
	Status		Status			Status		Status		
	Medium	Low	High	Medium	Low	High	Medium	High	Medium	Low
	C.B.D.	North End	East/ Central	North/ South	South/ West	North/ South	Belgravia	Baysville Cambridge	Vincent Berea	South
1. Reason for choice of flat:										
Accessibility:										
Near amenities	43	36	29	12	24	18	25	15	31	20
Near school	0	0	0	0	3	2	1	3	0	0
Near work	10	22	0	12	6	14	12	3	19	0
Neighbourhood:										
Adequate shopping facilities	7	0	0	4	1	1	1	0	4	0
Socially pleasant	0	7	11	12	12	16	3	20	4	20
View	0	0	17	2	0	0	0	12		
Dwelling Unit:										
Appropriate size	20	9	6	16	25	24	17	31	17	20
Low rental	17	26	31	34	27	22	28	0	25	60
Adequate facilities	3	0	6	8	2	3	3	16	0	0
2. Proportion dissatisfied:	40	57	0	31	44	33	26	36	25	50
3. Reason for dissatisfaction:										
Accessibility:										
Too far from amenities	0	0	0	0	0	0	0	23	0	0
Too far from work	0	0	0	14	0	0	0	0	0	0
Neighbourhood:										
Inadequate shopping facilities	0	0	0	8	0	0	0	7	0	0
Socially unpleasant	0	13	0	0	0	6	0	0	0	0
Noisy	19	40	45	30	17	37	26	27	37	50
Dwelling unit:										
Too small	19	33	0	13	26	0	25	6	38	0
Too big	0	0	28	0	0	0	0	2	0	0
Too expensive	0	0	0	0	0	6	7	6	0	0
Inadequate facilities	50	0	0	9	4	16	5	0	0	0
Bad maintenance	12	14	27	13	40	30	37	17	25	50

7.13 Specific Recommendations.

Having established overall priorities, it is possible to examine at a more detailed level within each apartment area, the stressors as indicated by residents in each natural area and where local planning should be concentrated. The distinct advantages as perceived by heads of households to characterise apartment life in each natural area may then be capitalised on, and attempts made to reduce the major disadvantages reflected in the stressors listed so as to increase the attractiveness of the apartment natural area and reduce residential mobility. In this regard Table 20 will also be referred to, and should be consulted as each apartment area is considered.

7.131 The Central Cluster.

The main advantage of the Central cluster lies in the provision of adequate shopping facilities for residents as indicated by 23% of all city respondents (Table 19). In fact proximity to such amenities is cited by 43% of C.B.D. residents as primarily responsible for their choice of flat a significant finding as heads of household appear to be satisfied with their place of residence for all have lived in their present flat for over six years. The major criticism,cited by 50%,is in regard to inadequate provision of other facilities especially garaging which could be partially overcome by making multistorey parking garage space available to central cluster apartment dwellers at special long term rates. The entire replanning of the C.B.D. is under consideration by the Municipality and improvement of the overall environment should take into account the possible attractiveness to high density residential development by provision of open space and other amenities.

In North End where the mobility rate is highest for East London apartment residents (57% wanted to move and 43% had only lived there for less than four years), the stress was from neighbourhood noise in 40% of cases, small size of flat from 33% and the socially unpleasant neighbourhood from 13% of household heads. Despite these disadvantages 26% of North

End residents had been attracted by the low rentals and 22% because the area is close to their work. Residential planning in the Central cluster should therefore concentrate on North End where comprehensive redevelopment is most urgent. Fortunately the Municipality associated with the Department of Community Development is presently concerned with this task and intends to leave the area as primarily a low income, light industrial/service area. Demolition should be carried out where necessary as 14% of respondents complained of bad repair to buildings. Although some of the families will be rehoused in the low cost municipal apartment schemes elsewhere, the majority will no doubt wish to remain near work places. Plans should therefore include building apartment blocks which contain low cost flats primarily with three living rooms but also some four roomed flats as there are presently none of this size located in the area. In this manner the family orientated structure of residents in the area can be retained. Further detailed planning improvements such as the provision of an integrated shopping centre, and the provision of adequate recreational and open space facilities are contained in the development plans already drawn up for the area by consultants. In addition attempts to alleviate street noise through attention to social requirements should be coupled with re-organisation of through traffic so that it bypasses the main residential complexes.

7.132 The Quigney Cluster.

Analysis indicates that in all natural areas in Quigney 30% of residents chose their flat because of low rentals and 21% because of proximity to amenities. In the medium status area, near the railways and harbour an additional 12% chose their flat due to proximity to work (Table 20). In addition, 17% of the high status residents chose their flat for the attractive sea views and socially pleasant environment. Planners should be advised to consider these as the chief advantages of the area for future apartment block location.

Any residential development programme in Quigney should start in the low status natural area which corresponds with the area in which 40% of residents felt stresses derived from poor maintenance of buildings. The dissatisfaction is reflected in that 44% of residents in the low status natural area wanted to move and 34% had lived there under two years. Later projects could spread to the outer medium status areas where only the most delapidated blocks would be demolished and others renovated where possible. In order to reduce neighbourhood noise traffic flow should be channalised and new apartment blocks located away from the major roads on residential streets and not too close to retail outlets. The present lack of open space is partially counteracted by the beach recreational facilities and could presumably be improved in future by renewal plans incorporating the provision of open space and community centres.

Development must contain low cost flats for 30% of residents are attracted by the low rentals. However the sites with the best views can be capitalised on by high rise apartment blocks to provide the maximum number of smaller flats, predominantly with two rooms as 28% of residents in the high status natural area commented that the flat was too big. In this regard, the height restriction of six storeys, presently enforced in the Quigney area should be removed, and present land areas consolidated to allow more intensive, rational land use for apartment block development.

7.135 The Southernwood/Belgravia Cluster.

Although 24% of respondents chose their flat because of its appropriate size and the social environment was found to be pleasant by 16% of respondents, there is a high overall rate of mobility which reaches 30% in Southernwood/Belgravia, notably in the high status areas where 33% of the respondents indicated the desire to move and 29% had only been resident under two years. The reasons for this were chiefly neighbourhood noise, cited by 37% of respondents, badly maintained buildings (30%) and inadequate facilities in the flat (16%). Choice of flat in Belgravia was influenced by low rentals in 28% of cases and proximity to amenities

by 25%. These features together make for greater residential stability than in the high status areas (as 81% of the sample had lived in Belgravia for over six years). The chief stressor in Belgravia was bad maintenance of flats in 37% of cases, besides neighbourhood noise in 26%, and smallness of flats in 25% of the cases.

Apartment block developers should therefore capitalise on proximity to amenities and schools (which appear to be adequate to serve the needs of the population) and concentrate on attracting residents on a more permanent basis by reducing stressors of inadequate facilities in the flat, and keeping the blocks well maintained especially in Belgravia. In Belgravia new developments should include provision of lower rental flats associated with demolition of some of the older blocks to make way for apartment blocks with three or four roomed flats as 25% complained of small flats. In addition location of new blocks away from Oxford street would reduce traffic disturbances.

The noisiness noted in the high status neighbourhood may in part be due to the chronic shortage of open space in Southernwood/Belgravia where there are only two parks (Figure 11). A positive approach to the problem is being used by the City Council for two other areas of similar size are in the process of being purchased. The one of four blocks in extent is between St Peter's and St George's Road, opposite Gordon Road. The other is at the intersection St Marks, St James and Gordon Road. Further future open space is also planned between St Marks, St Lukes and Belgrave Roads and Belgravia Crescent to provide for the recreational needs of the increasing density of population.

7.134 The Scattered Apartment Areas.

In the scattered group, proximity to amenities is generally regarded as important in selecting a flat, especially proximity to work in the Vincent/Berea area. The main stressors among these apartment residents are neighbourhood noise, directly associated with the advantages of their arterial routes and business focus location.

In the high status Baysville area 31% of residents are attracted by the appropriate size of flat and its facilities, 20% by the socially pleasant environment and 12% by the attractive views. However, these advantages are counteracted by distance from amenities as noted in 23% of cases and the inadequate shopping facilities, noted by 7%. It is suggested that future scattered development should capitalise on the high status character and existing advantages, but pay careful attention to provision of amenities. New apartment blocks should not be located too close to arterial roads to prevent disturbance by traffic noise, and thus reduce the main stressors noted by residents while maintaining the advantage of good mass transportation links with the C.B.D. Future construction in Vincent/Berea should provide larger flats possibly those with four living rooms as the smallness of flats was noted by 38% of residents who were family oriented.

The micro approach to the locational preferences and satisfaction levels of residents forms a sound basis for comprehensive replanning of the apartment sector in East London. Grossman (1966) points out how little attention is being given to comprehensive planning of apartment block location within the community context in Montgomery county, United States, and the same is presently true in the case of East London to a certain extent. In this regard zoning regulations should not be too restrictive so that present trends of suburban apartment growth can develop freely. Planners should therefore act on priorities, plan with favourable existing trends in mind and eliminate the cause of stress in the manner suggested.

7.2 Conclusion.

The study of apartment areas in East London has shown that the concept of natural areas provides a useful tool in the analysis of residential patterns. The most significant finding is that with use of multivariate techniques ecological natural areas of similar types of people living in similar morphological environments have been shown to exist within each of the major apartment clusters and also within the scattered blocks.

Although morphological subareas are not clearly recognisable due to the considerable variation within each apartment cluster, the morphological core/periphery subdivision, particularly in the Central and Southernwood/ Belgravia clusters, largely supports the natural areas boundaries. The Quigney core area overlaps part of the high, medium, and low status natural areas suggesting that the cluster is in an active state of development. Morris and Mogey's (1965) suggestion of a decreasing correspondence between social and physical groupings in society therefore does not seem to be directly applicable in East London.

Although the first factor revealed by the statistical analysis only accounted for a disappointingly low (17,7%) of the total variance, it provided a basis for differentiating between different parts of each apartment area. When the characteristics of these defined natural areas are considered, however, very marked differences emerged at all levels, suggesting that ecological processes are operating, and that distinct natural areas do in fact exist. On this basis therefore future residential development associated with the expected industrial growth in the city should involve planning of the apartment sector based on micro patterns of the natural areas which have emerged in this study. If this is done it may be expected that the residential structure of apartment areas will evolve in a balanced fashion and existing patterns will become more firmly established through time. By following trends in this way, development costs will be minimised and the residential environment made more pleasant, a feature which may serve to attract more people to live in multi-family dwellings and make the concept of high density living more acceptable to South Africans.

On the macro scale it is found that the spatial distribution of apartment blocks and the socio-economic differentiation within the major apartment clusters supports Berry's (1971) integrated spatial model of a combination of distance zones and sectors. This finding confirms the postulates in Chapter three regarding the character of residential areas in East London. The pattern based on natural area characteristics therefore,

has evolved as a result of the operation of ecological and economic processes within the constraints set by zoning regulations. This type of legislation has resulted in a generally clustered spatial pattern as opposed to the more scattered nature of apartment area development found by Bourne in Toronto. The individual clusters are arranged in a distance and direction pattern outwards from the city core, each cluster having distinct characteristics which reflect in morphological, familial, and economic status the underlying processes that have led to the evolution of the natural areas. Overall the inner residential zone is contrasted sectorally into the northern medium to high status Southernwood/Belgravia cluster and the eastern low to medium status Quigney cluster (Figure 15). Although differences are far more marked by distance zone than by sector, the medium status scattered blocks may be regarded as forming a sectoral extension of the medium to high status Southernwood/Belgravia sector (Figure 16).

Thus all apartment blocks within the CBD boundary and within the morphological core area of the Central cluster are located above businesses in a mixture of medium rise and older low rise blocks. Apartment blocks in the inner residential zone are mainly low rise (only 12% have four or more floors), small (73% have under 12 flats), and chiefly medium to old, for 76% are over 16 years and 36% over 30 years. This zone contains a number of apartment blocks in a poor to very bad condition as is characteristic of North End. Apartment blocks in the outer residential zones are all low rise for 83% have two floors and 17% three floors and 16% are less than 15 years old.

It appears that economic processes as suggested by Ratcliffe (1949) have operated to give rise to these spatial patterns of morphological characteristics. The 87.5% of apartment blocks which are located within the inner and central residential zone confirms that centripetal forces, as hypothesised by Colby, dominate in East London. Although 36% of all the blocks less than 16 years old are located in the outer residential zone there is little real evidence that clustering of apartment blocks in central East London has been inhibited by considerable suburban

apartment growth as Neutze found in the United States. Evidently because high density accommodation gives the largest return per unit area, the speculative apartment developers are the most successful residential bidders for the more expensive sites close to the CBD, but as very few apartment blocks have been built outside the municipal area, centrifugal forces have not yet caused marked sprawling of apartment areas. To a limited extent only therefore the scattered apartment blocks reflect the decentralised apartment growth of suburban blocks typical of North American cities. In addition the centripetal economic determinating process also operates in these decentralised suburban apartment blocks for they are predominantly concentrated at local foci which form neighbourhood shopping centres, or clustered along major arterial routes or at locations where maximum advantage can be taken of scenic views. This finding agrees with Bourne's hypothesis regarding the spatial control of accessibility on apartment block location.

It is clear from the analysis that certain familial characteristics also typify residents of apartment clusters in different localities and the distance zones already broadly defined on the basis of morphological character are occupied by residents who have distinctive familial characteristics. In the CBD the familial structure of residents largely contradicts the findings of other studies including Abu Lughod's 1960 Toronto survey of central city apartment dwellers who were classified as mainly consumer oriented. Certainly, proportionately more widows (42%) of which 60% live in the CBD, and divorced/separated persons (8%) live in the central cluster than in the inner residential areas where only 27% are widows and 3% divorced or separated. However, 42% respectively of apartment dwellers in the central cluster are married and widowed and are not single residents as postulated. In fact proportionately twice as many single residents live in the inner areas (16%) than in the central area, where the corresponding figure is 8%. Neither are the married centrally located residents in the pre-child period (only 9%) but 50% are

in the post-child period and are likely to be attracted by proximity to the CBD, but hardly by the meagre cultural attractions of the central city. Furthermore in East London's central area, residents have over three times as many school children (33%) as those in the inner residential areas (4%) because 25% of residents are in the child rearing stage. As expected, from the above only child-bearing household heads are absent in the central areas, but 24% in the inner residential areas are in the child bearing stage of life cycle and therefore the inner zone has proportionally more pre-school children (13%). In contrast apartment block residents in the outer suburban zones are the family oriented households for 69% are married and are in all stages of the life cycle, agreeing with findings elsewhere in the world. This may be due to the larger proportion of three (46%) and four (42%) roomed flats, and the better condition of yards for 40% are classified as in very good condition. Less crowded conditions may facilitate child rearing and may make the area attractive to families not able to afford single family housing.

Economic status of apartment dwellers also shows similar zonal variation as suggested by Burgess (1925). The Central cluster is generally characterised by residents earning the lowest incomes for 84% earn less than R300 per month; the generally medium income ranges are found in the inner residential areas where 46% earn over R300 per month and the highest incomes are recorded in the scattered areas where 73% earn over R300 per month.

Together the familial and economic status patterns which indicate the process of filtering as postulated by Hoyt, appear to be broadly operative in East London. The oldest apartment blocks are within deteriorated parts of North End and Quigney where low income apartment dwellers predominate. Some of the older apartment blocks within the inner residential areas, especially in parts of Southernwood/Belgravia are now occupied by medium income groups though the size of flat suggests they were originally prestigous residences. The highest income apartment

dwellers have generally elected to live in parts of Southernwood and the scattered apartment blocks furthest from the city centre.

From the patterns of new apartment block development it is evident that Bourne's theoretical outline of spatial controls behind apartment block location also operates in the East London apartment sector. The lower levels of East London's economic development, which in turn affects the housing stock, would seem to have influenced the characteristics and distribution of apartment block construction which is less intensive than in Johannesburg where the larger 15 to 20 storey apartment blocks are concentrated in highly localised areas. The quality of local building stock and environmental characteristics has affected developer's evaluation of location alternatives. In this regard the low to medium status apartment block residents in Quigney and the Central cluster, associated with a lower quality morphological environment, encourages present speculators to locate new blocks in Southernwood/Belgravia or the scattered areas preferably. In addition, site characteristics are such that speculators prefer those larger sites on flat land which are more suited to apartment block construction in Southernwood/Belgravia, or the outer residential areas. After renewal in Quigney, the attractive environmental characteristics of the sea aspect, stimulated by the tourist function of the area should possibly attract apartment block development to locate in this area. As there is at present a low cost housing shortage in East London (Daily Dispatch August 10, 1973) it is not surprising that the demand for low cost rent-controlled flats will continue until alternative housing opportunities develop within the urban area. The demand for specific ownership characteristics will no doubt remain concentrated in the rental market, which will support the present trend towards building larger company owned apartment blocks. To what extent private ownership of flats will affect the trend remains to be seen. Zoning will no doubt remain and as Bourne stated, can be expected to increase the segregation of apartment areas from the

contextual environment, a characteristic which does seem to be the case so far as the apartment component of the residential system has been considered in this project.

It is hoped that the study has contributed to the knowledge of the nature of apartment area development in East London, and that the concept of the natural area may be utilized to encourage apartment area development as a rational means of halting low density sprawl while at the same time helping to fulfil white housing requirements. Because the apartment component should be seen in the context of its role within the residential system, future research into the major dimensions of socio-economic variation within the city as a whole is urgently required. Present findings could then be placed in perspective within the total residential system.

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APPENDIX A

APARTMENT BLOCK CHARACTERISTICS

1. Municipal Records.

Name of block .....

Address.....

Name of owner .....

Erf number .....

Total Rateable Valuation R.....

Building Valuation ..... R.....

Site Valuation ..... R.....

Total land area ..... sq. m.

Total building area ..... sq. m.

Number of flats .....

Number of floors .....

Age of building ..... years

Median Rental..... R.....

Above businesses ..... Yes/No

Other .....

2. Field Sheet

1. Roofing material:

Iron	☐
Concrete	☐
Slate/tile	☐
Asbestos	☐

2. Construction material:

Plastered Brick	☐
Face Brick	☐
Combination of both	☐

3. Condition of outside of building:

Very good	☐
Good	☐
Fair	☐
Poor	☐
Very bad	☐

4. Condition of yard:

Very good	☐
Good	☐
Fair	☐
Poor	☐
Very bad	☐
Nil	☐

5. Access:

Stairs only	☐
Lift and stairs	☐

6. Number of garages .....

7. Number of servants quarters .....

APPENDIX B

QUESTIONNAIRE

RHODES UNIVERSITY

DEPARTMENT OF GEOGRAPHY

Socio-economic characteristics of residents in East London flats, June 1974.

CONFIDENTIAL

Address of interviewee .....

Date of interview .....

Sample code and group.....

Result:

	1
Contact	0
Non-contact	1
Refusal	2
Incomplete	3

1. Physical details of flat:

(a) Number of living rooms:

	2
One	0
Two	1
Three	2
Four	3
Five	4
Six plus	5

(b) Number of bathrooms:

	3
One	0
One and a half	1
Two	2
Three	3

(c) Number of entrances:

	4
One	0
Two	1

(d) Is there a utilities/ storage room? 5

Yes	0
No	1

(e) Is there a balcony? 6

No	0
Open	1
Closed	2

2. Flat ownership:

Do you own/rent this flat? 7

Own	0
Rent	1

If rented:

(a) is it furnished or unfurnished? 8

Furnished	0
Unfurnished	1

(b) Rental per month: 9

Under R20	0
R20 - R29	1
R30 - R39	2
R40 - R49	3
R50 - R59	4
R60 - R69	5
R70 - R79	6
R80 - R89	7
R90 - R99	8
+ R100	9

(c) Is it under rent-control? 10

Yes	0
No	1
Don't know	2

3. Characteristics of head of household:

(a) Marital status

11

Married	0
Single	1
Separated/Divorced	2
Widowed	3

If married:

(i) Number of dependent children:

12

None	0
Pre-school	1
At school	2
Left school but not yet working	3

(ii) Number of dependent children:

13

At boarding school/ university	0

(b) Home language of head of household:

14

English	0
Afrikaans	1
Other (specify)	2

(c) Age of head of household:

15

Years:	Male	Female
Less than 23	0	5
23-33	1	6
33-43	2	7
43-53	3	8
53 +	4	9

(d) Educational level of head of household:

16

	Male	Female
Passed Std. 6	0	4
Passed Std. 8	1	5
Passed Std. 10	2	6
Post Matric.	3	7

(e) Occupation of head of household: 17

Professional	0
Administrative	1
Clerical worker	2
Sales worker	3
Primary (farmer,etc)	4
Transport	5
Craftsman,labourer	6
Service (Government etc)	7
Retired	8
Other (specify)	9

(f) Income per month of head of household: 18

Under R100	0
R100 - R199	1
R200 - R299	2
R300 - R399	3
R400 - R499	4
R500 - R599	5
R600 - R699	6
R700 - R799	7
R800 - R899	8
R900 +	9

4. Residential characteristics:

(a) Number of persons permanently resident in the flat? 19

One	0
Two	1
Three	2
Four	3
Five	4
Six plus	5

(b) Do you have a car for private use? 20

None	0
One	1
Two plus	2

If so, what parking facilities do you use? 21

Flat garage	0
Other hired garage	1
Street	2
On site parking	3

(c) Do you have a servant? 22

None	0
Half (p.t.)	1
One	2
Two	3
Three plus	4

If so, is there servants' living quarters? 23

Yes	0
No	1

5. Satisfaction level of residents:

(a) What type of accommodation did you have immediately prior to this flat? 24

First time on own	0
Hostel/Hotel/ Boarding house	1
Flat	2
House	3

(b) What was your initial reaction to life in a flat? 25

Like	0
Dislike	1
Indifferent	2

(c) What is your present reaction to life in the flat? — 26

Like	0
Dislike	1
Indifferent	2

(d) How long have you stayed in your present flat? — 27

Under 1 year	0
1 - 2 years	1
3 - 4 years	2
5 - 6 years	3
Specify	4

(e) How long have you lived in East London? — 28

Under 1 year	0
1 - 2 years	1
3 - 4 years	2
5 - 6 years	3
Other: specify	4

(f) Reasons for choosing present flat (3 main reasons in order). — 29

Accessibility:	Near amenities	0
	Near schools	1
	Near work	2
Neighbourhood:	Adequate shopping/ recreational facilities	3
	Socially pleasant	4
Dwelling unit:	Appropriate size	5
	Low rental	6
	Adequate facilities	7
Other:	Specify	8

(g) Do you want to move? 30

Yes	0
No	1

If wanting to move,

(i) give three main reasons in order: 31

Accessibility:	Too far from amenities	0
	Too far from schools	1
	Too far from work	2
Neighbourhood:	Inadequate shopping/ recreational facilities	3
	Socially unpleasant	4
	Noisy	5
Dwelling unit:	Too small/big	6
	Too expensive	7
	Inadequate facilities	8
	Bad maintenance/ repair	9
Other:	Specify	10

(ii) give type of future accommodation desired? 32

House	0
Flat	1
Boarding house/ Hotel	2
Other	3

APPENDIX C

PRINCIPAL COMPONENTS ANALYSIS

Variables used to measure:

I. Physical characteristics of apartment blocks.

1. average total Rateable Valuation.
2. average total building area.
3. % blocks 1-6 flats.
4. % blocks over 12 flats.
5. average age of block.
6. % blocks above shops/factories.
7. % concrete, slate or tile roofing.
8. % face brick or combination material.
9. % good/very good exterior.
10. % blocks poor/very bad exterior.
11. % blocks 1 - 4 garages/carports.
12. % blocks over 8 garages/carports
13. % blocks with over 3 floors.

II. Physical characteristics of each flat.

14. % flats 1 - 2 living rooms.
15. % flats with 4 - 5 living rooms.
16. % flats with rental below R50.
17. % flats with rental over R80.

III. Socio-economic characteristics of apartment dwellers.

18. % married residents.
19. % single residents/widows/divorcees/separated persons.
20. % households with children.
21. % heads of households Afrikaans speaking.
22. % heads of households between 23-33 years.
23. % heads of households between 43-53 years.
24. % heads of households achieved standard 6-8.
25. % heads of households achieved matric/post matric.
26. % heads of households professional/administrative occupations.
27. % heads of households clerical/sales work occupations.
28. % heads of households transport/craftsmen/service occupations.
29. % heads of households retired.
30. % heads of households with income under R200.
31. % heads of households with income over R600.
32. % heads of households owning a car or more.
33. % heads of households parking on site/street.
34. % flats with one resident.
35. % flats with 4-5 residents.
36. average distance from P.L.V.I.